

Flat ontology and geography

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Abstract

Human geographers are increasingly drawing upon a range of philosophical positions that espouse a more or less flat ontological approach for theorising a range of phenomena. These approaches differentiate between entities in terms of degree rather than kind in order to avoid essentialist, hierarchical or binary modes of thought. To achieve this, they understand the differences between entities as relational. Building upon these perspectives, this article offers a flat ontology that differentiates between things according to their form, which can be identified through a process of de-determination. The concepts of form and de-determination offer a supplement to existing flat ontological approaches by accounting for the difference of entities in terms of where their qualities begin and end as well as their location within a particular set of relations. To demonstrate how the concept of form and de-determination can be applied, I turn to the example of the legal and regulatory debates in the US around the difference between semi-automatic and automatic weapons that have arisen through the development of bump stocks: weapon accessories that allow semi-automatic rifles to mimic fully automatic fire.

Keywords

assemblage, affect, event, encounter, flat ontology, network, relation

Introduction

Human geographers are increasingly drawing upon a range of philosophical positions such as Actor Network Theory (ANT) (Latour, 1994, 2005), assemblage theory (DeLanda, 2002, 2006, 2011, 2016), practice theory (Cetina et al., 2005; Schatzki, 2016) and theories of affect (Clough, 2000; Gregg and Seigworth, 2010; Massumi, 2002), which espouse a more or less flat ontological approach for theorising a range of phenomena. These positions differentiate between entities in terms of degree rather than kind in order to avoid hierarchical or binary modes of thought. Working with these perspectives, geographers theorise entities as relational (Malpas, 2012), while differing in exactly how they define what relationality is. Reflecting on the

similarities and differences in human geographical accounts of relationality, the paper argues for an additional kind of flat ontology, which it terms a flat ontology of form. This flat ontology defines form as the negative of an entity, which is distinct to every thing (Garcia, 2013, 2014) while also accounting for how entities are relational in terms of the way they comprehend one another (Ash, 2020).

The key impetus for producing a flat ontology of form is to respond to critiques that suggest flat ontologies can result in an ‘an undifferentiated

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concept of being' (Morelle, 2016: 463), which leaves them unable to judge the 'great inequality of things' (Durham Peters, 2015: 30). In short, many flat ontologies argue that flattening entities onto an equal, relational level can be achieved 'without rendering the relating entities symmetrical or equal' (Woodward et al., 2015: 503). However, in order to achieve this, the 'great inequality' (Durham Peters, 2015: 30) of entities tends to be judged within a 'radically particularist' (Anderson et al., 2012: 183) event of encounter. In doing so, the contingency of events can be over-emphasised (Simandan, 2010), which can make analytical claims and political judgements about what an entity is or does outside of a specific network, assemblage, event or encounter difficult. The key claim of this paper is that a flat ontology of form offers a way of differentiating between entities through a process of what can be termed de-determination (discussed in detail in section four and five), where the beginning and ending of an entity's qualities can be identified. In doing so, differences between entities can be accounted for without reducing these differences to the product of a particular set of relations, or by returning to essentialist or binary modes of thinking.

In order to demonstrate how Garcia's notion of form enables an alternative way of differentiating between entities and provides an additional means of thinking flat ontology, the paper analyses the legal and regulatory issues in the US around gun accessories called bump stocks. Bump stocks are aftermarket devices that allow semi-automatic rifles to mimic automatic fire. Bump stocks constitute the key example in the paper because they are a socially contested object whose contestation revolves around how categorical differences between entities are decided. In relation to bump stocks, this difference is a matter of whether their addition to another object (a semi-automatic rifle) alters the definition of that thing from one category (a rifle) to another category (a machinegun). The example of bump stocks therefore offers a concrete case to think through the analytical and political implications of current flat ontologies that are utilised in human geography and how an account of form might offer another way of attending to such things.

To make these claims, the rest of the article forms five parts. Section two demonstrates that a variety of theoretical perspectives that inform and have been developed within human geography could be understood as variants of flat ontology. Section three turns to the example of legal and regulatory debates in the US around the difference between machineguns and semi-automatic rifles that have emerged in response to the development of bump stocks. In turn, section three discusses how the different flat perspectives discussed in section two might differentiate between a semi-automatic rifle equipped with a bump stock and a machinegun. Section four develops Garcia's account of form and section five outlines how to analyse the form of bump stocks via the concept of de-determination. Finally, the conclusion reflects on how the paper's arguments inform broader debates around relational ontologies in human geography.

Flat ontology and human geography

Within human geography, the term flat ontology is often associated with the work of Marston, Jones and Woodward, who suggest:

flat ontologies consist of self-organizing systems... where the dynamic properties of matter produce a multiplicity of complex relations and singularities that sometimes lead to the creation of new, unique events and entities, but more often to relatively redundant orders and practices (Marston et al., 2005: 42).

For Marston et al., flat ontology is utilised to avoid theorising scale as a hierarchy where it is assumed that 'geographically more extensive scales dominate smaller scales' (also see Collinge, 2006; Leitner and Miller, 2007: 117). More specifically, Marston et al. suggest flat ontology offers an analysis of:

differential relations that constitute the driving forces of material composition and that problematize axiomatic tendencies to stratify and classify geographic objects; and a focus on localized and non-localized emergent events of differential relations actualized as temporary – often mobile – 'sites' in which the 'social' unfolds (2005: 423).

Reading across the work of Marston, Jones and Woodward (e.g. Jones et al., 2007; Marston et al.,

2007; Woodward et al., 2012, 2015), two aspects of their flat ontology can be emphasised.

First, flat ontology is an approach that attempts to break down classificatory schema used in human geography, particularly those forms of classification that result in hierarchical or binary modes of thinking (such as the distinction between global and local). In their words, flat ontology works ‘against the deployment of forms or categories that operate by carving up the world into a delimited set of manageable object-types’ and instead looks to ‘unfolding state of affairs within which situations or sites... as a collectivity of bodies or things, orders and events, and doings and sayings... hang together’ (Martson et al., 2007: 51).

Second, to avoid hierarchical or vertical forms of classification, flat ontology focuses on relations of coming together in terms of a Deleuzian notion of the event in order to define and differentiate between entities and their associated space-times. Here ‘the actuality of any site is always poised for compositional variation – subject to reorganizations and disorganizations – as its inexhaustible “virtuality” or potential continually rearticulates itself’ (Jones et al., 2007: 265).

Marston and colleagues’ theoretical development of flat ontology, alongside associated terms such as site ontology (Woodward et al., 2010), have been drawn upon by other geographers to investigate a range of phenomena. For instance, children’s geographers, such as Aitken and Plows (2010: 329), have utilised the term to suggest border spaces can be understood as ‘complex, emergent spatial relations’, rather than as fixed terms or locations. Or, Springer (2014) uses the term to think through an anarchist politics in relation to political geography, where ‘flat ontology... means that we do not need to wait for some ostensible “higher-order importance” and “broader forces” to lend legitimacy to the idea they we can resist... alienation’ (Springer, 2014: 409).

Martson et al.’s development of the term flat ontology in geography is undoubtedly important. At the same time, outside of geography, there are other definitions of flat ontology. Indeed, as Harman (2011) suggests, in philosophy the term flat ontology, in its modern usage, can be traced back to the

work of Bhaskar (1978) and its later redeployment by DeLanda (2002), which Marston et al. (2005) draw upon in their own theorisation of flat ontology. For Harman (2011: 177), Bhaskar used the term flat ontology as:

a polemical term. Namely, he used it to refer to theories that flatten the world into its accessibility to human observers; it was a dismissive phrase aimed at positivism, not a flattering description of realism. The meaning of the phrase was reversed... by... Manuel DeLanda. For DeLanda, ‘flat ontology’ simply means that all entities must be treated alike. That is to say, it is an anti-reductionist term, such that armies, cities, and herds of cattle might be just as real as steel girders and atoms of potassium. ‘Flat’ has now reversed its meaning: rather than referring to a world without levels in which everything inhabits the realm of human consciousness, it means instead a world in which all levels are on the same playing field.

From this broader viewpoint, a range of theoretical perspectives that are popular in geography could be said to be types of flat ontology as defined by DeLanda, such as ANT (Latour, 1994, 2005), assemblage theory (DeLanda, 2006, 2011, 2016) and work on affect (Massumi, 2002). For instance, ANT could be said to be a flat ontology because, as Murdoch (1997: 738) usefully summarises:

The idea of... networks... introduces... [a]... means of dissolving the dualism between the ‘natural’ and ‘social’ realms, for the properties of all the enrolled entities seem to derive from their respective positions within the network. All become subject to the same processes of network formation (essentially all come to be aligned within relations of power). Thus natural and social actors seem to come into the networks as malleable beings.

In a similar manner, assemblage theory explicitly follows from DeLanda’s (2016) flat perspective. This is evidenced by geographers such as Anderson et al. (2011: 124) when they emphasise that, ‘assemblages are composed of heterogenous elements that may be human and non-human, organical and inorganic, technical and natural’, with the explicit focus

of assemblage theory being ‘part of a more general reconstitution of the social that seeks to blur divisions of social-material, near-far and structure-agency’ (2011: 124).

Geographical work that draws upon the writing of Deleuze (1988) and Massumi (2002) to develop theories of affect (e.g. Adey, 2009; Bissell, 2010; Budd and Adey, 2009; Dewsbury, 2012; Kanngieser, 2012; Sharpe et al., 2014; Shaw, 2014) could also be considered flat, in the sense that affects are not distinguished into binary categories, or types of affect. Rather, affects are said to precede and underlie such terms. As Anderson (2006: 736) writes,

The emergence of affect from the relations between bodies, and from the encounters that those relations are entangled within, make the materialities of space-time always-already affective . . . affect takes place before and after the distinctions of subject-world or inside-outside.

Such perspectives are united in that they tend to reject the categorisation of entities into ontological hierarchies, units, sets or groups that would distinguish things as fundamentally different from one another. As Roberts (2014: 969–970) puts it, such flat ontological positions work to ‘rethink understandings of agency, relation, and life without recourse to well-worn lines of ontological cleavage – whether human-world, organic-inorganic, or thought-matter’ – where the explicit aim of such an approach is ‘to dissipate the . . . binaries of life/matter, human/animal, will/determination and organic/inorganic’ (Bennett, 2009: x), which leads to a call that all objects are given the same ‘ontological status’ within analysis. In turn, the key political and ethical impetus for the development of such positions is that forms of ontological categorisation or hierarchy have historically enabled various kinds of political and ethical violence to be enacted against the variety of humans and non-humans considered to be at the bottom of the hierarchy or on the other side of the binary (Bear, 2011; Calarco, 2008; Lorimer, 2007; Wolfe, 2012). Flat ontologies are thus considered an antidote to such violent forms of distinction, because they point to the interconnected, relational nature of entities that cannot be

distinguished from one another through some pre-existing category. While these positions are united in their focus on relationality, how they differentiate between entities differs depending on how they theorise and conceptualise what relationality is.

Geographers’ engagement with ANT, for example, has resulted in accounts where entities are differentiated according to how they are enrolled into various ‘translation processes’ (Murdoch, 1997: 737). Here, entities are distinct from one another in the sense that each entity is part of a specific ‘stabilised sets of relations which allow the construction of centres and peripheries, insides and outsides, humans and nonhumans, nature and society, and so on’ (Murdoch, 1997: 743). From this perspective, differentiation is only the end result of a chain of translation and cannot be understood from the outset. In Hitching’s (2003: 108) work on the geographies of gardens, for instance, this is expressed in how they differentiate between wanted and unwanted plants in the garden by tracing how these terms enter into chains of enrolment between humans and non-humans, where the ‘status of both the gardener and the plant was something that was decided collectively’ (2003: 108). Here, relationality is figured as a matter of translation, where any entity changes as it is connected to, or passes through, a set of relations with other entities (Thrift and Bingham, 2001).

In geographical work developing assemblage theory, differentiation between entities has been accounted for in terms of emergence and contingency. Here assemblage theory is both linked to, and different from, ANT. As Müller and Schurr (2016: 217) suggest, both share:

a relational view of the world, in which action results from linking together initially disparate elements. Both emphasise emergence, where the whole is more than the sum of its parts. Both have a topological view of space, in which distance is a function of the intensity of a relation. And both underscore the importance of the socio-material, i.e. that the world is made up of associations of human and non-human elements.

However, while ANT focuses more on actual relations, assemblage thinking focuses more on

potential relations (Müller and Schurr, 2016: 220). A focus on potentiality results in a notion of object relations as emergent. As Anderson et al. (2012: 183) put it, 'assemblage thinking insists that that range of causal factors might have produced similar emergent forms, and in different conditions the same constituent parts might have produced different assemblages'. In other words, what differentiates one entity from another are not just chains of translation, but the contingent relations that an entity enters into, which always exceeds any particular chain.

In Anderson et al.'s (2012) example, for instance, it is not possible to define Omega 3 fatty acids as such, but only from within a particular assemblage, because 'particular fats operate in different ways within different bodies, sometimes producing unpredictable effects' (Anderson et al., 2012: 182). In other words, differentiating between entities is only possible within a relation with something else.

In a similar manner, geographers who have developed work on affect also suggest that any entity is also considered primarily in terms of what it can do, which is contingent on what it is related to. As Thrift (2004: 62) writes in relation to bodies, 'affect, defined as the property of the active outcome of an encounter, takes the form of an increase or decrease in the ability of the body and mind alike to act'. What differentiates one body or entity from another is therefore not what it is (e.g. human or animal), but what it can do, which emerges through a relation with other things. As Dawney (2011: 600) puts it, the 'concept of affect . . . undoes bodies and spaces as individualised entities and shows them to emerge as durational, relational processes through which intensities course'. In doing so, this results in a shift 'of focus away from subjects and objects as the focus of the social sciences towards the conditions of emergence of those subjects and objects' (Dawney, 2011: 600).

Like assemblage thinking, the concept of affect also focuses on change as a product of potentiality, rather than actuality. For instance, Anderson (2006) theorises potentiality through a Deleuzian concept of virtuality. As Anderson puts it: 'affect is bound up with the indeterminate movement of spacing and

timing . . . [which] . . . ties affect to the presence of virtualities that are folded into what has become actual' (2006: 737). In turn, 'movements of affect are always accompanied by a real but virtual knot of tendencies and latencies that generate differences and divergences in what becomes actual' (Anderson, 2006: 738, also see McCormack, 2003: 195; McCormack, 2008).

This focus on translation, emergence and capacity has resulted in many geographers influenced by such work to define entities themselves as events. For example, Lees and Baxter (2011: 110) define a building not as a thing, but, 'an event . . . [that] . . . arises from a set of particular forces . . . [where] . . . every event is a unique instant in a continual flow of changes (and becoming)'. Or as Wilson (2017: 458) argues in her work on multiculturalism, bodies are spatio-temporal and have 'emergent properties' that are 'actualized as a result of encounter'. Likewise, Roberts (2014: 971) argues that in relation to experimental art and technology practices, things are 'singular events constituting the process of reality, and not . . . expressions of anything more substantial'. Similar in some respects to the logics of assemblage thinking and work on affect, this notion of event produces an altered account of change, where 'that which endures is never "given" but instead is achieved as a provisional consistency' (Roberts 2014: 976) and maintained through continuing encounters or events that produce an appearance of stability or solidity.

In focusing on entities as events, geographers have argued that differences between entities comes to be made in and through these events, rather than preceding them (Cockayne et al., 2019; Dewsbury, 2000; Lees and Baxter, 2011; Roberts, 2014; Shaw, 2012). In the work of Wilson (2017), for example, particular bodies become differentiated from one another in public spaces, where 'difference is not fixed but rather emerges through encounters' (Wilson, 2017: 455 also see Valentine, 2008; Ye, 2016). In a similar manner, Closs Stephens (2015) differentiates between nationality and particular events where national sentiments are expressed. Here, 'national feelings cannot be traced back to a single sovereign source but rather emanate from multiple constituencies as part of a nebulous, diffuse

atmosphere' (Closs Stephens, 2015: 182). Or, in relation to sound, Gallagher (2016: 46) argues the difference between nuisance and non-nuisance noise is not defined in relation to the source of noise itself, but rather, 'arise[s] in situ, as vibrations and other non-acoustic forces impinge upon disparate collections of bodies, materials and technologies... in a way that unfolds difference'. In such geographies, as Dawney (2011: 600) puts it, bodies (in her case human subjects) are differentiated 'through a back-forming, a surface effect produced as a result of affective encounters', rather than bodies that simply precede those encounters.

In summary, all these positions are more or less flat and relational, but have different ways of accounting for relationality, which nonetheless can overlap and inform one another. Recognising these similarities and differences, the next section thinks through the analytical implications of these positions for differentiating between two entities: a bump stock equipped semi-automatic rifle and a machinegun.

A flat ontological analysis of a bump stock

Bump fire stocks are after-market attachments that allow semi-automatic rifles to mimic fully automatic fire. Bump stocks, while available to purchase legally in the US since around 2006, rose to prominence after the Las Vegas mass shooting on 1 October 2017. During this event, a white male, aged 64, opened fire from an elevated hotel window on the Las Vegas strip down onto the Route 91 Harvest country music festival, killing 58 people and injuring 851.¹ Out of the 14 rifles fired by the gunman in the shooting, 12 had bump fire stocks attached. The bump stock device replaces the rear stock and pistol grip of an AR-15 or AK style rifle and contains a spring, which allows the recoil from the weapon to push the trigger against the shooter's finger, enabling faster fire than without the attachment. The technical definition of a bump stock states that:

[bump stocks]... are designed to be affixed to a semi-automatic long gun (most commonly an AR-type rifle or an AK-type rifle) in place of a standard, stationary

rifle stock, for the express purpose of allowing 'rapid fire' operation of the semiautomatic firearm to which they are affixed. They are configured with a sliding shoulder stock molded (or otherwise attached) to a pistol-grip/handle (or 'chassis') that includes an extension ledge (or 'finger rest') on which the shooter places the trigger finger while shooting the firearm. The devices also generally include a detachable rectangular receiver module (or 'bearing interface') that is placed in the receiver well of the device's pistol-grip/handle to assist in guiding and regulating the recoil of the firearm when fired. These bump-stock-type devices are generally designed to operate with the shooter shouldering the stock of the device (in essentially the same manner a shooter would use an unmodified semiautomatic shoulder stock), maintaining constant forward pressure with the non-trigger hand on the barrel-shroud or fore-grip of the rifle, and maintaining the trigger finger on the device's extension ledge with constant rearward pressure. The device itself then harnesses the recoil energy of the firearm, providing the primary impetus for automatic fire (GPO, 2018: 13443).

After the Las Vegas mass shooting, news commentaries suggested an important link between the bump stocks used by the shooter and the total number of fatalities (McPhate, 2018). Specifically, the suggestion was made that the bump stocks used on the weapons increased the overall deadliness of the shooting because they enabled the shooter to fire bullets faster and with less discrepancy than if the shooter had used un-modified semi-automatic rifles only (Colburn, 2017).

One result of the Las Vegas mass shooting was a move by the US Justice Department to make bump stocks illegal to sell or own (Wing, 2018). To do this, the Bureau of Alcohol, Tobacco, Firearms and Explosives (ATF), which controls the regulation of firearms in the US, worked to re-classify bump stocks as machineguns, which are currently illegal. This move required that the ATF alter its interpretation of the legal definition of a machinegun. Machineguns are defined as weapons that fire multiple rounds with a single trigger pull. Bump stocks were originally classified as legal weapon attachments because the ATF considered that the movement of the lower part of the weapon against the user's

finger constituted multiple trigger pulls. A regulatory amendment, proposed in 2018, looked to classify bump stocks as machineguns by considering that each trigger pull of a bump stock fitted rifle actually fired multiple rounds. The ATF's rationale for this change is as follows:

[bump stock] . . . devices allow a shooter of a semiautomatic firearm to initiate a continuous firing cycle with a single pull of the trigger. Specifically, these devices convert an otherwise semiautomatic firearm into a machinegun by functioning as a self-acting or self-regulating mechanism that harnesses the recoil energy of the semiautomatic firearm in a manner that allows the trigger to reset and continue firing without additional physical manipulation of the trigger by the shooter. Hence, a semiautomatic firearm to which a bump-stock-type device is attached is able to produce automatic fire with a single pull of the trigger (GPO, 2018: 13442).

The question of whether bump stocks convert semi-automatic rifles into machineguns and therefore whether they should be legal or illegal is thus a question of how to differentiate between different types of entity, namely a semi-automatic rifle and a machinegun. More specifically, this involves distinguishing between what constitutes a single trigger pull and multiple trigger pulls and identifying the role that bump stocks play in initiating trigger pulls. These differences are not simply technical or discursive, but political in the sense that how these distinctions are made determine whether such entities are available to US citizens to own and, in turn, the events that might emerge through the ownership and use of these devices. As such, bump stocks provide a good example to think through the politics of differentiation that work through the flat ontological approaches discussed in the previous section.

If an ANT logic of translation was applied to the issue of how to differentiate between single and multiple trigger pulls, this might involve thinking about all the entities that must be brought together into a chain of translation for the trigger to be pulled at all. These entities might include the human body, hand and finger that holds the rifle and how the trigger ledge acts as a cushion for the trigger to rebound against the shooter's finger. In turn, this

might result in a position where the trigger pull itself cannot be located in a single component or source, but becomes a distributed effect between the trigger ledge, finger, hand and arm of the shooter and the 'self regulating mechanism' of the spring housed in the stock. Here a single trigger pull and multiple trigger pulls cannot easily be differentiated from one another as distinct types of action because the locus of action of the trigger pull itself 'must be shared among the various actants' (Latour, 1994: 34).

From an ANT position, it is possible to say that a bump stock device enables a machinegun type action or effect (a high rate of serial fire), but such a position would seem to have a much harder time in distinguishing between single and multiple trigger pulls. Indeed, without a clear way of differentiating between single and multiple trigger pulls, it would be hard to classify whether a bump stock equipped rifle is a machinegun or not, because the difference between a single trigger pull and multiple trigger pulls is secondary to the effect of the bump stock rifle in use. Here, the question as to what causes a serial fire effect remains a product of the relations between things, rather than innately tied to any of the particular components of the bump stock or rifle itself.

In a similar manner, it would seem difficult to differentiate between a bump stock equipped rifle and a machinegun utilising an assemblage perspective, given its focus on emergent casuality, where an entity is defined in terms of what it can do. From this position, an entity is part of 'a non-linear system-[where] . . . small disturbances can have massive effects' (Anderson et al., 2012: 182). As such, causality is not a simple relation between a single cause and a single effect, but 'multiple and indeterminate', 'meaning that the identification of mechanical causality results from "cuts" to the assemblage that reveal only specific interactions' (Anderson et al., 2012: 183). Furthermore, like work on affect, what a thing can do cannot be known ahead of time, because 'the agency of small components is often only revealed retrospectively in specific traces or as the assemblage is later stabilized, and indeed may remain hidden altogether' (Anderson et al., 2012: 182). In turn, such a position makes it difficult to assign particular parts of the assemblage (such as the

trigger ledge or rebound spring in the bump stock) any capacities or agency ahead of their event of use and so may make it difficult to differentiate between single and multiple trigger pulls.

Another way a geographer might attempt to differentiate between a single trigger pull and multiple trigger pulls would be to analyse the bump stock's capacities to affect and be affected. This might involve understanding how the trigger ledge affects the shooter's finger, or how the rebound spring in the stock affects the movement of the ledge against the trigger. From this perspective, each of these affects could be understood as the outcome or actualisation of an event of encounter, where affects emerge from a virtual state. Remembering that 'we can never predict what affects minds and bodies might be capable of ahead of any given encounter' (Wilson, 2017: 455), from this position, it might only be possible to state that a series of discrete trigger pull 'events' happened. These events involved encounters where the trigger ledge and finger affected the trigger and actualised the firing of a round, where each round fired was specific to the affective encounter between these components. If the contingency of each affective event is taken seriously, this might make it difficult to link each trigger event together to produce an account about whether one trigger pull and multiple pulls could be differentiated from one another.

Even if the affective capacity of the components that made up the bump stock were described as having a kind of 'affective memory' (Closs Stephens et al., 2017; Hitchens, 2019) that exceeded their event of encounter, it might still be difficult to define what a bump-stock equipped rifle could do ahead of its encounter with something else, as even this memory emerges and re-emerges 'precisely from the relationship between the eminent elements' (Hitchens, 2019: 6) in a given situation. From this position, the affective capacity of bodies and objects are still contingent upon an event, even if this event is not completely separated from other events in the past or the future.

As such, following the logic of an affective perspective, it might be difficult to differentiate between a bump stock equipped rifle and a machinegun, as each time the trigger ledge moves against the

finger could be classified as a distinct moment or event of relation (either through the memory of an entity with that entity in the present, or through that entity's relation with something else), which produced an affective capacity that enabled the weapon to fire. In other words, an affective approach to bump stocks could result in a similar analysis to the ATF's original classification of a bump stock equipped rifle as a semi-automatic weapon, because each movement of the trigger against the shooter's finger would be considered as a specific event and thus an individual trigger activation, rather than one, single, continuous trigger pull.

Despite the differences in the approaches discussed above, all work to differentiate entities in terms of their relationality. However, in emphasising the relational nature of entities, it can become difficult to understand what these entities are and what they do outside of particular events or moments. Strictly following the logic of these positions, it could be difficult to judge whether a bump stock equipped rifle is a machinegun or not. This can be limiting because the politics associated with the legality of bump stocks is not reducible to what the bump stock does in a particular relation of use, or as part of a particular assemblage or event, but revolves around what the bump stock is as an entity, which exceeds any one event or set of relations.

To complement and support the flat perspectives discussed above, the next section introduces the work of Garcia to develop a flat ontology that differentiates entities in terms of their form, identified through a process of de-determination. In doing so, a process of de-determination offers a way of differentiating between a bump stock equipped rifle and a machinegun in ways that can account for the bump stock's capacity to produce rapid fire through the relation between entities (e.g. the trigger ledge, a human hand, the sliding shoulder stock, etc.) without reducing this capacity to the relations between these entities alone.

Flat ontology and the form of entities

Garcia's account of form is based on his own flat ontology. It is flat in the sense that 'everything that is – even if it is vacuous, false, nothing or groundless

– is something’ (Garcia, 2014: 23). However, for Garcia (2014: 23), saying that everything is something is not enough – ‘the problem is understanding in what sense it is something’. To understand how everything is something, without reducing this something to a material whole, Garcia considers any entity as both a thing and an object, which is linked to both a formal world and an informal universe. The world is the condition of any particular thing, but is not itself a thing. As Garcia (2014: 76) puts it: ‘the world is precisely what is not something. The world has no other determination; it is neither material nor spiritual, neither logical nor symbolic, neither metaphysical nor sensible. The world is not something, full stop’. The world is thus a kind of negative of everything, but ‘does not have any form, since it is the form of each thing’ (Garcia, 2014: 77). This theorisation of world allows Garcia to consider all things as being equal, but separate from one another. The idea of separation is important for Garcia in order to avoid reducing things to the sum or product of their relations and thus reintroducing a holism where things themselves become ultimately indistinguishable. In order to explain how things are separate, but can also meet and contact one another, Garcia suggests that a thing is also an object. Whereas a thing is formally alone among everything it is not, it is objectively an object whose existence cannot be separated from other things it is part of or related to. In his words, when ‘a thing is in another thing, then it is an object... An object is a thing limited by other things and conditioned by one or several things’ (Garcia, 2014: 78). Garcia terms this set of interconnected objects a universe.

This distinction between world and universe leads to a dual model of entities as things (which exist in a world) and objects (which exist in a universe): ‘every thing has two configurations. The first is that a thing is an object insofar as it is comprehended in other things. The second is that a thing is a thing insofar as it is comprehended in something-other-than-a-thing’ (Garcia, 2014: 78). As such, objects come to be defined by the difference between their being, comprehension and form, with this difference generating the qualities that make an object appear in the way it does. ‘Being is belonging to something’, whereas ‘comprehending is having

something inside itself’ (Garcia, 2014: 107). For example, water is comprehended by a glass bottle, which gives it its being. Here, the being of the water could be understood as its particular qualities when it is in that bottle, such as its chemical composition, which changes as the temperature of the water meets the temperature of the glass encouraging oxygen to dissolve and form bubbles that adhere to the walls of the bottle. In this instance, the glass, bubbles and water are all things in that they have a form (everything that they are not), while also being objects in that they relate to one another through the way they are comprehended by other objects.

Garcia’s version of flat ontology can be used to build upon the accounts of flat ontology discussed in section two. Like assemblage theory, for example, a flat ontology of form also wants to move away from ‘two more common ways of thinking relations’, where relations are considered as either a ‘second-order connection between atomistic individuals mediated through some form of contact or exchange’, or the notion ‘that individuals are fully determined by their relations, meaning that a change in relation, no matter how small, changes the things related’ (Anderson et al., 2012: 177).

Distinct from Anderson et al.’s use of assemblage, which draws upon Deleuze and Parnet (1977) to focus on the ‘exteriority of relations’, for Garcia, relations (exterior or otherwise) cannot be primary in differentiating between things, because every entity has a form, which cannot relate to anything else. For Garcia (2014: 80–81), ‘the relation, any relation, to a thing, or to the world is never the condition of possibility of the thing, but the very proof that it is not the condition of possibility of the thing’. Or put in another way, ‘I must necessarily relate to something that in no way depends on the relation that I maintain with it in order to make this very relation possible’ (Garcia 2014: 82). From this position, entities are differentiated in terms of their form. To reiterate, form is neither the productive field from which things arise, nor can form be used to fully explain away the specificity of particular things and why they change. Rather, form is simply the negative of all things: ‘a form is not a thing, it does not end and has no ultimate determination’

(Garcia, 2014: 150). From this perspective, entities are only equal in the sense that they all have a form.

However, just because an entity's form is not a thing in and of itself does not mean it cannot be used as the basis of a procedure for differentiating between entities. Garcia discusses how one might investigate the form of something using the example of a private property:

[I]f I walk alongside a property that I am not allowed to go into, drawing up a blueprint of its wall, I certainly don't have access to whatever is in this mysterious place, but I can still map the perimeter of the estate. I can visualise the form of whatever escapes me, the outline of its inclusion in the world. I know therefore that which this property is, its form, without knowing that which is this property, namely what is inside the residence (Garcia, 2014: 28).

Following this logic, the form of an object would not be identified through a process of comparison between types of house for example, which would reintroduce categorical differentiation, but via what Garcia terms a process of de-determination. In Garcia's (2013: 20–21) words, de-determination is a matter of removing:

the determinations that make any object enter into relation with other objects. To de-determine this tree is to remove this tree from my perception. But when it is no longer for me, it is nonetheless not in-itself. The tree enters into a complex series of relations – it is in an ecosystem, the set of all trees, and the series of past and present instances of this tree. Removing the tree from the forest, or more generally from nature, evolution, its bundle of tree-qualities, it loses everything that made it a tree. Then it is extracted from the series of everything that it had been until now, or shall be later. It becomes an increasingly indeterminate something, but not *absolutely* indeterminate.

For Garcia, de-determination is a matter of removing every incidental quality or relation (including space and time) from or to an object, until one is left with the object as a more or less formal thing. Remembering that form is the negative of every individual object, the form of an object begins where that object's qualities end. From this position, 'a form always has two senses . . . its beginning and

end, what the form ends and how this form ends' (Garcia, 2014: 149). As Garcia (2014: 150) argues in relation to a cat or dog form:

Forms are different in their beginning, since they begin where every thing ends; things are different where they end, which is where their form begins. The form of a cat is not the form of a dog; a cat and a dog are different, since their forms, that is, everything that is not a cat and that is not a dog begin differently.

The form of a bump stock

Developing Garcia's account of form, differentiating between single and multiple trigger pulls begins by identifying where the bump stock begins and ends. Doing this allows an understanding of the conditions upon which the objects involved in a situation comprehend and relate to one another. This beginning and ending is not simply where the bump stock begins and ends as a spatially extended thing, although it also begins and ends in this way. Rather, beginning and ending also involves where any of its qualities begin and end, such as its colour, hardness, smoothness or the sound it makes. To be clear, the bump stock is both one object: a bump stock and is composed of many other objects that comprehend one another: the trigger ledge, the spring, the trigger grip, etc. In this way, the form of the bump stock is both what the bump stock is not and how the parts of the bump stock comprehend one another, which comes to be identified as a bump stock. As Garcia (2014: 144) puts it: 'a thing can be the form of an object. Since my finger is in my body, my finger has this body as a form. Since my finger is in the air, my finger has this air as a form'.

From this perspective, a bump stock is made up of a variety of objects that gives the bump stock its form and shapes what the bump stock can do. Just as the body is the form of the finger, the stock is the form of the spring. As such, we can understand the form of the bump stock in two ways. First is how specific parts give other parts their form (such as the stock giving the spring its form). Second is how the bump stock as a whole has another form, which is itself predicated on the way the components comprehend one another. To de-determine the two sets

of forms of the bump stock, first we can remove the shooter, their arm, any pressure they may apply to the trigger and their ability to grip and hold the weapon. In doing so, we are left with a plastic shoulder stock and grip, which form a single piece and have a quality of stiffness, a spring inside of the shoulder stock that has a quality of rebound and a trigger ledge that has a quality of solidity, which is connected to the grip.

Remembering that the form of an object begins where its qualities end, and that each object's form can be that of another object, the form of the bump stock would be four fold. The first would be that of the spring, whose minimal and maximal extension is the result of how it is comprehended by the length and rigidity of the plastic stock it sits within. Second would be the trigger ledge, whose quality of rigidity would be given by how the shoulder stock and pistol grip that it is connected to comprehends it. Third would be the way the form of these individual things informs how the parts of the stock inter-comprehend one another, which gives the stock as a whole its specific qualities. These qualities would include the maximal extended and compressed state of the spring inside the stock and the tensile strength of the trigger ledge and plastic shoulder rest, which allow the bump stock to withstand pressure without cracking or breaking when being fired. Finally, the form of the parts of the bump stock give it an overall form that inter-comprehends the human shooter when they pick it up and use it. This form is the combined qualities of rigidity and rebound that shape where the bump stock and rifle ends and thus where the form of the shooter begins.

As the bump stock's form is identified through a process of de-determination, we can apply the same logic to the shooter of the weapon. Here, we can de-determine anything that is not necessary to use the bump stock. This might include a sense of sight, smell or hearing, an ability to aim accurately and so on. Removing these qualities, we are left with a fleshy body, including a torso, shoulder, arm, hand and fingers, and presumably a nervous system and brain which are capable of holding the weapon. In the same way that the bump stock's form is informed by the parts it is made up of, and its overall form determines where it begins and ends, the same

could be said for the human body/brain. The hand would be the finger's form, which shape the degrees of movement of the fingers, the arm is the hand's form, which shape the hands rotation and the torso is the shoulder's form, which delimit the other part's movements, depending on the relative position of the muscles, bones and ligaments that make up these entities.

Utilising Garcia's perspective on form, in the case of the bump stock and human body, it could be argued that the key distinction between a single trigger pull and multiple trigger pulls can be understood by considering how the form of these objects shapes where and how different parts of the weapon and user comprehend one another and the qualities that are disclosed through these comprehensions. Specifically, such qualities are the degrees of rigidity and rebound of the two objects identified above and how the forms of these objects and their comprehensions shape how these rigidities can relate to one another. Or put in another way, how the form of the bump stock shapes where and how a human shooter begins and ends.

From this position, the form of the bump stock enables its rapid-fire capabilities because the form of the trigger ledge (where it ends) determines where the shooting finger as an object begins. Once the shooter pulls forward on the front part of the rifle, the ledge ensures the trigger finger continues to hit against the trigger, as the spring compresses and decompresses as shots fire from the barrel, meaning that one trigger pull enables multiple rounds to fire. In other words, the way the bump stock comprehends the user generates the qualities of rigidity of the trigger ledge that keeps the shooter's trigger finger immobile and so forms the precise spatio-temporal point at which the trigger comes into contact with the user's finger, which determines the rate of fire of the weapon.

For the ATF, reclassifying bump stocks as machineguns is a matter of changing how to interpret the notion of a single trigger pull firing multiple shots, which is the basis of the definition of a machinegun. The bump stock was originally classified as legal, because the ATF considered that each time the trigger moved against the shooter's finger was an individual trigger pull, meaning that

it was not a machinegun. Understood from the perspective of form, the bump stock rifle is a machinegun because the form of the stock determines how it is comprehended and so where the form of the finger begins. Acting to immobilise the trigger finger, the bump stock's form as a whole means that the user does not have to pull the trigger more than once to enable rapid fire. Indeed, the form of the bump stock means a user does not need to pull the trigger at all.

For Garcia (2014: 146):

to consider, handle or contemplate an object, or to make it function is to temporarily prevent this object from being reduced to an infinite number of things. It is to attribute unity to an object by making the object be in another thing: a consciousness, a series of events or reactions, a moment, a membership structure, a goal, a value, a domain, or a group.

Following this logic, it could be stated that the bump stock itself is designed and manufactured in order to prevent the 'object from being reduced to an infinite number of things'. While the bump stock could be used for a range of different activities (such as a club, a hammer, or something to lean against) its form is precisely produced to comprehend where and how the form of a human shooter begins. As such, focusing on the form of things suggests that differentiating between entities is not a matter of their assembled or relational capacities alone, but how their form influences where and how entities begin and cease to be and so how they are comprehended.

With this analysis of the form of the bump stock and shooter in mind, it becomes possible to reflect on the question, 'Is a bump stock rifle a machinegun?'. Using a flat ontology of form, I would suggest the answer is yes. This is because it can be stated that the being of a bump stock rifle is defined by its form and this form is key to how the form of a shooter begins, which enables rapid fire. This form is not actualised in the encounter or relation between shooter and bump stock alone, but is part of what the bump stock is, regardless of its relation with anything else.

Of course, an analysis of the form of bump stock rifles could be expanded. For Garcia (2014: 147),

while objects have formal limits, 'objects are together, in each thing'. In this case, where, when and how the bump stock rifle is used generates new objects: 'to act is to divide objects. To make something is to attribute unity to something by moving it, transforming it, fusing it together, or allowing it to interact with another thing' (Garcia, 2014: 147).

An expanded analysis of the form of a bump stock might alter how the spatiality of shooting events such as the Las Vegas mass shooting are understood. To be clear, there is not the space here to discuss this event and the lives it destroyed in the detail that is deserved. However, at the very least it could be stated that the form of the bump stock could have a direct effect on such an event, because it informed how the shooter comprehended the weapon, how the weapon comprehended the bullets, how the bullets comprehended the air as they travelled out of the barrel and how these bullets hit human bodies, which tragically resulted in injury and death. Further analysis might look to investigate how the form of bump stocks on the weapons used altered where the shooter aimed, how long they fired for and who was hit by the shooter's bullets. For instance, the bump stock required the shooter to pull and hold the bottom grip of the weapon away from them in order to activate the weapon. In other words, the stock comprehended the shooter's arms, generating a quality of tension in the muscles, which in turn comprehended how the shooter held their arms and upper body, which had to be pulled away from one another for the weapon to continue to fire. Pulling the front part of the weapon forward and the rear part backwards means that the weapon is always in tension with the body of the shooter, rather than resting or sitting in their arms. This makes it difficult to aim bump stock equipped weapons accurately because the body is not able to accommodate the qualities of reverberation that are disclosed as the different parts of the weapon and ammunition comprehend one another.

Critics of Garcia, and other object-oriented thinkers such as Harman (2002), have suggested that their flat ontology is problematic because they work 'only by diluting every warrant for explanation' (Morelle, 2016: 463–464). In discussing the example of bump stocks, I have sought to

demonstrate that a flat ontology of form does have explanatory power. The concept of de-determination for instance, enables a clear explanation of what a bump stock can do by identifying how the form of its various components enable other entities to begin and end in the way they do. In turn, the form of these components influences how they comprehend one another within a given situation and shape what is possible in that situation. Building upon and supplementing other types of flat ontology, an account of form provides an additional focus on what is particular to objects, which exceed or precede individual events of encounter. In doing so, the concept of form and de-determination could potentially be used in further analysis of shooting events to enable a differentiation of the relative importance of entities such as bump stocks in contributing to the specific spatiality of these events.

Conclusions

Following the ATF's regulatory amendment of March 2018, as of March 26, 2019, bump stocks became illegal to own in the US. The ATF's final rule regarding bump stocks was to clarify that bump stocks were in fact machineguns. In the ATF's (2019: NP) words:

The final rule clarifies that the definition of 'machinegun' in the Gun Control Act (GCA) and National Firearms Act (NFA) includes bump-stock-type devices, i.e. devices that allow a semiautomatic firearm to shoot more than one shot with a single pull of the trigger by harnessing the recoil energy of the semiautomatic firearm to which it is affixed so that the trigger resets and continues firing without additional physical manipulation of the trigger by the shooter.

The result of the ruling was that anyone possessing a bump stock must either destroy it or give it up at a local ATF office. An estimated 500,000 bump stocks have been sold in the US and despite the ruling, representatives for gun owner groups say that many will refuse to turn them in regardless of the penalties, including fines and up to 10 years in prison (Hurley, 2019).

Banning bump stocks has to be understood in relation to the rise of mass shooting events and gun violence in the US. At the time of writing, there have been 283 mass shooting events in the US in 2019 alone (which the Gun Violence Archive (2019: n.p.) defines as 'four or more shot and/or killed in a single event [incident], at the same general time and location not including the shooter'), resulting in 9,932 gun deaths and 19,868 injuries (Silverstein, 2019). Whether banning bump stocks will have an impact on this violence is, for now at least, unknown. With this context in mind, I have used the example of bump stocks not to be provocative or incendiary, but rather to think through a politics of differentiation in order to highlight that how entities are differentiated from one another can have powerful consequences for who has access to what, when, where and how, which in turn alters the kinds of phenomena and events that are possible.

At the same time, this paper used the example of bump stocks to think through the conceptual politics of differentiation that are linked to a variety of flat ontological positions at play in human geography. As I have argued, these positions are united in the sense that they work to break down distinctions between entities to differences of degree rather than kind in order to expand a recognition of many different beings as worthy of protection and care. This being said, in the case of the bump stock ban it was the construction and introduction of a differentiation in kind that altered the definition of bump stocks and so enabled the legislation that banned them. Of course, in no way am I suggesting that any of the geographers or thinkers I reference or discuss throughout the paper would suggest bump stocks should not be banned. Rather, I think the example points to the importance of examining the implications of strongly relational accounts of entities. These relational approaches are incredibly powerful in linking together disparate things to show how they create and produce all manner of geographical phenomena. At the same time, if the logic of such perspectives are closely followed, such accounts can make it difficult to define and thus differentiate between entities such as a bump stock equipped rifle and a machinegun outside of individual events or

moments of encounter because of their focus on emergence and contingency.

My interjection into debates around flat ontology and relationality was to develop the work of Garcia to offer a flat ontology of form. Like the flat ontologies of ANT, assemblage, affect and others, this perspective recognises that how entities relate to one another is important, but also suggests entities have a form that is not reducible to these relations. In turn, by understanding the form of an entity, it is possible to differentiate between entities without returning to hierarchical modes of difference that categorise things, but also not consider entities as defined purely in terms of their relationality either. As the example of bump stocks demonstrate, being able to do this is useful, because political intervention into situations regularly requires differentiating between entities in a general sense and making inferences about entities' capacities outside of individual events. Through an account of form, I have suggested that being able to attend to the changing compositions of entities does not have to completely avoid categorical thinking. Instead, a flat ontology of form bases the construction of categorisation and distinction on an investigation of entities themselves in terms of their form, rather than turning to other processes to explain or differentiate those things from one another (either in terms of vertically organised pre-given categories, or horizontally distributed ontologies of events or relations).

Through this argument, the paper contributes to broader debates around relational ontologies in geography in at least two ways. First, a flat ontology of form takes up Joronen and Häkli's (2017: 562) caution regarding the use of ontology in human geography, where they argue that:

[t]oo often the term ontology is employed as an assumed mandate to speak in the name of reality rather than to question it (Schmidt, 2013). 'Ontology' then ceases to mark an inquiry and instead stands for an answer that provides a foundation or a theoretical stance.

As this paper has demonstrated, a flat ontology of form and the process of de-determination in particular works to remain focused on questioning what entities are and what they can do. While Garcia's account

does seek to identify a basic underlying structure that is common to all entities, the account of form developed here is more concerned with being able to analyse differences and similarities between objects than it is in working to demonstrate how all entities emerge from the same fundamental or originary process.

Second, a flat ontology of form has suggested that the notions of contingency and emergence, which are a key aspect of many variants of flat ontology, should not be over-emphasised. This is because a focus on contingency and emergence can result in accounts where the importance of individual entities in individual events can be overstated at the expense of thinking through how multiple types of the same entity might have similar effects (Simandan, 2010). For instance, writers such as DeLanda (2006: 21) argue that 'even if we had a population of genetically identical humans, smoking would still not always lead to the onset of cancer, since other activities... may play a part in counteracting its effects'. Although this statement might be empirically true on an individual level, as DeLanda suggests, on an aggregate level the evidence is clear that smoking does cause cancer in many cases. In other words, the same entities (cigarettes) do have a power beyond their involvement in individual given events.

Flat ontologies should therefore work to avoid overly individualised accounts of entities. Analysing an entity in terms of its form provides a way of doing this as it recognises that multiple entities can have the same form that can produce the same, or largely similar, effects in multiple situations or events, while not entirely determining what happens in these events because any entity always comprehends and is comprehended by other things. To conclude, this paper has not suggested that there is a 'correct' type of flat ontology that should or must be used. Instead, it invites those interested in flat ontology to think about the texture and form of things as key to understanding the politics of types of entities, rather than reducing what an entity is to its singular deployment in a particular situation or event.

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Notes

1. I do not use the name of the gunman in this paper as the final police report from the shooting (Lombardo, 2018) indicated that a possible motive for the attack was the gunman's desire to gain posthumous infamy from the event. Furthermore, to be clear, this event is mentioned here to provide context to the legal and regulatory debate around bump stocks and as such is not an analysis of the shooting itself, which is far too complex to deal with in the confines of a single article.

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