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This Is Your Brain on Facebook: An Analytical Approach to Social Media and Autonomy

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THIS IS YOUR BRAIN ON FACEBOOK

An Analytical Approach to Social Media and Autonomy

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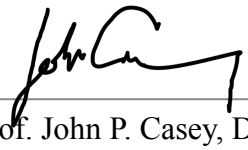

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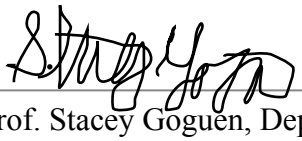

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ABSTRACT

This paper examines how data mining and microtargeting on Facebook undermine its users' autonomy, that is their capacity to make their own free and deliberative choices. Facebook profiles a user by creating a psychological model of their preferences (beliefs and values). It then frames the content that appears in a user's News Feed on the basis of this model and thus shapes their preferences. This shaping of preferences has implications for the user's autonomy. To show this I will apply John Christman's conception of autonomy that focuses on how external covert influence can interfere with a user's independent process of preference formation. I will prove that Facebook's model of microtargeting users with curated and restricted options of content can make them adapt their preference. Adaption of preference due to external manipulation outside of a user's control undermines their autonomy. In November 2016 Donald Trump won the United States Presidential election. Partially with the help of Cambridge Analytica (British consultancy firm) and Facebook's use of computational methods to assess large data sets about voters and create their psychological profile to target them with political ads. The effective microtargeting strategy relied on restricting the content a user could consider for forming their preference. If a user cannot form their preference with complete control over what options to consider, then that undermines their ability to reason autonomously.

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The Philosophy Department at Northeastern Illinois University has been an extraordinarily accommodating and welcoming space to students who are new to the subject. All the professors and fellow students have collectively contributed to the supportive environment that makes the Philosophy department a unique place for intellectual growth.

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INTRODUCTION

> He thought of the telescreen with its never-sleeping ear. They could spy upon you night and day, but if you kept your head you could still outwit them. With all their cleverness they had never mastered the secret of finding out what another human being was thinking (Orwell 1984/2021, p. 143).

In the dystopian novel 1984, George Orwell describes the omnipresence of the "telescreen" that allows the "Thought Police" to monitor its citizens. This dull metal box with a mirror never sleeps, only the light behind the screen dims down. The omnipresent telescreen has a voice that can pierce rebellious thoughts; ears that listen intently; and an eye that shadows each and every movement. The Thought Police's pervasive surveillance measures keep track of what people think about the ruling government. Nowadays we don't have the Thought Police, but we are under constant surveillance. Take social media platforms as an example, they have a window into your life which knows more about you than you may want it to. Orwell's telescreen cannot store the information it observes, Facebook can. Unlike the "Thought Police" Orwell describes, Facebook has intimate knowledge about your preferences. Not only that, but it can also infer how those preferences will impact your decision-making process. This is a troubling fact because Facebook can tailor the content according to your preference. This interferes in the information we have access to, and this, in turn, limits our ability to reason with complete

knowledge about the subject and form a preference about it. The framing of the content is essentially the framing of our preferences.

The term "preference" is understood to have different meanings, including that of "comparative evaluation, prioritisation or favouring, and choice ranking" (Hansson & Grune-Yanoff, 2018). The underlying function of each variation is evaluation i.e., to judge according to one's values about what should be done. Preference can take two forms: comparative evaluations (preferring X relative to Y); 2) subjective evaluation (evaluation about an agent or a group) (Hansson & Grune-Yanoff, 2018). For example, if a person prefers a candidate after evaluating them subjectively, that would be judgment based on context, instead of objectively (candidate A is better then candidate B). How a person evaluates is known as the process of preference formation. The forming and changing of a preference are closely tied, in either case a new preference forms. This process is a cognitive requirement of autonomy. An agent perceives information, ranks it in their mind, and designates a cognitive marker to it (Druckman and Lupia, 2000). A cognitive marker is a mental representation of an evaluation about a subject or object. When a person makes a decision, or reasons about something, they revisit that cognitive marker and choose how to reason and act.

Notice that this process only needs the agent's involvement. If the agent alone is in control of the preference formation process then they meet a minimum requirement of being an autonomous agent. For example, if a person is looking for an apartment to rent on Facebook's marketplace, the next thing they will see in their News Feed is a curated list of available apartments in the zipcode they were previously searching. If you adapt

your preference only to the options available to you, then the preference is not autonomous considering you were not in control of what options to choose from.

The purpose of this paper is to show how Facebook uses data mining (gathering data) and microtargeting (targeting users for specific traits) to shape our preferences and undermine our autonomy. First, I will lay out three different conceptions of autonomy that discuss the *internal* factors that motivate our reasoning; coherentist, reasons-responsiveness, and responsiveness to reasoning. Then, I will describe Facebook's working model. Finally, I will answer how that working model functions to undermine a user's autonomy.

The concept of autonomy has many facets, it's challenging to define what it means to be an autonomous agent (Dworkin, 1988, pp. 3–6). In Greek, *autos* is self, and *nomos* is rule or law (Dworkin, 1976). Thus, a simple meaning of autonomy is to "self-rule" (Felsen and Reiner, 2011, p. 3). What does self-rule mean? Does it mean the right to be free to choose whatever you want? Or is it the capacity to reason about your choices? The theme of contemporary conceptions of autonomy is the human need for self-efficacy (an agent's belief that they can reason and take action on their own). However, the term 'autonomy' is often understood by social scientists as individualism: to be independent of any *external* control. Although independence i.e. freedom is a by-product of being an autonomous agent, that is not what it really means to be autonomous. It starts from how you reason. If your reasoning process meets the minimum requirement of autonomy, then your thoughts and actions can be considered free.

CONCEPTIONS OF AUTONOMY

The main question this paper intends to answer is: whether users adapt their preferences to the available information in their News Feed (news stories feature on Facebook).This question requires a working description of preference formation, which is closely tied to the function of 'reason' in autonomous thinking. Harry Frankfurt, John Martin Fischer and John Christman, each take a distinct approach to the function of reason and preference formation in their theories of autonomy. Their theories connect motivation to reason: what makes a person think in a certain way. If an agent's *internal* motivation is influenced by any external force, it undermines their autonomy.

To prove the above claim, it is critical to understand how the process of *internal* motivation works. Frankfurt, Fischer, and Chirstman offer rigorous descriptions of the minimum standards of autonomy. Frankfurt's and Fischer's conceptions only focus on the fact that the agent should be in control of reasons behind their action while Christman's theory also answers *how* the person reasons i.e., how they rank information, and choose one preference over the other. However, I will discuss all three theories of autonomy to provide a better understanding of the concept. Then, I will discuss Christman's conception of preference formation, and how *external* influence can change how a person forms a preference. This theory is useful for understanding the role Facebook's covert influence plays in shaping of a user's preferences.

Frankfurt has a coherentist conception of autonomy in that an agent is autonomous if the motivation for an agent's actions is in sync with a mental state that reflects their perspective on that action. The mental state is described by Frankfurt as the process of perspective formation, which includes two forms of desires: first-order and

second-order desires. He draws a distinction between the two, “first-order desire [is] when he wants to do or not to do such-and-such, and that he has a second-order desire when he wants to have or not to have or not to have certain desires of the first order” (Frankfurt, 1971, p. 7). If you feel a desire to eat something, that is a first order desire. If you are busy finishing a research paper before the deadline, and do not have time to eat, then not desiring to feed yourself is a second order desire about the first order desire. The process of reflective evaluation about one's first order desire shows that they can assess the motivation behind their actions. This ability to evaluate helps the agent to distinguish if their own desire motivated them to act or if there was some other *external* influencing factor.

Frankfurt insists that the mental state that causes a person to be motivated to act should be in line with the person’s long-term values and commitments. If a person chooses to do x, he should want to do it. By ‘want,’ Frankfurt means ‘desire’: he should have the desire to do x (Frankfurt, 1971, p. 7). For example, if a person chooses to do free solo (ice or rock climbing without any form of assistance), they should have the desire to take the risk and climb. Their mental state of wanting to do free solo should be aligned with their commitment to achieve this milestone of strength and skill. According to Frankfurt’s conception, the person’s desire to free solo is autonomous. What if a person does not have a desire to do something? A simple example is of an artist who has to work at a grocery store to pay the bills. Their long term commitment to their art is not consistent with their mental state when they make the decision to work at a grocery store.

Frankfurt further explains that human decision making is not a mere sequence of mental states. People do not make decisions to act because their brain can connect and

organize thoughts. Humans have a 'will' (desires and motives) unlike other creatures that moves them beyond wanting something merely for the sake of it. They "have the capacity for reflective self-evaluation that is manifested in the formation of second-order desires" (Frankfurt, 1971, p. 7). According to Frankfurt, being in coherence with your mental state means that you control what desire you want to have i.e. you 'will' the act (Frankfurt, 1971, p. 20). If a person accepts the causal efficacy of their motives to act i.e. the relationship between their desire, motivation, and action, then the person is responsible for their autonomous act. Frankfurt limits his account of autonomy to wants or desires, and the agents capacity to reflect on the origin of these wants and desires. His conception does not offer a rationale for why we come to have one desire and not another. To assess whether Facebook impacts how people form their preferences, we have to look at a theory of autonomy which highlights the factors that make a person reason in one way or another.

Fischer's conception of autonomy outlines one factor that allows a person to respond to different reasons i.e, the ability to recognize a spectrum of reasons. Although his account does not focus on why a person chooses to respond to one reason and not the other, it facilitates in understanding how recognition of reasons contributes to a person's autonomy.

Fischer bases autonomy on what he calls "reasons-responsiveness." This means that to govern oneself, one must be responsive to "*variations* in a suitable spectrum of reasons" in favor of or against one's behavior (McKenna, 2016, p. 27). An agent should be able to consider various reasons in support of or against their act. He explains that the

mechanism to respond to reason builds from childhood (Fischer and Ravizza, 1998, p.189). This mechanism is called reason recognition or receptivity to reason.

Fischer provides a brief description of how an agent forms the ability to be receptive to reasons. When a child observes the cause and effect of reasons, beliefs, actions, and reactions, they learn to take responsibility for their actions. This development is the formation of agency in a child, and makes them the owner of their actions. This means that they can be held responsible for their actions, and can grow into a fully morally responsible adult. According to Fischer a morally responsible adult can assess an act's morality by visiting the colossal bundle of reasons for or against an act. The ability to respond to available reasons makes a person a self-governing agent, the background of the reasons does not matter. When a person responds to reasons, they are choosing to consider one over the other. The process of accepting and rejecting alternate reasons places a moral burden on them: if they can reject a reason, but they choose not to, then they are responsible for the consequences that follow. For example, a person decides to vote for a candidate named Jim after considering various reasons in favor of and against their decision. They possess the ability to choose whether to vote in Jim's favor or not. Since they can choose to avoid voting for Jim, if they do vote in his favor, it will be an autonomous act. Fischer successfully establishes the need to respond to reasons independently to be autonomous. Nevertheless, to examine how Facebook manipulates a user's reason-forming process, we need to take a closer look at John Christman's theory about responsiveness to reasoning.

Responsiveness to reasoning is the capacity or ability to assess one's motives according to personal beliefs or desires (Buss and Westlund, 2018). John Christman's

responsiveness to reasoning theory about autonomy relies on a form of political liberty. Liberalism is a political and social philosophy that emphasizes individual liberty and democracy. Christman adopts a theory of liberalism (to have the capacity to act freely) that frames an agent as free and self-governing if they are not moved by desires and values that have been oppressively imposed upon them (Christman, 1991, p. 346). The forces that condition an agent's functioning capacity should not be based on values that the agent had no say in developing (Christman, 1991, p. 344).

Christman gives an example of a woman who is raised in a culture that engrains in her the idea that she should only aspire to be a humble and domestic companion to her husband, no matter how the husband behaves with her (Christman, 1991, p. 344). However, when this woman is given the opportunity to shun these ideas in a new culture, and she chooses not to, the only restraint she faces is her own desires not to behave differently. The process by which her values, and character formed were oppressive, "these methods did not allow her to reflect on her emerging values in light of reasonable alternatives" (Christman, 1991, p. 345). According to his example, oppressive forces have conditioned the reasoning capacity of the woman that she had nothing to say about.

Christman describes an autonomous person as one who has control over the process of their preference formation. This process involves the presence of various factors and forces that alter or change a person's perspective about something. At times the elements of the situation are a force that shape what a person thinks about something. For example, if a child is raised in a religious household, they will most likely think that there is a God. However, beliefs are not formed by social causation alone, a new belief can also form in succession to a previous one (preference forming relative to another

preference). Associating a new preference with a pre-existing one is like preferring Mexican cuisine over northern European cuisine. You like spicy food, and this preference helps you form a new preference for Mexican dishes with spicy salsa.

Association of preference takes place when a person receives new information, their mind connects it with pre-existing beliefs related to it. After reflecting on that piece of information, if the person does not resist it, they begin the process of adopting the narrative. Over time, that adoption process results in a new belief. For example, the members of the BeLeave campaign during the Brexit vote targeted people with the hope of a better future if they chose to leave the European Union. A person who previously felt nationalistic about Britain, was constantly shown ads that depicted a brighter future if they voted for Brexit. The constant bombardment of the same message and the person's own nationalistic sentiment together formed a new belief/preference to vote in favor of Brexit. It's clear that the procedure of preference formation is similar to that of preference change. What makes this process autonomous is when an agent can assess the reasons for a preference. Christman insists that this cognitive process is autonomous if it meets three requirements: 1) the agent did due deliberation, 2) there are no inconsistencies in the agent's beliefs, 3) the agent's conclusion is logically inferable (Christman, 1991, p. 347).

Additionally, an agent is positively free with regard to some desire if he did not resist the development of that desire due to any factor that inhibits self-reflection, including deceiving themselves about the motivating desires and beliefs behind an act (Christman, 1991, p. 347). Christman insists that each of these requirements can be met if the agent is minimally rational. Andrew Schwartz further explains, "minimal rationality requires that preferences be transitively ordered and that the beliefs underlying these

preferences, if there are any, be consistent with each other" (Schwartz, 2004, p. 216). In order for an agent to be minimally rational, they need to be self-aware. Awareness once again involves the ability to put beliefs and norms in the form of mental representation (Schwartz, 2004, p. 221). For example, if a person chooses to vote for a conservative, because he thinks conservatives protect the unborn child, then, a mental representation of this awareness would be something like: 'a person who cares about unborn children should vote for a conservative.'

In sum, preference formation is autonomous if the person can reason for themselves and be responsive (aware) to the beliefs and desires behind these preferences. Christman's procedural account of responsiveness to reasoning (preference formation) highlights a minimum standard for autonomy. These requirements are relevant for determining whether the way a person came to have a belief is acceptable to them, and whether their preference were subject to any interference or not (Schwartz, 2004, p. 218). Christman's conception describes the conditions for autonomous preference formation. What happens when these conditions are not met? What happens when a *covert* influence makes a person change their preference?

Having spent a considerable amount of time describing the process of preference formation, it is critical to explain that this process relies on the information available to an agent. A user on Facebook consumes information through the News Feed. My paper intends to highlight how the framing of the information available to a user can manipulate with their process of preference formation.

Adaptive preference formation (APF) is when an agent adapts their preferences according to the available choices. Jon Elster writes in the *Sour Grapes,* "adaptive

preference formation is the adjustment of wants to possibilities – not the deliberate adaptation favoured by character planners, but a causal process occurring non-consciously" (Elster, 2016, p. 25). He uses a classic analogy from the Aesop and La Fontaine's fable of the Fox and the Grapes. In the story, a fox used to consume grapes, however, after some time he couldn't reach them any more. The fox develops a narrative to accommodate his failure to get to the grapes in an attempt to assuage his feeling of failure and to change his preferences. He tells himself a story to convince himself that he does not have a preference for those grapes. He does not actually know whether the grapes are sour, he deceives himself into thinking they are (Elster, 1983, p. 109). Notice that there are two conditions in this analogy, first, the fox is subject to a set of restricted options, and second, he crafts a heuristic narrative to accommodate these restrictions. Although the fox intentionally engages in an autonomous act of self deception, nevertheless, the reason for him to lean on this narrative are the parameters of restrictive options. These restrictions act like "a blind psychic causality operating 'behind the back' of the person" (Elster, 2016, p.15). The fox's act of self deception is a reflection of the fact that he has no other choice, but to adapt his preference. It's irrelevant whether the fox believes grapes are sour or poisonous, the simple fact that he adapts his preference is enough to to understand the function restrictive options perform. These restrictions can also take the form of negative covert influence. Elster's explanation does not state *why* this covert influence is bad. Coulborn's offers an explanation, "covert influence undermines our autonomy because it undermines the extent to which an agent's preferences are ones that she has decided upon for herself" (2016, p. 1).

In sum, when an agent only forms a preference in light of the available options, this restriction asserts a hidden influence on their preference forming capacity because they have no other choice. The aim of this thesis is to argue that adaptive preference formation influenced by microtargeting on Facebook undermines our autonomy. Prior to delving into this assessment, I will first lay out the internal workings of the social media company, Facebook. Then, I will discuss the role Facebook played in altering and reinforcing the preferences of thousands of voters with Cambridge Analytica's help (a British political consultancy firm). Finally, I will analyze how a person cannot be autonomous while using Facebook.

FACEBOOK: A SOCIAL MEDIA COMPANY

For the purposes of this thesis, the phrase "social media" is interchangeably used for social networking sites. These are bounded systems where users create private and public profiles, share their information with others, and connect with new contacts (Boyd and Ellison, 2008, p. 211). According to a Pew Research Center report, "Facebook is by far the largest social networking site, reaching 67% of U.S. adults" (Gottfried & Shearer, 2016, p. 4). Facebook offers all the features of a social networking site. However, its user engagement is directly correlated with revenue generation. Thus, Facebook is more than a networking site, it is an ecosystem that feeds on a person's online and offline activity. To maintain the smooth functioning of the ecosystem, it maintains a god's view of a user's behavior: intimate knowledge about the internal workings behind the way a user acts, and how external influences shape them. Facebook has access to how and *why* a user engages on the website. It also keeps track of what a user does on other websites, and third party-apps. Since we use our phone or computer multiple times during the day to

communicate with others, make a purchase, pay bills, and watch shows, it is inevitable that we will leave marks about our preferences. This knowledge gives Facebook a meta (the pattern of our behaviour) and micro (the reason for our behavior) perspective into what we do and think.

Although Facebook's initial business model was built around increasing user engagement with their friends and family, once it could detect commercial intent in a users' conversations, the saga began. For example, if a person named Jenny told her friend on Facebook that she was in her second trimester and was feeling nauseated, the next thing Jenny would see on her Facebook page would be ads for diapers, cribs, feeding bottles and whatnot. Facebook's microtargeting (targeting users for specific traits) surged when the company launched its first initial public offering. They extracted psychological profiles and behavior predictions from user's data, and sold this intimate knowledge to companies trying to target the consumer effectively. The connection between the surge in microtargeting and the initial public offering shows Facebook began to market itself as a broker between the user and the advertisers. The framework used to build Facebook's rapport with the marketing industry was later used for computational politics. Computational politics refers to "applying computational methods to large datasets derived from online and off–line data sources for conducting outreach, persuasion and mobilization in the service of electing, furthering or opposing a candidate, a policy or legislation" (Tufekci, 2014).

In the past, candidates used politically persuasive techniques such as changing a banner, giving interviews, attending town halls, and knocking on doors. However, this is no longer sufficient, political candidates need to engage with voters where they find them

the most: their phone. Kara Swisher recently interviewed Tim Cook (CEO of Apple), she asked what he thought about voting on phones. To which he replied, “You know, I would dream of that, because I think that’s where we live. We do our banking on phones. We have our health data on phones. We have more information on a phone about us than is in our houses. And so why not?” (Cook, 2021). We use social media apps on our phones to communicate with the world and form our preferences about it. Facebook’s algorithm, and engaging features make it a perfect place for candidates to persuade voters to adapt their preferences using computational methods.

To understand how Facebook has become this modern agora, I will answer three main questions: a) what type of data does Facebook gather from its users?, b) how does it gather that data?, and c) what does Facebook do with that data?

Types of Data Facebook Collects

The practice of gathering data about your behavior is called data mining. Facebook uses data-mining tools to collect not only the substance of your online activity, but also the form. The form is the metadata about the amount, frequency, type, and sharing of the content (Zuboff, 2019, p. 271). For example, Facebook not only notices that you posted a picture of yourself but what level of saturation you used on that picture, and who you shared that picture with (Zuboff, 2019, p. 274). Moreover, it follows the response you receive from your social network after posting that picture and how you react to that. Then, it spies on your profile and collects data about whom you follow, and so on. Liking and sharing something serves as the first indicator (Zuboff, 2019, p. 458). The trail that follows also includes information about your online activity when you are not using the

platform. Christopher Wiley blew the whistle about how Facebook was used to sway the opinions of some voters in the 2016 U.S. Presidential election. In his book *Mind F*ck* he alerts us, “Facebook peers into your relationship with your peers, follows you around in your phone, and tracks what you click and buy on the internet. This is how data from the site becomes more reflective of who you really are than the judgments of family and friends" (Wiley, 2019, p. 103). It is clear that Facebook collects a user’s data without their consent. Not only that, the company employs a sophisticated operation to make inferences from that data. After this, it's an effortless process to influence the user when you have direct access to the platform they visit multiple times during the day.

The answer to the first question (what type of data Facebook collects?) is not that simple, the type of data collected about you also includes a deep analysis of the language you use on Facebook. The American Psychological Association published a study about personality assessment through social language conducted by professors at the University of Cambridge and Pennsylvania. First, 66,723 Facebook users downloaded the My Personality app and self-reported the big five personality factors (a grouping of five personality traits) by answering a questionnaire. Their language was assessed using open (extracting a comprehensive collection of language features from the text being analyzed) and closed (predefined categories for words) vocabulary analysis. The answers from the questionnaire and vocabulary assessment were used to make a prediction model of personality. This model was used to predict the personality of 4,824 Facebook users, the researchers concluded that analysis of predictive language can provide rich portraits of the mental life associated with traits (Park et al., 2014, pp. 1-5). After observing a direct correlation between social language and personality, “the authors also warned that

automated prediction engines run by companies, governments, or Facebook itself can compute millions of profiles without individual consent or awareness, discovering facts that an individual may not have intended to share," (Zuboff, 2019, p. 273). After the 2016 election, Facebook does not shy away from accepting the methods of data collection. A comment made by Mark Zuckerberg in 2010 explains why, "people have really gotten comfortable not only sharing more information and different kinds, but more openly with more people...that social norm is just something that has evolved over time" (Johnson, 2010). Zuckerberg claims that privacy is no longer a social norm. However, even though people choose to share their life with loved ones or the whole world, what they don't intend to share is private. The collection of data about your behavior accumulates as behavioral surplus: your voice, personality, and emotions (Zuboff, 2019, p. 8). This surplus is used to make inferences about what you prefer, and why you prefer it. The fine-grain process of microtargeting a user based on that inference includes creating a list of options that they can choose from. Although the user can choose not to use Facebook. Nevertheless, the concern is that the user should have control over how that data is used. Facebook's process of collection of data shows that the user does not have control over anything except for making an account. I will now move on to the second question: how does Facebook collect that data?

The Method of Data Collection on Facebook

In one minute, Facebook sees the creation of 500,000 new comments, 293,000 new statuses, 450,000 new photos (Singer, 2019, p. 57). Why do people keep coming back to post on Facebook? It is not the features that are unique, it is the design behind these

features that allow it to collect data about you. Tristan Harris, a former Google employee, now a staunch critic of the tech industry, avers that Facebook exploits the vulnerability in human psychology, and that "all of us are jacked into the system. All of our minds can be hijacked. Our choices are not as free as we think" (Lewis, 2017). The psychological attribute that makes users turn to Facebook frequently is 'social proof.' The term means that when we observe others do something, we tend to think that's the correct thing to do and we follow through. For this reason, if Facebook is selling a product or service or promoting an activity, it uses messages from a user's friends and family members to make it seem more personal (Zuboff, 2019, p. 457). The method of social proofing draws in users to feel comfortable sharing their lives online. This helps Facebook collect data about users' behavior.

Another design feature that pulls in users to reveal their preferences on Facebook is the 'like' button. The dispossession cycle of the like button is reflective of how Facebook evolved into a revenue generating firm. It was considered an incursion when the like button was introduced in April 2010. Facebook called it a bug in their system while it fought legal battles with the FTC. One and a half years passed before it agreed to adapt transparency in its privacy terms. However, in this period, users had become habituated to the button (Zuboff 2019: 158-160), and Facebook sought this as a perfect opportunity to redirect the users. It announced that it would target people with advertisements (ads) that are relevant according to their like button data (Simonite, 2015). Although the like button helps Facebook collect data about your preferences, it needs to infer from your preferences to find out about your personal attributes. In 2013, Kosinski, Stillwell, and Grapel conducted a study to find out if 'likes' could accurately help to

predict a user's personal attributes (Zuboff, 2019, p. 273). 58000 volunteers agreed to give data about their psychometric tests, demographics, and Facebook likes. The results showed that likes can help predict a range of highly sensitive private traits, including sexual orientation, ethnicity, and religion (Kosinski et al., 2013). Table S1 (Figure 1) extracted from the study report shows how data from likes was used to predict if a user smoked or not.

Figure 1 : Table of Characterization of Likes

Smoking	*Yes*	*No*
	Cradle Of Filth	That Spider Is More Scared Than U Are
	Under Armour	Oh Really Did It Tell U That
	Slayer Band	Honda
	Inbox 1 Makes Me Nervous	Move Out Of The Way Children I've
	Dimebag Darrell	Been Waiting 11 Years To See Toy
	Rob Zombie	Story 3
	I Always Accept The Terms And	FBI Open The Door No Its Cool When
	Conditions Without Reading Them	You Break In
	I Bottle Everything Up Until I Finally Snap	How To Make A Girl Smile <3<3
	Life Is Better In Summer	The Desk Able To Protect You From Fire
	Screwing Around In Walmart	Earthquakes And Nuclear War
		When Your Fortune Cookie Knows
		What's Up
		Rocky
		When Little Kids Are Chasing Me I Run
		Slow So They Think They're Fast
		I Drop My I-pod Then My Headphones
		Save Its Life

Table S-1. Likes characterized by the most extreme average levels for each of the numeric variables (e.g. personality traits) or most extreme frequencies of classes (e.g. being a Democrat). We used only Likes that were associated with more than 100 users.

Note. Reprinted from "Automatic personality assessment through social media language," by Park et. al., 2015, *Journal of Personality and Social Psychology.*

Further, the like feature works to exploit a human's need for social validation. Users are constantly drawn to their News Feed to check if someone in their contacts likes their posts. Their contacts expect the same of them, and this cycle of mutual dependency

creates a need to stay engaged on Facebook and validate other people's preferences. Consider this story from the *Washington Post*:

> On the morning of her 14th birthday, Katherine wakes up and opens her instagram (a Facebook company). Before she interacts with any family member, she wants to find out if her friends decided to post pictures of her for her birthday. Whether they like her enough to put a picture of her on their page. Those pictures, if they come, will get likes and maybe tbhs. Katherine thinks, "Over 100 likes is good, for me. And comments. You just comment to make a joke or tag someone." (Contrera, 2016)

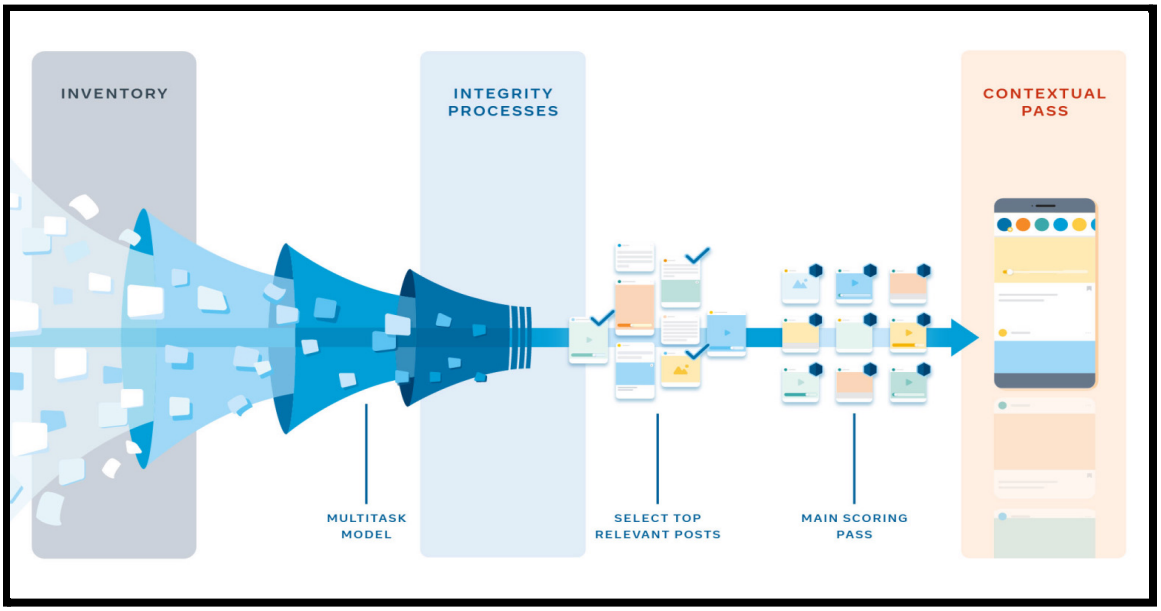
Facebook is able to gather data about a user's behavior because it has built addiction into its design. It has become like a dopamine shot (Zuboff, 2019, p. 458). Although Facebook has added other emotional reaction buttons alongside the like button, nevertheless the reward cycle of the like button remains. When a user gets a like on their post, "several regions deep inside the brain release a chemical called dopamine, which attaches itself to receptors throughout the brain that in turn produce an intense flush of pleasure" (Alter, 2017, p.71). An avid Facebook user cannot avoid the reward cycle. Once they post something, they need to feel the dopamine rush. That rush only comes when someone likes your posts. The addictive properties of Facebook raise serious concerns about whether the user is autonomously choosing to engage on Facebook. The like button also appears on the news feed: another addictive feature. When you open Facebook, you see a scroll of posts, that's your News Feed. The reason users have become habituated to the News Feed is that the first thing they see in their feed are the

comments, posts, likes of their own friends and family. News Feed gives more airtime to their friends instead of strangers. This promotes homogeneity and makes them feel happy. The happier they feel, the more they will return to the news feed (Bergstein, 2017). If a person in your contact reacts to another post, or multiple people in your contact list comment on a video, that too appears in your News Feed. Why? Facebook has a ranking system for curating your News Feed. Curation involves framing of the content for desired behavior and maximum engagement. The more the engagement with restricted and curated information, the higher the probability of shaping a user's preference. If a user does not have control over the options that form their preference, then their preference cannot be autonomous.

The Facebook Engineering department shared insight into its ranking system behind the News Feed users see (Figure 2 on next page). A user's online activity serves as the inventory: a collection of information that appears as signals (data points) in the machine learning system (ML) that Facebook employs to curate your news feed. Further, ML selects relevant posts for you according to its integrity (redundant or not) and contextual importance. It makes that evaluation based on the survey about the user's preferences and what they have "liked" in the past. Finally, ML assigns a relevancy score to each story, and the posts appear accordingly in your news feed (Lada et al., 2021).

This process of ranking is at the core of micro-targeting. Ranking one feed over another is problematic, why should a social media company get to decide the content, timing, and the context of options available to you? To solve this puzzle, next, I will answer the third question: what Facebook does with our data, and what is wrong with it.

Figure 2: Facebook's News Stories Ranking Process



Note. Reprinted from *News Feed ranking, powered by machine learning*, by Lada, A., Wang, M., & Yan, T., 2021, Facebook Engineering.

Facebook's Microtargeting Strategy and Manipulation of User's Preference Formation Process

Microtargeting is targeting advertisements towards a narrowly selected group. Preliminary requirements for microtargeting are data collection and psychological profiling. I have offered a thorough analysis of these two processes in the previous sections. Although the method of microtargeting on Facebook takes various forms, this section will only focus on the microtargeting approach taken by Facebook to target ads at users. The mechanism to profile and target users on its platform serves as a perfect medium for the advertisers to reach the consumers, and give them options of products to choose from.

Facebook first uses our data as raw material to generate meta data about our personality. For example, if a user has a hundred pictures of themselves on their account,

Facebook will not only extract information about the location those pictures were taken in, or who they were with. It will generate data about what saturation they used while taking the photo, do they like to appear more fair or dark? Do they have an insecurity about the way they look? How often do they take pictures and what makes them want to post it on Facebook? This information helps in making predictions about their personality, and creating a psychological profile. Then, Facebook packages it like a product for sale to all those willing to pay for their attention. This package includes a user's personal information, psychological assessment (psychometric test results), and details of their entire social web. It exposes a user's preferences to the advertisers. Advertisers use the Facebook News Feed feature as a medium to send ads that seem most relevant to the user and speaks to their preferences. For example, if a woman recently gave birth to a baby boy, and her past history shows that she prefers to buy clothes for herself from Gap, then ads from Gap kids showing onesie sets in blue, gray, and white color will start appearing in her News Feed. This mechanism draws a circumference around the available choices a Facebook user is able to see in their News Feed, creating an environment where a user will most likely adapt their preferences. The process of curating choices is termed "choice architecture". A choice architect structures a situation "to channel attention and shape action" (Zuboff, 2019, p. 293). This is done by staging the context in which people make decisions. For example, when a ballot is designed for voters to choose candidates, the designer is a choice architect (Sunstein and Thaler, 2009, p. 3). Facebook is a choice architect, and it 'nudges' the users towards desirable behavior. A nudge "is any aspect of the choice architecture that alters people's behavior in a predictable way" (Sunstein and Thaler, 2009, p. 6). The difference is that nudges on

Facebook News Feed are "intended to encourage choices that serve the architect, i.e. Facebook.

Imagine walking to a cash counter in a grocery store. While waiting for your turn, the chocolates neatly stacked in crispy wrappers might entice you. The options of chocolate at the cash counter are limited, and you decide to make a purchase from the available options. This design strategy is to nudge you to buy from the restricted options. If you pick up the Bounty bar just because that's what was available in front of you, then the nudge was successful in making you adapt your preference. Now, people might object that this analogy is too simple, I can walk to the candy section or browse for good options on Amazon. That's a possibility, however, the purpose of the analogy is to show that if you do choose a Bounty bar from the ten options available on the cash counter, then your process of preference formation was subject to external influence. If the options for your preference have been framed, your preference is not autonomous. The framing of News Feed works similarly. Users consume news and posts that have been framed to nudge towards desirable behavior. A Pew research claimed that 6 in 10 Americans get their news from social media (Gottfried & Shearer, 2016, p. 2). Personalized news feeds on Facebook have become one of the primary news sources (Praiser, 2011, p. 8). From the 62% population that consumes news from the Facebook News Feed can be at risk of political microtargeting.

Zeynep Tufecki calls this type of microtargeting, *computational politics*: when computational methods are used to examine and repurpose datasets of millions of citizens to manipulate, reinforce, or alter their preference about an election, policy, or legislation (Tufekci, 2014). The process of persuasion is carried out using social media platforms.

One way of reaching out to the public is through targeted political ads. A recent example of computational politics is the 2016 U.S. Presidential election. Presidential candidates; Hillary Clinton and Donald Trump spent eighty-one million dollars on Facebook ads (Halpern, 2019). Moreover, the Trump campaign paid nearly $6 million to Cambridge Analytica (CA) (Halpern, 2018). Cambridge Analytica was an offshoot of the SCL Group: a company helping the United Kingdom's Ministry of Defence and NATO armies with information operations (Wiley, 2019, p. 5). It was funded initially by Robert Mercer, who is a staunch supporter of the Trump campaign. What the firm did for Trump is of key interest to this discussion. Hence, I will now illustrate how CA worked to force voters to adapt their preference. It is nonetheless true that various other 'nudge' factors contributed to Trump's win. For the sake of explaining how the restricted choices in the Facebook news feed make the user adapt their preferences, I will only focus on one part of the CA scandal.

CA unpacked the preferences and perceptions of a percentage of Facebook users living in the U.S. In the summer of 2014, a focus group was used to observe what a small selective population of people thought about gun rights, the "deep state," and building the wall on the Southern border (Wiley, 2019, p. 119). Then CA paid $800,000 to Global Science Research to access the data they had gathered. GSR created the "This Is Your Digital Life" app: an app that tracked and collected the data of the user, and all their contacts without their consent (Halpern, 2018). Once the data was recorded, "Cambridge Analytica used the information to identify American subconscious biases, and craft political messages designed to trigger their anxieties and in theory influence their political decisions" (Halpern, 2018). A bias can be understood as an error in an agent's

thinking that generates flawed subjective evaluations of information (Wylie, 2019, p. 66). A trigger is a cognitive reaction caused by a user's bias.

Christopher Wiley, the mastermind behind the system of profiling and manipulating voters' political choice at CA, admits that to hack someone's mind, "find a weak point in a system and then exploit that vulnerability. In psychological warfare, the weak points are flaws in how people think. If you're trying to hack a person's mind, you need to identify cognitive biases and then exploit them" (Wiley, 2019, 65). By "exploiting" he means that you need to bring information in front of the user that affects their behavior and emotions. Facebook's News Feed served as the perfect medium to target information at users that would generate a desired response. CA fed the Facebook recommendation algorithm with fake news and created fake right-wing forums to inflame the micro-targeted users (Wiley, 2019, p. 121). The online engagement of this infected group was then closely observed by CA to track the spread of the narrative. The important question is how CA was able to manipulate with the preference formation of these voters. A study confirmed that fake news was extensively shared, and it worked in favor of Trump (Alcott and Gentzkow, 2017, p. 211). CA calculated the scope of the fake news affect, it "estimated that if only 25 percent of the infrequent voters who began clicking on this new CA content eventually turned out to vote, they could increase statewide turnout for the Republicans in several key states by around 1 percent, which is often the margin of victory in tight races" (Wiley, 2019, p. 123).

The crafting and framing of content to micro target voters using Facebook can be understood as the external, and covert influence that affected the users process of preference formation for a political candidate. The personalized news feed nudged the

user to adapt their preference to the information available to them. For example, if a person was detected as a staunch nationalist, their News Feed would include ads about Trump's border wall and stance about immigration. Following image (Figure 3) is an example of microtargeted ads fed to users on Facebook.

Figure 3: Stop Refugees Advertisement posted on Facebook

Note. Reproduced from *The Facebook Dilemma,* by, Jacoby J., 2019, WGBH Educational Foundation.

When the voter with pre-existing anti-immigration sentiments only saw these types of ads and posts, they adapted their preference, and chose to vote for a political candidate that touted anti-immigration policies consistent with their values. To vote or not vote and whom to vote for is a democratic choice of autonomous citizens (Evans, 1917). If they adapt their preference due to any form of *covert* influence, the process of their preference formation does not meet the minimum requirement of autonomy.

CONCLUSION

In response to Congresswoman Alexandria Ocasio-Cortez's question about posting false political ads, Mark Zukerberg responded, "I think lying is bad. And if you were to run an ad that had a lie, that would be bad (*Facebook CEO Testimony Before House Financial Services Committee*, 2019). If lying is bad, then microtargeting with lies is bad. If lying is bad, then creating a misinformation melodrama is bad. And if it is that bad, then Zuckerberg should stop using this method to engage users to generate revenue.

What happened in 2016 was nothing new, Facebook has played a role in the U.S. Presidential election since 2007 (Carliess and Patton, 2013, p. 883). However, in light of the Cambridge Analytica scandal, it became clear that campaigns "attempted to use psychological and other personal information to engage in a kind of voluntary disenfranchisement by depressing and suppressing turnout with messaging designed to keep voters who support the opposing candidate away from the polls," (Halpern, 2018). Zuckerberg did not envision that his company will be a major contributor to computational politics. In the company's early days, he told a group of students, "I think it's more useful to make things happen and then apologize later, than it is to make sure you got all eyes on" (Jacoby, 2018).

In his apology stream, Facebook took several reformative actions. It announced in 2018 that it would takedown "influence operations" in which "coordinated inauthentic behavior" is detected (Gleicher, 2018). This move would detect fake accounts belonging to a suspicious group that is trying to influence users. Moreover, in supporting the Honest Ads Act (a bill that calls for political ad brokers and publishers to be transparent and accountable to the public) Facebook announced its own political ad policies similar to the

minimum transparency standard mentioned by the lawmakers (Halpern, 2018). With this move, Facebook told the government that there is no need to regulate us, we can do it ourselves. The company has taken several actions since the election chaos in 2016. Making rules and implementing them are two separate things. Facebook does not feel the need to enforce these rules because of Section 230 of the *Communication Decency Act* of 1996 (47 USC):

Civil liability;

No provider or user of an interactive computer service shall be held liable on account of-

(A) any action voluntarily taken in good faith to restrict access to or availability of material that the provider or user considers to be obscene, lewd, lascivious, filthy, excessively violent, harassing, or otherwise objectionable, whether or not such material is constitutionally protected; or

(B) any action taken to enable or make available to information content providers or others the technical means to restrict access to material described in paragraph (1)

(Legal Information Institute, 2018).

Section 230 shows that Facebook does not have to be a free speech moderator, and it is not liable if any malicious content is available on its website. However, Facebook is no longer a company that can call itself as a global coffee shop. It is a weapon for any group around the world that is trying to sow hyper-partisanship and polarize the public. The genocide in Myanmar unfolded because Facebook did not police fake news about Muslim men raping women in Myanmar (*The Facebook Dilemma*, 2018). This onslaught was possible because the News Feed helps the spread of misinformation, and microtargeting of the most vulnerable group of users.

The scope at which your personal data can be used against you outweighs the possible benefit of convenience. The exponential growth of Facebook relies on how much users engage with the News Feed. The more they engage, the thicker their filter bubble will become. In this process, users feed on an information diet that has been chosen for them by an algorithm that is built to create relevancy and generate growth. This drive is fueled by one principle of Facebook: all engagement is good engagement. That's the contention, all engagement cannot be good engagement when the options to engage are framed by a choice architect that has mastered the art of manipulating a users preference formation process.

The Facebook News Feed is endless, but not limitless. The restrictive filters applied to the news stories that you consume, influence the options available to you to form your preferences. When a person chooses one thing over another, they make a deliberate choice. This decision-making process requires that an agent is rational and can meet the minimum requirements of autonomy. The theories of Fischer and Frankfurt outline *what reasons* a person should have when deciding to act one way or another. However, their conceptions do not lean into the discussion about *how* the person chooses one thing over another. Christman offers an in-depth explanation about *how* a person forms their preferences. A mapping of this process allows us to detect a crack in the system. Christman's conception calls into question our ability to maintain autonomy in the face of microtargeting and framed restricted options. A user cannot form their preference independently if targeting schemes on Facebook can control the narrative a user has access to. The theory about responsiveness to reasoning sets a blunt standard for autonomous preference formation. If a user does not have complete control over what

options they take into consideration while forming a preference, then their preference is not autonomous. Christman's conception makes it clear that a person is only autonomous, if they can exercise their right to reason without any external influence outside of their control. It is a right of every user on Facebook to have complete control over what options they choose from. It is a right of every user to have the opportunity to reflect about their preferences. It is a right of every user to be able to reason without any manipulation. On Facebook's News Feed, a user does not have control over the options available to them, the constant microtargeting constricts their capacity for due-deliberation, and they adapt their preferences according to the restrictions. All of this is made possible using the method of data mining to extract useful knowledge about a user. Thus, if data mining and microtargeting allow Facebook to *covertly* influence a user to adapt their preference, then that undermines their autonomy.

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