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Consuming rationally: How marketing is exploiting our cognitive biases, and what we can do about it.

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association for critical thinking

About the Swiss Skeptics

Swiss Skeptics – Association for Critical Thinking is an independent nonprofit organization based in Zurich, Switzerland. The Swiss Skeptics promote a scientific worldview, and, more specifically, critical thinking as a tool for making rational inferences about the world.

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Abstract

As consumers, we are rational in principle, but all too often irrational in practice: A number of so-called cognitive biases impact our rational decision-making. Our tendency for irrational decision-making is compounded by marketing, which is little more than the art of exploiting cognitive biases. Cognitive biases affect consumer behavior on two dimensions, preference genesis and preference order. Prevalent though they are, cognitive biases in consumer behavior are not inevitable. There are two general strategies for reducing the impact of cognitive biases: Debiasing and self-nudging.

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1 Introduction: We are all consumers, and we are often bad at it

We all need, or want, or need and want stuff. Some of the stuff we need or want is immaterial and aspirational: We seek things like freedom, love, friendship, equality, happiness, and so forth. Some of the stuff we need or want is more immediate and, arguably, easier to obtain: We seek goods and services, and in order to procure them, we offer money or other goods and services. When we engage in this latter kind of getting stuff, we are *consumers*.

Being a consumer could, on the face of it, be thought of as an occasional activity; something that we do regularly, but not too often. Such an understanding almost certainly understates the prevalence of consumer decisions in our daily lives. Every time you enjoy a coffee, eat lunch, see a movie in the cinema, go to the gym, travel to another country, download an app on your smartphone, you are being a consumer. Hardly any day goes by without us being consumers, and there are practically no moments in our adult lives in which our past and present consumer decisions do not have some tangible impact.

We are, then, consumers very often, and with this experience comes expertise. We are quite adept consumers in a proceduralist sense: When we want to get something, we usually have little trouble getting it, not least because, thanks to the Internet, we can make consumer decisions around the clock. However, even though we are very sophisticated consumers in a proceduralist sense (we consume a lot and often), we are, at the same time, quite *irrational* consumers due to so-called *cognitive biases*: Our thinking is error-prone, and marketing efforts make use of those errors in thinking. Ultimately, this leads us to consume in ways that might go against our actual, rational preferences.

In section 2, we explore how human cognition is shaped by cognitive biases and how purveyors of goods and services exploit cognitive biases through marketing. In section 3, we argue that cognitive biases have impact on two dimensions of consumer behavior, *preference generation* as well as *preference order*. In section 4, we discuss possible means of alleviating the detrimental impact of cognitive biases on consumer behavior. Finally, in section 5, we summarize the arguments put forward in the present paper, and we make recommendation for relevant stakeholders about what to do about irrational consumer behavior.

1.1 What this paper is not about

This paper is not concerned with the quality or quantity of the goods or services we buy. It is not a castigation for «immoral» consumption. It is not a guide on how to shop. It is not a sermon.

If you engage in and enjoy the more hedonic [1, 2] aspects of consumer activity, then, by all means, continue to do so. If you are of the opinion that people are consuming much too much in a spirit of mindless consumerism [3, 4], then, by all means, continue to have that opinion. The goal of the present paper is neither to demonize nor to promote specific consumer decisions. Instead, this paper aims to shed some light on irrational consumer behavior in the sense of individual consumer behavior that is *not in the best interest* of the consumer: The shortcomings of routinized human cognition, cognitive biases, are exploited through marketing in order to induce consumer behavior that benefits the purveyors of goods and services, not the consumer. In that sense, the present paper can be understood as a *consumer protection* measure with the goal of increasing informed, rational consumer decision-making.

2 Cognitive biases: The *conditio humana*

If someone asked you whether your thinking was flawed or not, chances are you would not only say no, but you might even be offended – *of course* your thinking is not flawed; your cognition is working just fine, thank you very much. And, *grosso modo*, you are probably right: The way we process information and make inferences about the world is good enough to maneuver us through the day. And the idea of *good enough* is a non-trivial descriptor of our cognition. Most of the time, we don't actively and carefully evaluate every piece of information available to us before making inferences and acting on them. Instead, our thinking is in «autopilot» mode, and we rely on cognitive cues and shortcuts. Expressed in different terms, our thinking can be *slow* and deliberate, but, most of the time, it is *fast* and loose [5, 6, 7].

The «tools» we rely on in our fast thinking, the cues and shortcuts of our inference making, are sometimes referred to as *cognitive heuristics*. The idea of a heuristic explains accurately how we think when we are operating in our fast, automated cognitive mode. Generally, cognitive heuristics are immensely useful, because they lead to conclusions that are good enough in most situations. In that sense, cognitive heuristics maximize cognitive utility in two ways. First, heuristics maximize the efficiency of our cognition by minimizing the resources needed to arrive at good enough inferences. Second, heuristics also maximize the amount of good enough inferences that we are able to make in a given finite time frame. Say that in a time frame t , a given person is able to complete n inferences in the slow, deliberate mode of thinking. In that same time frame t , that person will be able to complete $h(n)$ inferences (h stands for heuristic). There is no universal rule that specifies how great the benefit of the heuristics, h , is in a specific inference-making situation. But h will *always* be greater than 1.

Heuristics, then, maximize two utilities: Efficiency as well as the sheer amount of inferences that can be processed in a given time frame. What about a third utility which is at least as important as the other two, the *quality of our inferences*? Unfortunately, in this dimension, cognitive heuristics have a detrimental impact, because they *lower* the quality of our inferences. If a slow, deliberate thinking process leads to a quality of the inference q , then the impact of cognitive heuristics can be thought of as $h(q)$. In this scenario, however, h is *always* smaller than 1. In many real-world situations, this will result in inferences that are still fairly good. However, in many other real-world situations, the heuristic-based inferences will not just be of marginally lower quality, but they will actually be flawed to such a degree that they make us either epistemically irrational (we adopt a belief even though the reason for doing so is fundamentally flawed) or instrumentally irrational (based on the inference, we act in a way that is actually contrary to our preferences). Cognitive heuristics that result in bad inferences are an example of the general rule of second best [8]: While it is formally true that cognitive heuristics produce good enough inferences, good enough can sometimes still be very bad and lead to outcomes that are not necessarily any closer to the desired outcome than, say, doing nothing at all.

This quality-diminishing property of cognitive heuristics is the reason why they are sometimes referred to as *cognitive biases* [9]: When a heuristic is not simply a useful shortcut for good enough inferences, but rather an error in our thinking that leads us to false conclusions, it's appropriate to label that heuristic a bias.

Cognitive biases, then, are generally undesirable errors in our thinking; that's why we call them biases. What makes biases as relevant as they are is not their mere existence. If biases happened to be some fringe phenomenon that occurs only once in a while, we needn't be alarmed too much about them. Unfortunately, cognitive biases are not a fringe occurrence in our thinking, but rather, our thinking is systematically riddled with cognitive biases. Because cognitive biases are a prominent feature of our cognition, many real-world decision-making contexts are shaped by them. One such context is consumer behavior: The errors in our thinking make us susceptible to marketing efforts, and marketing efforts increase the probability that, as consumers, we make irrational decisions.

2.1 Marketing, or: How to exploit cognitive biases and nudge consumers

There is no one universal definition of marketing [10]. From the point of view of purveyors of goods and services, marketing can be generalized as all efforts that pursue the goal of turning potential customers into actual customers. Marketing

efforts always have two dimensions, an informational and a persuasive one. Informationally, marketing can provide potential customers with neutral and relevant information about goods and services. Persuasion, on the other hand, refers to the desire of turning potential customers actual customers, both by convincing them that a certain good or service is worth the cost and that it is preferable to other, competing goods or services.

One key component of marketing is *advertising*. Advertising is the subset of marketing that is comprised of communication directly targeted at potential customers. Every day, we are inundated with many different forms of advertising. Even though we tend to believe that advertising «works» on other people but not on us [11, 12, 13]¹, it's safe to assume that overall, advertising does have some non-negligible impact. To some degree, we might even appreciate advertising for its informational dimension. For example, when we find ourselves as consumers in a decision-making situation, advertising can conceivably provide us with neutral and relevant information that we can use to optimize our decision-making. To a large degree, however, the goal of advertising is to exploit errors in our thinking, not correct them.

The impact of marketing, given our cognitive biases, is not one of coercion: When being exposed to marketing efforts such as advertising, we are not forced to make any sort of choice. Our choice options remain the same as before the exposure to the marketing effort in question, and our freedom of choice is unchanged as well – we are at complete liberty to not buy the good or service in question. Marketing affects us in more subtle, probabilistic ways. A given marketing effort is unlikely to deterministically persuade every single potential customer, but it will increase the probability that a potential customer becomes an actual customer. Marketing, in that sense, is a *nudging* mechanism. Nudging is the idea that cognitive biases can be exploited through choice architecture [14, 15]: By changing certain aspects of a choice situation, people can be «nudged» into making the desired choice. Nudging is, quite clearly, a form of manipulation [16], because people are steered towards an outcome that some external actors deem desirable. In the context of public policy, nudging is sometimes described as a libertarian form of paternalism [17], whereby some publicly desirable goal is achieved by means of choice architecture, but without forcing people to make some specific choice as well as without taking away choice options.

The concept of nudging is not limited to matters of public policy – nudging is not only applicable to consumer behavior, but, in a sense, that is where nudging as an art was first created (Later, it was refined into a science through the study of behavioral economics.). Nudging in the context of consumer behavior differs

¹Of course, if everyone believes that they themselves are immune to advertising but others are not, those beliefs cannot correspond to reality.

from public policy nudging in terms of the origin of the nudges (government in public policy nudging vs. private enterprises in consumer behavior nudging), but the logic of the nudging efforts are exactly the same. A purveyor of goods and services cannot force you to buy some specific good or service, and she or he cannot make some choice options unavailable². What they can do, however, is to create incentives that potential customers respond to not only rationally (incorporating information into a deliberate, informed decision-making process), but also irrationally due to our cognitive biases.

3 Cognitive biases and consumer behavior: Two dimensions of impact

Marketing, as we argue in subsection 2.1, can be described as the systematic effort to nudge potential customers into some desired consumer decisions. Given our cognitive biases and the nudging effort that is marketing, the question arises what, exactly, the impact of cognitive biases on our consumer behavior is. The impact is twofold: Cognitive biases can *create preferences*, or they can *alter the order of existing preferences*.

The concept of «preference» as it is applied here stems from *rational choice theory* [18, 19]. Rational choice theory is a model of instrumentally rational human behavior. In this model, humans are thought to be rational agents in that they have some utility that they wish to maximize, and in that they actually act so as to maximize that utility. The utility maximization is taking place by ordering choice alternatives in a specific way: Actors should prefer alternatives that contribute more to the utility maximization over utilities that do so less. These preferences are thought to have two properties, *completeness* and *transitivity*. Completeness of preferences means that all choice options can, in principle, be compared to each other³. Transitivity means that preferences are ordered in a logically consistent way⁴.

Of course, the assumptions of pure rational choice are never met in the real world, because we are not perfectly rational (hence the present paper). We humans do not possess perfect instrumental rationality, but rather something like *bounded*

²For the sake of brevity and simplicity, we are only talking about situations in which these properties are present. In real-life consumer behavior, many decision-making situations can lack one or both of those properties, meaning that some level of coercion and some level of choice erosion are present. A typical such situation are markets that are oligopolic or monopolic.

³In a more formal fashion, this could be expressed something like $A \succ B \vee B \succ A$.

⁴A bit more formally, transitivity could be described as $A \succ B \wedge B \succ C \implies A \succ C$. The meaning of transitivity is simple: If A is at least as good as or preferred to B , and if B is at least as good as or preferred to C , then A is at least as good as or preferred to C .

rationality [20, 21]. The idea of bounded rationality is that the reality of human cognition approximates rational choice, because we do have preferences, and we do tend to strive to realize them honestly and to the best of our knowledge. However, the limitations of human cognition, among them cognitive biases, create a discrepancy between perfect and bounded rationality.

3.1 Preference genesis: Inducing the desire to consume

If we accept that people have preferences, then it is of interest where, exactly, those preferences come from. Perhaps surprisingly, the origin of preferences is something that rational choice theory is not all that interested in [22]. Preferences are usually regarded as a constant in the specific rational choice situation that is being analyzed.

But in the real world, preferences have to have some origin, some process of genesis. Some of the preferences that we have are, probably, of evolutionary origin. For example, when it comes to meeting basic biological needs such as food and water, most people have preferences that maximize the utility of not starving and not dehydrating. In this example, we all tend to be fairly rational in the sense of acting in accord with our preferences (we eat when we are hungry and we drink when we are thirsty). However, we do not usually engage in prior reasoning about whether we should eat and drink or not; the strong preference for eating and drinking is biologically hard-wired. But not all of our preferences can be explained in purely biological terms. For example, when it comes to the question of what exactly we want to eat and drink, our preferences tend to be very complex and, in one way or the other, deliberate and reflected. Some people are maximizing the utility of hedonism – they eat and drink whatever and whenever they want as long as it is to their tastes. Other people are maximizing the utility of athleticism – they eat and drink in such a manner as to support their athletic goals. Yet other people are maximizing the utility of animal welfare – they eat and drink few or no animal products. This list could go on and on.

The preferences we have are oftentimes, then, not a mere product of biology, but a result of deliberate individual choices, combined with cultural and social norms. But that is not all: In general, but especially in the context of consumer behavior, cognitive biases play a major role in the creation of preferences.

One of the basic assumptions of rational choice theory is completeness of preferences, meaning that rational actors should always be able to rank preferences according to their utility. In the real world, however, preferences are often incomplete [23]. It is a trivial truism that there are many situations in which we are not really familiar with all choice options, and, quite often, we do not really care about them. This is especially true for consumer behavior. Say, for example, that you want to buy some apples. In principle, you are faced with a

very complex set of preferences, because, empirically, you are able to buy different kinds of apples at different places that sell apples. This leaves you with many possible alternatives which you have to compare to each other in order to create a preference order. Obviously, however, you will not take into consideration all options, but just a very limited subset, such as the apples available at the grocery store close by to where you live. Your preferences are wildly incomplete, because you are simply declaring, *en passant*, that you prefer a small number of choice options over all other options; among those options that you have discarded, you don't care about what you like best, second best, and so forth.

Quite often, this incompleteness takes a very strong form: You don't care about *any* of the choice options. Yesterday, given your incomplete preferences, you made a choice and bought some apples. Today, in principle, you could buy apples again and choose among the alternatives that are available to you. But today, you don't care about apples at all, and, consequently, all of your preferences are incomplete. You are simply not expressing preference relations among the various options for getting apples, since you don't care at all. This situation of complete incompleteness could also be described as a meta preference $\neg c \succ c$, where c stands for «consuming». If your meta preference is to not engage in consumption at all, then all of your consumption preferences are incomplete. This is where nudging through marketing and cognitive biases come into play: Our cognitive biases are windows of opportunity for marketing nudges to elicit the genesis of at least one preference.

It is enough for a marketing nudge to have a very minor effect in order to change the overall outcome significantly. Even if the stimulus is very small, it can be significant enough to make some specific choice option more salient in some regard than some or all other choice options. As soon as this happens, at least one preference is induced. Depending on the context, the newly induced preference will be the only one, or it will be one in addition to the existing ones. If the situation prior to the marketing nudge was one of complete preference incompleteness, then the newly induced preference is the only one in the given choice situation. In such situations, the marketing nudge did not only induce a preference, but it also induced a shift in the order of the alternatives in the meta preference: $\neg c \succ c$ has become $c \succ \neg c$. Consuming has become preferred to not consuming.

3.2 Preference order: Changing consumption priorities

Being a consumer is, as argued in section 1, essentially unavoidable; we all make consumer decisions on a regular basis. Many consumer decision-making situations in which we find ourselves approximate the conditions of transitivity and completeness from a practical point of view. Say, for example, that you want

to buy a new smartphone. You have a set of criteria that you regard as necessary conditions, and that leaves you with five smartphones among which you need to choose. In such a situation, you are likely to create a preference order. Maybe you are indifferent towards the five smartphones and regard them all as equally good choices; maybe you will strongly rank all five from most to least desired; and so forth. In these kinds of situations in which we have pre-existing preference orders, we are susceptible to marketing nudges via our cognitive biases.

To illustrate this point, let's return to the example of buying fruit. Imagine that you are deciding between apples, oranges and bananas. Your preference order is $a \succ o \succ b$. However, you are then exposed to a marketing nudge that has an impact on your preference order. The least consequential impact would be $a \succ o \succsim b$, meaning that your strong preference of oranges over bananas has been changed to a weak preference (you want oranges at least as much as you want bananas). A more consequential impact on your preference order could look something like $b \succ o \succ a$, whereby your formerly least preferred option, bananas, have become your most preferred option.

3.3 Some examples

In the previous subsections, we have argued that marketing nudges can impact consumer decision-making via cognitive biases either in the form of preference genesis or in the form of an alteration of preference order. For illustrative purposes, we will describe a few specific real-world consumer decision-making scenarios in which cognitive biases lead to irrational consumer decisions. Of course, that is not an exhaustive list of all possible instances of irrational consumer behavior. Rather, the purpose of the following examples centered around different cognitive biases is to show that irrational consumer decision-making does not occur in extreme or rare circumstances, but rather in very mundane situations.

Anchoring

If we were perfectly rational, we would incorporate information objectively into our decision-making. In order to improve our inferences and the decisions based on them, we would continuously collect information and update our beliefs. Unfortunately, we are notoriously bad at handling information. One prominent error in how we deal with information is the *anchoring* bias [24, 25, 26]: We tend to attach greater value to an initial piece of information than on subsequent pieces of information. The initial piece of information serves as a reference value by which we judge subsequent information, even though the initial piece of information might not be very robust or useful from an objective point of view.

Marketing exploitations of anchoring are commonplace in many consumer

decision-making decisions. For example, if you enter any kind of retail store, no matter the nature of the goods that are sold there, you are likely to encounter some items that are on sale. Typically, items that are on sale are made prominent by having their old price displayed along their new, reduced price. This is done in order to elicit the anchoring effect: First, we are anchored to the old price, and then, the new, reduced price almost automatically seems like a good deal to us because we relate it to the reference value, the old price.

In general, anchoring is a potent sales tactic. For example, car salesmen work with anchoring in order to create the illusion that the buyer has made a good deal. Car salesmen will generally set the initial price relatively high – high enough that he can then, consequently, lower the price during negotiations with the buyer. Since the buyer has anchored their reasoning to the initial price, a lowering of the price during negotiations will seem like a good deal to the buyer. However, in absolute and objective terms, the buyer might still be paying above market value for the car.

Anchoring pertains both to preference genesis and preference order. In terms of preference genesis, anchoring is more likely to induce a preference when it comes to small and moderate financial decisions that are made more or less spontaneously, on the spot. Financial decisions that are of greater magnitude are less likely to be induced by anchoring. For example, most people probably don't spontaneously buy a car just because they believe that they could buy it for a good price. However, in such situations, anchoring can play a large role in terms of preference order. For example, if a prospective buyer is actively looking for a car, anchoring in the sense of a pseudo-good deal on a more expensive car can make that car preferable to the car that was originally the preferred choice, a cheaper model.

Status quo bias

From a pure rational choice point of view, we should be perfectly open to all possible choice alternatives *a priori*. Our preferences should only be determined by the utility of the different options, nothing else. However, in reality, we do not judge choice options solely based on their utility: We have a strong, irrational tendency to prefer how things are at the moment over changing things. This irrational behavior is called the *status quo* bias [27, 28, 29].

At first, the idea of a status quo bias might seem surprising. Why wouldn't we change our current situation if that change meant some form of benefit? We tend to stick to a particular brand of breakfast cereal, clothing, laptop, car, and so forth for years, and we tend to disregard similar and perhaps even superior products. We like for things to stay the way they are. That is true even if we aren't emotionally attached to the status quo, such as the default choice of the side dish

in a restaurant. The status quo bias is a complex phenomenon, and a number of heuristics contribute to it. For example, we are bad at handling risk rationally and we tend to be risk averse [30, 31]. Sometimes, we develop a preference for things just because we possess them, not because they are objectively useful [32, 33]. Also we often keep doing what we have been doing for some time because we believe, irrationally, that the greater the sunk costs for the thing we have been doing, the greater the need to keep doing that thing [34, 35].

The status quo bias is very important in all consumer decision-making situations in which consumers enter contractual agreements of any kind. From a purely rational point of view, consumers should change and adapt contracts to their liking. In reality, however, consumers heavily favor the default options in contracts [36, 37] – default options tend to be very «sticky». For example, when the default choice design in a contract is «opt out» (the consumer agrees to some proviso by default), more people end up accepting that option than they do when the default choice design is «opt in» (the consumer rejects some proviso by default and has to take some explicit action in order to accept it) [38, 39].

The status quo bias generates impact mainly on the dimension of preference order. Given a set of alternatives, we tend to attach too much importance to the status quo. However, the status quo bias can also, indirectly, pertain to preference genesis. Say, for example, that you have subscribed to a magazine a few years ago, and your subscription is automatically renewed annually. Even though you have no interest in the magazine any more, you are not canceling the subscription.

Loss aversion

From a rational point of view, losing some amount of money should have a negative effect that is equal in magnitude to obtaining that same amount of money. Say that you have earned 100 000\$ last year and that you have to pay 30% of that earned income as taxes. You can express the overall outcome with two statements: “Overall, you have to pay 30 000\$ in taxes” and “Overall, your income after taxes is 70 000\$”. In principle, both statements contain the same information (how much you have to pay in taxes determines how much money you end up with in the end, and vice versa), but they don’t quite *feel* the same. 30 000\$ in taxes feels like a huge loss, and the net income of 70 000\$ certainly doesn’t feel $2.\bar{3}$ times as good as the loss feels bad. This peculiar differential feeling towards gains and losses is a testament of our loss aversion [40, 41, 42]. We prefer avoiding losses over achieving gains, because, subjectively, losing something hurts more than gaining it benefits us.

It might not be obvious at first how loss aversion plays a role in consumer behavior. To consume, after all, means to exchange money for goods and services. Shouldn’t every consumer decision, then, actually *not* take place, because spend-

ing money (loss) is perceived to have a greater impact than obtaining goods and services (gains)? That is probably what would happen if we as consumers always felt that having some amount of money has the same utility as some consumption alternative, but obviously, that is not always the case. We are consumers precisely because money in and of itself has less value to us than the goods and services that we acquire with money. Loss aversion in consumer behavior can manifest itself in a different manner: Through nudges that suggest that a choice option is available now (under a set of circumstances), but will not be available in the future (under those same circumstances).

Consider an example of online shopping. When browsing some online retailing website, it's common to see a particular piece of information in the proximity of the product description: The alleged number of units in stock of the item in question. While such information can be just that, neutral information, scarcity signaling is also a marketing method intended to nudge consumers into buying [43, 44]. Scarcity signaling is a form of loss aversion, because, through the signal of alleged limited availability, we are induced to buy because we do not want to lose the choice option. A very similar nudge are time-limited offers [45] that nudge us into buying by showing that, after some time period, the price for some item will rise and therefore, if we don't buy now, we will indirectly lose money in the future if we buy the item then.

Loss aversion can impact both preference genesis and preference order. In terms of preference order, loss aversion can make some choice option more appealing than it objectively is by inducing the feeling of looming loss if we choose an option other than the one that, allegedly, will not be available in the future. Loss aversion can also generate a preference for the choice option in question by that same mechanism of signaling a future loss of the choice option.

Halo effect

When we make a decision as consumers, the choice alternatives that we choose from all have a number of properties. Let's, for a moment, go back to the fruit example. When your fruit options are apples, oranges and bananas, the options have many different properties: Color, smell, taste, shape, price, energy (calories), volume per unit of mass, and many more. As rational consumers, only one or some of those properties are relevant in our utility maximizing decision-making. For example, say you have a strong taste preference $a \succ b \succ o$, whereby you prefer apples to bananas and bananas to oranges (and apples to oranges). In principle, your preference order is strong and clear. However, you really like the way how the texture of the orange peel feels in your hand. Because you like that funny feeling, you end up buying oranges, even though, when it comes to taste, – the utility you are actually interested in – you don't like oranges.

The above example is a simplistic version of the halo effect [46, 47, 48, 49]. The halo effect is called halo effect because one property of an object or person is irrationally generalized as being indicative of another property of that object or person, or even as being a *pars pro toto* for the whole object or person in question.

The halo effect is one of the strongest nudging tools in marketing. Essentially, any marketing effort that is not perfectly bland and contains nothing but neutral, objective information is applying the halo effect in some manner. Advertising as a subset of marketing is essentially always an effort in conveying an association between some good or service and some positive feeling. In that sense, the halo effect in consumer decision-making can easily be a form of insincere manufactured halo effect. A sincere, non-manufactured halo effect results simply from an inherent property of a good or service. For example, when you are buying a car, you might, irrationally, have a preference for German car brands, even though the country of origin is not the actual utility you are looking to maximize. If, on the other hand, your choice of car is affected by an attractive woman in a car ad, you are being affected by an artificially manufactured halo effect ⁵.

The halo effect has an impact both on preference genesis and preference order. To some degree, it can be a mix of both. For example, in food consumption, properties of food items that exhibit halo effects such as fair-trade or organic labels can impact preference order by inducing a misperception of taste [50], and they can, indirectly, generate preferences by inducing greater overall consumption [51, 52].

Mere exposure

Exposure to information should be a simple matter, from a rational point of view. We seek information in order to use that information for the rational evaluation of choice alternatives. The mere fact of being exposed to information should not in and of itself impact our attitudes towards the alternatives that we want to evaluate. However, in reality, that is precisely what happens: Through mere exposure to things, we develop preferences for those things [53, 54, 55, 56].

The relevance of the fact that merely being exposed to some good or service can induce us to acquire that good or service can hardly be overstated – the mere exposure effect has wide-ranging implications both in terms of preference genesis and preference order. For example, the phenomenon of impulse buying [57, 58, 59] has a strong relation to mere exposure: Spontaneous, unplanned consumption often occurs when we are exposed to goods or services. Consider, for example, the checkout area in supermarkets. Usually, the checkout area will have various items such as candy or chewing gum prominently on display in order to nudge

⁵Presumably, the attractive woman does not come with the car.

the customers into impulsively buying one or more of those items.

4 Countermeasures: Debiasing and self-nudging

Cognitive biases are «baked into» human cognition; there is no magical cognitive switch for making them disappear. But, at the same time, we know that the prevalence of cognitive biases can be lowered by engaging in slower, more deliberate thinking. Therefore, even though we are prone to cognitive biases by nature of our nature, it is possible to reduce the probability of falling prey to cognitive biases in a given inference. In this section, we lay out two strategies as countermeasures against cognitive biases in the context of consumer decision-making: Debiasing and self-nudging. These countermeasure strategies can be applied in a broader sense as countermeasures against cognitive biases in general (the idea of debiasing was developed in other areas). In the present paper, they are geared specifically towards the context of consumer decision-making.

4.1 Beat them: Debiasing

The fact that human cognition is not influenced by biases all of the time quickly leads to the idea that it might be possible to undertake some active efforts in order to avoid biases. Indeed, this idea, sometimes called «debiasing», has been explored for decades [60, 61, 62, 63, 64, 65, 66], with a mixed bag of findings: Debiasing strategies can work, but there is no universal and easy way to becoming less bias-prone.

Essentially, there seem to be two promising strategies for debiasing [67]: *Education* and *cognitive forcing*. Education in the context of debiasing means to learn about cognitive biases. Such a measure might seem simplistic at first, but it makes obvious sense: The more aware we are of cognitive biases, the more willing we are to accept that they, first, present a serious problem, and that, second, we are susceptible to cognitive biases.

Cognitive forcing refers to the idea that one should not only have some knowledge about human cognition and the pitfalls of cognitive biases, but that we should actively incorporate steps to do something about it. Cognitive forcing boils down to metacognition [68]: In order to do something about cognitive biases, we should think about our thinking.

Education and cognitive forcing are probably not completely separate concepts. In order to engage in cognitive forcing as metacognition as successfully as possible, one has to have some conceptual understanding of cognition. To some degree, any kind of pause in our automated thinking will probably reduce the impact of cognitive biases – no matter what has slowed down our thinking, the fact

that it has slowed down is helpful. However, the full debiasing potential of metacognition will only be realized when the inferential goals of metacognition are defined. Therefore, some idea about cognitive biases is necessary.

Fortunately, there already exists a concept that aims to stimulate a specific kind of metacognition that incorporates ideas about cognitive biases: *Critical thinking* [69]. Critical thinking is a metacognitive skill applicable to the evaluation of truth claims. It consists of three components: Minimization of logical fallacies, minimization of cognitive biases, and a probabilistic epistemology. Within the concept of critical thinking, cognitive biases are understood in the manner as they are discussed in this paper. Additionally, critical thinking incorporates the idea of minimizing logical fallacies, and of applying a probabilistic epistemology⁶. Critical thinking as a metacognitive skill can be applied in all situations in which we make inferences about the world, including consumer decision-making. Applying critical thinking is, in principle, easy: Upon completing an inference and deciding on a course of action, we need to stop and question the reasoning that lead us to the conclusions at hand. Specifically, we need to analyze whether we have possibly fallen prey to cognitive biases, whether our conclusions are logically supported by the premises, and we need to quantify our belief that our inference is true.

4.2 If you can't beat them, join them: Self-nudging

The idea of debiasing is centered around the notion of actively and consciously implementing steps in order to reduce the impact of cognitive biases. As promising as debiasing is in theory, it is tough to apply debiasing all of the time in practice. Therefore, an additional countermeasure strategy against cognitive biases in the context of consumer behavior is necessary. There is one viable, but not necessarily obvious way of doing this: Self-nudging.

Throughout the present paper, nudging has been presented as a measure initiated by some actors aimed at inducing a desired behavior of other actors. In principle, however, there is no reason why nudging couldn't also be turned into self-nudging. As a countermeasure against marketing nudges, self nudging can be applied for two goals: *Nudging oneself into metacognition*, and *nudging oneself into some desired behavior*.

Nudging oneself into metacognition is the idea that as consumers, we can engage in choice architecture with the goal of increasing the probability that we engage in critical thinking. This means that we have to modify decision-making

⁶The idea of probabilistic epistemology is that justified beliefs should be quantified as probabilities. The probability is a description of how certain or uncertain we are that a belief is true.

situations in such a way that the desired outcome, critical thinking, becomes more probable.

A general shortcut for activating critical thinking consists of two actions: The quantification of how certain we are that a certain conclusion we arrive at is true, and the justification for that quantification. In simpler terms: How strongly do I believe in my conclusion, from 0 to 1? And why do I believe that? The challenge here is to transform these questions into a nudge that we apply to ourselves. One possible way of doing so is to create visual stimuli that are stand-ins for those questions. A drastic example: Get a tattoo on your hand that reminds you of critical thinking. You are likely to have your hand and thus the tattoo in your field of vision fairly often. As a result, you are likely to be nudged into critical thinking when you find yourself in consumer decision-making situations, at least some of the time. You might object to this idea: Getting a tattoo for nudging purposes seems a bit over the top. That's probably true. Luckily, installing visual cues as nudges can be achieved without tattoos as well. For example, as a precaution against impulse buying, you can install some item in places that matter in consumer decision-making, such as your wallet. It's fairly simple, for example, to place some sort of sticker on your credit and debit cards, as well as in front of your cash bills. Of course, this is only one simple example meant to demonstrate the general idea of visual cues as nudges.

Another general cue that can increase the probability of critical thinking are nudges that delay making a decision in the decision-making situation. If you can «buy some time», i.e., if you can prolong the decision-making process, you are increasing the probability that critical thinking as slow thinking will take place. This, of course, is not a direct nudge, but rather an indirect increase of the probability that critical thinking will kick in. One application of this delay tactic is to stay logged out by default from online shopping websites. If you are logged out and you need to log in before you can make a purchase, you will gain a few seconds before making the final decision. Of course, a few additional seconds will not induce critical thinking every single time. But that small delay will increase the overall probability of entering the critical thinking mode before finalizing the decision.

The second strategy for self-nudging are nudges that directly increase the probability of some desired course of action, without the need for critical thinking. Specific measures for this strategy need to be based on the idea of «fighting fire with fire»: Given cognitive bias A that leads us to action X, what cognitive bias B (and, potentially, additional biases C, D, and so forth) will lead to the desired action Y? Some preliminary insights are offered by debiasing efforts by means of regular nudging [70]. One powerful nudge against biases is the change of defaults. The status quo bias is very strong, and it's unlikely that we can force ourselves to always make active choices. However, in order to reduce the negative

impact of the status quo bias, we can use it to our advantage by changing the default choice options to options that are, rationally, more desirable. One such default has already been mentioned above: Staying logged out of online shopping websites by default. This is a small change, of course, but one that will reduce the probability of irrational consumer behavior by changing the default to not-buying. Another potentially powerful self-nudge is planning and automating prompts and interruptions. By setting up prompts and interruptions, for example via digital calendars on your computer and smartphone, you are either reminding your future self of something, or you are interrupting your future self while doing something. Both of those nudges can be strong, in the sense of conveying your current, rational preferences to your future and potentially irrational self. But even in their weak forms, without any specific information and instead simply as generic irritations, prompts and interruptions are likely to have beneficial impact. Just by interrupting yourself, you are prolonging the decision-making phase and thus increasing the probability that slow, deliberate thinking will take place. Another potentially very helpful nudge is perhaps the most trivial of them all: Using something like checklists [71]. A checklist is a very simple form of nudge in the context of consumer behavior, since it is essentially nothing more than preferences put into writing. And that simplicity is exactly why checklists are so powerful: When you are in a decision-making situation, you can remain in the fast, automated mode of thinking and simply rely on the checklist for guidance. Relying on cognitive heuristics and using a checklist will almost always lead to faster decision-making than only relying on cognitive heuristics. With a checklist, you can completely abandon *ad hoc* genesis and ordering of preferences and instead completely focus on the realization of pre-existing and fixed preferences.

5 Conclusion: We are irrational, but not hopeless consumers

Almost every single day of our lives, we act, directly or indirectly, as consumers. We have the potential to be rational consumers, but very often, we succumb to our cognitive biases. We do so not least because marketing is little more than a collection of nudges intended to exploit our cognitive biases.

The goal of this paper is not simply to bemoan the irrationality of consumers, however. As consumers, we are not doomed to be irrational all of the time – there are steps we can take in order to decrease the impact of cognitive biases on our consumer decision-making. One of those steps is *debiasing*: The effort to decrease the overall susceptibility to cognitive biases by means of critical thinking. Another step against irrational consumer behavior is *self-nudging*: Since we cannot engage

in critical thinking all of the time, we have to fight fire with fire and exploit our own cognitive biases in order to reduce our irrational consumer behavior.

5.1 Are there upsides to irrational consumer behavior?

The premise of the present paper is that irrational consumer-decision making is harmful to consumers, since it leads to outcomes that are not congruent with consumers' rational utility maximization goals. However, is that premise universally true? In other words: Could irrational consumer behavior also have beneficial effects?

One potential upside to irrational consumer decision-making is that is a greater pace of innovation. If irrational consumer-decision making leads to greater rates of consumption, then it is possible that for some goods or services, greater consumption will lead to faster innovation. A higher pace of innovation, in turn, could be beneficial to society at large, and thus to individual consumers as well. A possible real example for such a higher pace of innovation are consumer electronics, such as computers and smartphones. Demand for consumer electronics is, arguably, a strong driver of innovation in that area, because greater demand results in greater competition and shortened design and production phases.

Another potential upside to irrational consumer decision-making is more abstract. Consumers are thought to be rational in principle, but irrational in practice. However, one could potentially make the case that consumers are irrational *both* in principle and in practice. That would mean that consumers might be making less than ideal decisions under cognitive biases, but without them, they make even worse decisions.

Both of those arguments could very well have some merit. Greater demand for goods and services should indeed lead to a greater pace of innovation, given competitive markets. However, that is a question that needs to be explored empirically. The idea that marketing nudges have an indirect positive effect on the quality of consumer decisions is also possible. Think of, for example, a tourist who is seriously allergic to some foods. In a grocery store, the tourist is unable to read and understand the labels of the food. However, when he spots the logo of the chocolate brand he eats at home, the tourist uses that cue as a heuristic for safe food. Of course, that decision is the result of successful nudging, but in this particular context, this irrational action could have led to the best outcome. Obviously, this example is a bit of a stretch, and you could argue that it is not at all an example of nudging, but instead a rational choice given the available information.

Overall, then, it's not impossible that irrational consumer behavior could have some benefits. Nonetheless, the premise of the present paper still stands: As consumers, we should strive to be rational in our decision-making. There is

no obvious evidence that the potential benefits of irrational consumer behavior outweigh the downsides. Furthermore, if we embrace irrational consumer behavior, then, consequently, purveyors of goods and services are being incentivized not to provide the highest quality of goods and services, but rather to deceive prospective customers as much as possible through nudging.

5.2 Recommendations for stakeholders

There are two main stakeholders who are affected by the arguments put forward in this paper: *Consumer protection agencies and organizations*, and *educational institutions*.

Consumer protection agencies and organizations aim to inform and protect consumers. Obviously, they should also take the reality of cognitive biases and marketing as nudges into account. More specifically, consumer protection agencies and organizations should embrace and promote debiasing efforts. One way to do so is to directly devise and implement debiasing in the form of educational efforts. Another way to promote debiasing is to support other organizations that are already actively engaged in debiasing.

Educational institutions are responsible for imparting skills to children, adolescents and (young) adults which they can use in order to maneuver through life and achieve their goals. Educational institutions should adopt critical thinking in general and knowledge about irrational consumer behavior in particular into their curricula. By doing so, they are able to provide students with a skillset that is universally useful, across ages, occupations, and countries. Of course, educational curricula are a zero-sum game: Adding items and topics to a curriculum means that there are fewer resources for other items and topics. However, critical thinking as well as consumer behavior are already part of many educational curricula, and therefore, the goal is to use the resources already allocated to those topics in a more effective manner.

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