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Psychological Barriers to Climate Action in  
Barbara Kingsolver's *Flight Behavior*

MIREIA FORTUNY BERNAL



UNIVERSITAT ROVIRA I VIRGILI  
DEPARTAMENT D'ESTUDIS ANGLESES I ALEMANYS

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MIREIA FORTUNY BERNAL

TUTOR: Dr. John Style

UNIVERSITAT ROVIRA I VIRGILI  
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## **Abstract**

Climate change has become part of our lives, both as individuals and as societies. The range of reactions to a crisis that demands such great responsibility has become as vast as the array of socioeconomic and personal contexts that exist in western society. One of the most notorious responses, however, is that of inaction. Such a plethora of perspectives justifies the increased popularity of climate change as a theme in the world of literature during the last decade. This thesis will present some of the reactions to climate change that exist in the current reality of the United States, and the psychological reasons that contribute to environmental inaction. This theoretical background will then be used to analyze the presence of climate change as a socioeconomic issue, alongside the responses to it in Barbara Kingsolver's *Flight Behavior*. In addition, it will serve to discuss the role of literature in the environmental crisis.

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## Introduction

During the last decade, climate change has impacted not only our daily lives, but also the systems that connect our society. Precisely because the current global crisis has become omnipresent, it has transcended science. In doing so, it has become a controversial topic and its truth is sometimes reduced to mere belief. Because of the various reactions to the crisis, and despite its global effect, environmental responsibility is not equitably shared. Many people feel detached from the topic. The fact that these reactions may at times be encouraged by external factors makes them even more intricate, blurring the lines between individuals and groups. The capacity to explore and portray both contextual and personal matter could give literature a key role in changing the way in which climate change is communicated and, consequently, perceived.

Climate change has become an inherent part of our lives as individuals, as well as a political and socioeconomic issue. As such, it should not be surprising that it has exceeded the limits of reality and percolated into literature. However, if the current concept of the climate crisis has shifted from what it was nearly two centuries ago, so has its literary presence. Until the 21<sup>st</sup> century, the concept of climate change in literature was distant and perceived as apocalyptic-like. Consequently, authors used natural disasters as the causes of shifts in climate instead of representing the anthropogenic side of climate change (Johns-Putra, 2016). This perception allowed science-fiction writers to use climate change as *novum*<sup>1</sup>. That is, a literary device used for setting purposes, and seldom related to the development of the story or the characters beyond their context.

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<sup>1</sup> Darko Suvin coined the literary meaning of *novum* in his work *Metamorphoses of Science-Fiction* (1979). He used it to describe the use of scientifically proven theories in favor of literary innovation.

Traditionally, literary scholars have valued “literary fiction” as more prestigious than “genre fiction<sup>2</sup>”. Therefore, the literary innovation that genre fiction authors have evoked on the topic of climate change has often been disregarded or disconnected from the real issue because of its lack of similarity to the real world. It should come as no surprise, then, that literary authors who are concerned about the climate crisis have decided to give it a primary part in their stories. A problem so deeply rooted in and affecting our society has unleashed the imagination of many literary authors. Their stories have benefitted from the nuances of the impact of climate change on people’s lives. In turn, climate change has finally been interpreted as a humanitarian crisis instead of an exclusively ecological one.

Every decision made, whether individually or collectively, will directly or indirectly impact the environment. In the same way, the environment will – to an extent – impact the decisions that are made. And precisely because of the magnitude of its effects, a society run by capitalism and its dichotomies has responded in many ways. Individually, though, the complexity of climate change has triggered reactions just as complex. From scientists and activists to active deniers, the spectrum of responses is broader than ever. Because of this assemblage, psychologists have delved into the question Barbara Kingsolver proposed: “how people can look at the same set of facts and come away with. . . different convictions about what they’ve seen” (Kingsolver, 2012).

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<sup>2</sup> Johns-Putra (2011) describes ‘genre fiction’ as fiction that is easily categorized within a certain literary form. Literary fiction, on the contrary, is not read from the perspective of genre.

## **Methodology**

In this thesis, I will first give a brief insight on Barbara Kingsolver, author of *Flight Behavior*, which will later be analyzed. For the literature review, I will be using Robert Gifford's theory of the *Dragons of Inaction* to explore the psychological traits that can prevent adequate climate behavior – and behavior change in general. The reason why I have decided to approach the novel from this proposition is that literary fiction allows for psychological insight to the characters. In his research, Gifford implies that these barriers are reinforced by external factors, although he is not specific about them. However, these factors may be stimulated in various ways: they can become either barriers to behavior change or, on the contrary, its instigators. Because there are different parties with interests in both outcomes, I will contextualize every barrier within the situation in the United States during the last decade – specifically in rural America. This contextualization is justified by the setting of the novel around which this thesis is centered. Later, I will use this theoretical background to analyze the various reactions to climate change in Barbara Kingsolver's *Flight Behavior*. The commentary will be carried out from Gifford's psychological perspective, while also considering the socioeconomical factors that may influence the characters' individual traits.

### **1. Barbara Kingsolver and *Flight Behavior***

Among others, novelist, poet, and essayist from Maryland, Barbara Kingsolver has been able to grasp the array of reactions to climate change and interpret it in a literary novel. Kingsolver graduated from a biology degree at DePauw University, Indiana in 1977. In 1981 she obtained a master's degree on ecology and evolutionary biology at the University of Arizona. Given her academic background, her writing career started in the

shape of scientific articles for the university and freelance journalistic papers in the mid-1980s. In 1985, her career as a fiction writer launched. Shortly after, her first fiction novel *The Bean Trees* was published. Until today, she has written a total of nine fiction novels, as well as nonfiction essays and books. Because it demonstrates Kingsolver's links with sustainability and environmental causes, it is worth mentioning that her most well-known nonfiction work is *Animal, Vegetable, Miracle: A Year of Food Life*. It consists of her and her family's account of their experiment with eating local produce almost exclusively for a year.

Besides the use of her knowledge on biology and ecological theories in most of her fiction novels – whether it is as a part of the plot or through an emphasis on imagery –, Kingsolver has acknowledged the strong influence of her personal life on her fiction work. In *Flight Behavior* she locates the story in a rural town in Tennessee. At the time the novel was published, she was living in a rural town in southern Appalachia, and she claims that most of her friends and neighbors, who were farmers, had no knowledge of climate change. However, she was aware of the direct effects it had on their lives (Kingsolver, 2012). Similarly, some of her protagonists in *Flight Behavior* are unaware of the effects climate change has on their lives, yet the sudden appearance of a mass migration of butterflies in their small town will not only affect their environmental approach, but their personal ongoings as well.

## **2. Barriers to Climate Action**

Although climate change is an inescapable topic in western society, some people do escape its reality. Or, in some cases, its reality escapes some people. Professor Michael

Hulme (as cited in McPherson, 2011) argues that climate change cannot be solved because an agreement will never be reached. Globally, and especially in the US, there has been an emergence of so-called ‘climate deniers’, who either refuse to accept that climate change is happening, or that human activities have had an impact on it (that is, denial of anthropogenic climate change). Either way, a problem cannot be solved if it is not considered a problem. Notwithstanding this, climate denial is not the only obstacle in the race for climate action. Individuals can acknowledge a problem and still not to act on it. Even though there are individual factors that contribute to inaction, there are structural factors – such as government policies and models – that also influence people and prevent them from adopting climate change mitigating behavior. Deeper understanding of the mental mechanisms that act as barriers to climate change-mitigating behavior would help reorientate the strategies for behavioral change. That said, sectors which are not in favor of pro-environment behavior could also use such understanding to perpetuate inaction or non-mitigating behavior.

This section will provide some of the psychological barriers to climate action as presented by Robert Gifford, and how these have been reinforced in the US. These obstacles, however, are not exclusive to climate action, but to action and behavior change in general. For practical reasons, it will focus on the barriers that are most present in the novel *Flight Behavior*. It must be pointed out that some of these barriers relate to and influence one another, hence their appearance in various sections. Also because of this correlation, the barriers included in each section will appear in bold instead of subcategorized.

## 2.1. Cognition related barriers

Gifford (2011) describes the human brain as “**ancient brain**”: it is designed to act on immediate threats and at the present time. When presented with the consequences of climate change, these are perceived as events that are far in the future. Individuals do not fear for their life or their immediate relatives’ safety in the present, and so they do not perceive danger. One of the keys to this perception is in communication. There are two processing systems in the brain (Davis, Devlin & Sample, 2020): experiential, related to survival; and analytic, which analyzes scientific information. While the experiential processing is the main motivator for action, most climate change communication is geared to the analytic processing (Davis, Devlin & Sample, 2020). That said, human brains have the ability to change this behavior (Gifford, 2011), although more effort is needed.

Another cognitive barrier presented by Gifford (2011) is **ignorance**: either not knowing about the existence of a problem, or not knowing how to act accordingly. Many factors play a part in this case. On the one hand, there is privilege. Not all individuals have equal access to information (Scott, 2013), either about the existence of the problem itself or about what they can do about it. Then, although some media sources try to convey the real messages behind scientific reports, others have an interest in generating doubt. This happens due to media funding on the behalf of fossil fuel corporations, which have adopted the same strategies used in the 1950s to generate debate around the science that linked tobacco consumption to cancer (Conway & Oreskes, 2010). Through scrutinizing and doubting the neutral language used in scientific reports – which are precisely characterized by their neutrality – a part of the media and the scientific community funded

by fossil fuel industries have purposely ignited doubt (Newport, 2010), which has derived into **uncertainty** among the population (Gifford, 2011). Precisely because people are used to exaggerations and misinterpretations from the media and politicians, objectivity does not provoke emotional reactions. Because of the complexity of and the effort needed for behavior change, people look for what aligns with their existing behavior and feelings (Davis, Devlin & Sample, 2020). Even the smallest sign of uncertainty may then be received as a green light to act in self-interest, as well as a justification for the lack of action or its postponement (Gifford, 2011).

Finally, Gifford (2011) mentions **judgmental discounting**. This barrier could be linked to the short-term brain reaction, since it refers to the underestimating of risks due to the false impression that they are distant – either in time or place. Also with the media's impact, individuals are constantly watching how climate change impacts other parts of the world, but one never assumes that what happens near them is due to the ecological crisis. If the danger is not close, it is hard to expect behavioral change. Surveys show that half of the population in rural America do not see climate change as an emergency because they do not sense the impacts of environmental change in their local communities (Dillon & Henly, 2018).

## **2.2. Ideology related barriers**

Belief systems are firmly rooted in all societies, and thus they influence, or even determine, how people act both as communities and as individuals within them (Gifford, 2011). This is especially true in the United States, where some of the ideas behind these systems are in direct opposition to the interests of climate change diminishment.

As previously mentioned, some of the key beliefs that act as barriers are **capitalist principles**. As individuals, interest in keeping certain organizations alive is a barrier towards fighting the climate crisis. In general terms, the current capitalist system in the US acknowledges climate change, but this does not mean it acts against it. Rather, it takes advantage of the climate crisis to increase economic power, usually resulting in strategies that act directly against the environment (Machan, 1990). In this case and given the many shapes of capitalism, it is necessary to mention that although Gifford (2011) focuses on individual interests, these are rooted on and fomented by the industries' views.

Another belief system that limits climate action in the United States is **religion**. On the one hand, the supposition that a higher, divine force controls every phenomenon that takes place invalidates the real scientific causes of climate change. Consequently, every explanation that differs from religious beliefs will most likely be doubted or discredited. On the other hand, religious beliefs also affect the perception of climate change consequences. That is, if one trusts that a divine figure is responsible for the changes in their surroundings, the same figure will most likely be trusted with the power of controlling how these changes affect them and the earth. In such cases, individuals believe their actions have no correlation to what happens around them, and thus they are usually not prone to behavior change. When studying the perception of no effects of global warming in rural America, Dillon and Henly (2008) found a correlation between individuals from communities with declining resources and the religious branches most common in said communities.

Still, climate change affects people's lives in many different ways and so religious beliefs – just like many other psychological barriers – are not necessarily incompatible with behavior change related to other aspects. As illustrated by Tima Bansal (cited in Davis, Devlis & Sample, 2020) adapting pro-environmental behavior is not always a matter of politics and religion: it is also a human rights issue. Religious rural communities that claim to perceive its effects may act on it on the basis of the sustenance of their livestock, clean air, or other basic human needs. This will be further illustrated in the analysis of the novel.

Lastly, ideology related barriers include **system justification** (Gifford, 2011). These barriers occur when either individuals or communities feel their *status quo* is being threatened. Although in his study Gifford relates this argument to certain levels of comfort, it should not be merely interpreted as privilege. Most rural towns in America are not privileged communities, yet their systems work in favor of their way of life and people are skeptical about change. If the adjustments needed to fight climate change are not incorporated within their system, then it will seldom shift. In addition, it is even harder for communities with this sort of barrier to accept changes coming from “outsiders”; opinions coming from beyond the established system may be judged as not knowledgeable of what works best for their communities. In this sense, change is a barrier *per se*. The comfort in the already existing routines make change uncomfortable. This is usually represented by the communities' gatekeepers<sup>3</sup> and their belief that change is unnecessary because the way the community works has sufficed so far (Holton, 2007).

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<sup>3</sup> “A gatekeeper is anyone who works to allow, refuse, limit, redirect, support, or hinder initiatives in a community” (Co-operative Innovation Project, 2015).

### 2.3. Comparison Related Barriers

Humans are characterized by their social condition. **Social comparison** of oneself with those around them is usual given that they live in communities (Gifford, 2011). Even more so if, as mentioned, the community is small, and its participants are tightly related to each other. It is common that individuals see others' demeanor as the appropriate way of acting and create their own rules of behavior based on what they observe from them.

Alternatively, **social norms and networks** can also dictate individual behavior (Gifford, 2011). These patterns of conduct can work in favor of climate change-mitigating action, but they can act as barriers for pro-climate patterns. On another note, these patterns may be integrated in a social network instead of explicitly dictated; individuals may alter their bearing to adapt it to the others'. This may relate to the importance of the sense of belonging in rural social networks, where customs vary from town to town (Slama, 2004).

### 2.4. Sunk Costs Related Barriers

Changing individual behavior can sometimes be in direct conflict with the way people live their day to day lives, their interests and even their future plans. As previously mentioned, it is common human behavior to act against climate action when any kind of loss is at stake (Gifford, 2011).

Fear of **financial loss** can lead to cognitive dissonance<sup>4</sup> (Gifford, 2011). When someone who has invested in an industry or an item that is directly or indirectly harming the environment is presented with the information of its negative impact, they will rarely

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<sup>4</sup> Internal tension caused by a conflict of ideas or feelings based on the premise that individuals need consistency between thoughts, feelings, and behaviors (Festinger, 1957).

discard the investment. Money is seen as a result of time and effort, so letting go of an economic investment would be translated into economic waste, even if accepting the sunk cost and moving on could potentially be beneficial in economic terms in the long term (Gifford, 2011). Because of this, changing one's mind about the negative effects of the investment is the easiest and fastest way to mitigate the dilemma. If one does not believe in the downside of the investment, then the outcome can only be seen as positive, and thus the investment will only be seen as beneficial.

On another note, sunk costs do not only refer to economical investments. In the US, instigator of capitalized western culture, the value placed on effort and time is almost as relevant as that placed in money – precisely because the latter is seen as a byproduct of the former two –. Today's American way of life – or its aspiration – is built on **habits**, such as driving in order to save time instead of using public transport or biking; **values**, and even **goals** that go directly against pro-environmental behavior. For instance, many people aspire to buy a bigger house or car; or flying for a vacation – which consume more yet would translate into individual success. Because people invest time and effort with these goals in mind, it would take a bigger effort to convince themselves of the negative impact that these actions have on the environment. Howbeit, internalizing and accepting the negative impacts is not always enough to invert the situation. It would also need to translate into changing habits that are firmly rooted in society and in people's daily lives, which perhaps would require an even greater effort.

The barriers I have just mentioned are present in many people's lifestyles and are important factors in their decisions, yet it is necessary to contextualize them. Privilege is

a central factor in the sunk costs barriers as well. When it comes to economic privilege, it must be pointed out that the kind of lifestyle led by a lower or working-class person from a rural town in the Appalachia most probably differs from that of someone more accommodated from a bigger city in the US. The range of decisions – if granted the chance to decide – made by someone belonging in the former group is likely to be more limited by scarcity of time, economic resources, or poor accessibility (Roberts, 2017). Notwithstanding this, studies show that individuals belonging to lower social class – 50% of the population – are responsible for 10% of lifestyle emissions, and thus are seldom the ones who leave a bigger footprint on the environment. On the other hand, the richest 10% of the population produce 49% of lifestyle emissions. Yet it is the first 50% who suffer the most from the consequences that these emissions have on the environment (Oxfam, 2015). Social class does not only influence behavior change or action; it relates to the causes and the consequences of the environmental crisis as well. Consequently, the sunk costs barrier exists when an individual can make an investment of any kind: money, time, effort, among others. The economic risks that an unprivileged person from rural America could take might not be as significant – in terms of environmental impact – when compared to changes that would imply a larger investment (U.S. Department of Agriculture, 2020), such as buying a hybrid automobile. Not investing, though, may be central to some people's economic stability.

## **2.5. Distrust Related Barriers**

Gifford (2018) states that several forms of negative predisposition towards others' views can block pro-environmental influence, and with it change in behavior. This section displays two of the main ways in which these unfavorable judgments can manifest.

Lack of **trust** – especially from citizens to the scientific community, government, and the media – can enhance resistance to behavior change (Gifford, 2018). For individuals to engage in pro-climate behavior they need to believe that the advice comes from good, honest motives. However, trust can be easily manipulated and damaged, resulting into said pro-climate behavior barrier. As previously stated, the possibility that some barriers interact with one another may create an even greater feeling of apprehension towards pro-climate behavior. Many factors could influence whom individuals trust, but because of the contextualization of this thesis, I will highlight what was previously mentioned as ideologies and worldviews. In the US, ever since the 1960s – when the Republican party took over the conservative movement – science, the government, and the media have become politicized (Hetherington & Ladd, 2020). Especially when it comes to science credence, studies show that there is disparity on a partisan basis: “More Democrats (43%) than Republicans (27%) have “a great deal” of confidence in scientists”” (Funk, Hefferon, Johnson & Kennedy, 2019). While most Americans in metropolitan networks lean toward the Democratic Party, rural regions will generally have a higher grouping of Republican-inclining independents (Parker, Menasce Horowitz, Brown, Fry, Cohn & Igielnik, 2018). Sectors of the media funded by political parties or corporations have also influenced the population’s trust. Nevertheless, in his research about underlying causes for distrust in science in the US, Gauchat (2012) observed that political views that discredit science are representations of other beliefs that influence them. Out of these, religion stands out in rural America (Dillon & Henly, 2008). As major components of the National Republican Party, the religious right and some transnational corporations have an interest in attaining certain scientific results (Gauchat, 2012). Gifford (2011) affirms

that mistrust and denial can occur when there is **reactance** to believing the communicating party. As mentioned in this theoretical background, many American citizens may be reluctant to act in favor of recommendations or policies simply because they come either from the scientific community or from a party that differs from their views. In this case, the individuals are not skeptical about the message but about its transmitter.

Uncertainty, mistrust, and the other barriers may result in active **denial** of the problem. Gifford mentions three variants of denial: denying the existence of climate change itself, denying its anthropogenic causes, and denial of the impact of individual actions on climate change (2011). Viewed as the tip of the iceberg, denial is influenced by a vast array of emotions. Fear plays a very important role in denying the environmental crisis, mainly due to the uncertainty about the future that surrounds it. Climate change can also be perceived by individuals as a reminder of their vulnerability, or even death (Vess & Arndt, 2008). Precisely because of the links between emotions and climate denial or skepticism, these links can equally be employed to steer human behavior towards environmentally negative attitudes.

## **2.6. Perceived Risk Related Barriers**

Closely related to the feeling of fear, Schiffman, Kanuk, & Das (as cited in Gifford, 2011) present at least six kinds of potential risks that are attributed to behavior change and that could prevent people from taking environmental action. Two of them are directly related to *Flight Behavior*.

One of the subclasses is that concerning **social risk** (Gifford, 2011). Because individuals have a social nature, personal decisions cause a response by the people in their surroundings. Due to the high value placed on ego and reputation (Gifford, 2011), being exposed to outside judgment can be defining in the actions that people decide to take – or not to take. Apropos of rural areas, a survey carried out by Greenberg Quinlan Rosner Research (Kellogg Foundation, 2002) showed how both rural and non-rural participants believed that social connections in rural communities were significantly tighter than in urban and suburban areas. Although reality shows that rural and urban family life look significantly alike (Albrecht & Albrecht 2004, Brown & Synder, 2006), rural communities tend to be smaller and with less population, where most people know one another. This enables social connections and familiarity, whereas at the same time increases the risk of social exclusion if individual behavior deviates from that of the community.

Tightly linked to the previous, **psychological risk** is another barrier to adopting climate change-mitigating behavior (Gifford, 2011). How individuals are perceived by others affect – to different degrees – everyone’s feelings about themselves. Social disapproval can damage self-esteem and self-confidence (Lerche, 2003). As mentioned, there is a lack of anonymity in rural communities that causes individuals to hide unconventional opinions or aspects about themselves (Slama, 2004). Fear of this kind of damage is less likely to appear by itself; the causes of psychological damage will probably be induced by a different barrier that is closely tied to it.

It is also valuable to acknowledge that stigma is closely bound to mental health. Misconceptions, prejudice, and stereotypes around mental health increase the feelings of shame in people who suffer from it. When linked to the lack of anonymity in rural communities, stigma makes it hard for individuals to look for professional help (Coburn, Gale, Janis & Rochford, 2019). Moreover, women are another vulnerable group within rural communities. While 13 to 20 percent of urban women recount high levels of mental distress, it increases to 41 percent of rural women (APA, 2005).

### **3. Climate Action Barriers in *Flight Behavior***

#### **3.1. Cognition Related Barriers in the Novel**

The main representation of Gifford's (2011) '**ancient brain**' barrier in the novel is the main character. In fact, Dellarobia eventually acknowledges the barrier herself. In the following passage, she has just told her son, Preston, about having married his father, Cub, accidentally. That is, she was pregnant with their firstborn and was in no condition to raise the child on her own.

Some juice in our brains makes us only care about what's in front of us right this minute. Even if we know something different will happen later and we should think about that too. Our brains trick us. (Kingsolver, 2012, p. 662)

While her speaking about the human brain shows an increase in Dellarobia's self-confidence, this quotation also shows her story development. She is aware that she agreed to marry Cub considering only its impending beneficial consequences, and not the negative aftermath farther in the future. Dellarobia's growing education on climate change in the novel could mean that she is also referring to the human tendency of reacting only to what threatens them in the present, and thus it could be interpreted in an environmental key. Apart from this revelation at the end of the novel, Dellarobia's ancient

brain attitude shows since the beginning. As stated in the introduction of this project, the story opens with Dellarobia hiking up towards the summit of the mountain in Feathertown in order to have an extramarital affair: “one hard little flint could outweigh the pillow, suffocating aftermath of a long distance” (Kingsolver, 2012, p. 1). Because of her dissatisfaction with how her life has turned out, she is willing to risk her family structure and her own reputation for instant pleasure. But the narrator soon generalizes this attitude stating that “Plenty of people took this way out, looking future damage in the eye and naming it something else” (Kingsolver, 2012, p. 2), which connotes a universal human experience and hints at the environmental perspective of the story. Dellarobia’s ancient brain attitude is described at the beginning as “looking future damage in the eye and naming it something else” (Kingsolver, 2012, p. 2), which is symbolized by her compulsive smoking habit.

As seen in the theoretical background, Gifford (2011) mentions the possibility of change in such mechanism. After helping members of the scientific community and bonding with them on a personal level, Dellarobia eventually decides to leave her husband and move to a different town to take up college. But her attitude towards the hazards of climate change shifts as well. And the fact that she comes round to see its future damage as concerning is mostly because she is a mother of two children. Her son, the eldest of the two, is growingly fascinated with nature and animals. When Dellarobia has spent time with the scientists and becomes aware of the prospects of wildlife due to climate change, she is concerned:

Dellarobia felt an entirely new form of panic as she watched her son love nature. . . , wondering if he might be racing toward a future like some complicated sand castle that was crumbling under the tide” (Kingsolver, 2012, p. 382)

The change in her perception of the environment happens in fear for her children. This excerpt shows how the fear for the future of the environment is something entirely new for her, even though she had feared for her children’s and her family’s future if she had an affair with another man.

The barrier of **ignorance** in the novel is not as obvious as others. To some degree, all the characters seem to be aware of the existence of the climate crisis. The first explicit mention of climate change happens on Dellarobia’s account, when the scientists are helping her understand that the butterflies being there is something negative: “She wondered whether any of this was proved. Climate change, she knew to be wary of that” (Kingsolver, 2012, pp. 227-228). The narrator’s free indirect style shows Dellarobia’s skepticism towards climate change at the beginning. Nonetheless, she seems convinced about the fact that she should doubt it. There is no mention of the sources that cause her this kind of thinking. It is likely, however, that it comes from the interaction of several factors such as worldviews and the influence of the media, both explained later in this analysis. These would explain her **uncertainty**, although her lack of knowledge could be attributed to poor access to information. Dellarobia does not start to actively look for information until she and her son become interested in the phenomenon of the butterflies. She is the one who initiates the process of education: they do not own smartphones nor internet connection in their home, but her in-laws – Hester and Bear – do. She takes her son with her and they both learn about the environment together. This one computer is

the only source of outside information that they have until the scientists arrive in town and she starts helping them observe and study the insects.

There is a clear shatter of these cognitive barriers on Dellarobia's part, and she later tries to do the same with those around her. She succeeds with her son, who is receiving an education and whose beliefs are not engrained in the media or his surroundings yet. As for her husband – Cub –, he is acquainted with the problem, yet he does not perceive it as such. Dellarobia tries to explain that there is something wrong, as she has learned from her scientist friend Ovid Byron. But Cub's answer is "Now see, I don't hold with that," (Kingsolver, 2012, p. 402). When she refers to it as 'climate change' in the same conversation, Cub does not know what it stands for, and she has to rename it as 'global warming'. To that, Cub's answer is, yet again, of disbelief. As shown in the following lines, she feels empathy for Cub: "Dellarobia recognized the same naive thinking she had heartily shared in the beginning" (Kingsolver, 2012, p. 396), which shows self-awareness of her own evolution of thought. In spite of this, her attempts to convince the adults that surround her do not succeed, and she eventually gives up on them.

On another note, as Dellarobia shifts her own beliefs and behavior toward environmental issues, she decides to change her children's perception of it. By the end of the novel, Dellarobia has an intimate moment with her eldest son, Preston. She tells him about the truth of her marriage and the loss of their first-born child, and she announces that they will be moving to a new town, where she will study. She also gets a smart phone, which she promises her son he will be able to use for as much research on animals as he likes. With these decisions, it becomes clear that Dellarobia has come to value education. The

fact that she left her studies because of her pregnant state was one of the reasons that she was feeling unfulfilled. When Dr. Byron tells field trips anecdotes, she becomes aware of one of the differences between them: “Dellarobia wished she had been there. . . , even if it meant flinging herself to the void. To be given the same chance” (Kingsolver, 2012, p. 441). In these instances of envy, she realizes that she has not been given the same opportunities of education as the younger scientists have. Consequently, she decides to change the course of her children’s life so that they have these chances. While discussing with Dr. Byron the possible solutions and outcomes to the butterfly situation, she states that “Maybe you’re writing us off, thinking we won’t get it. You should start with kindergartners and work your way up” (Kingsolver, 2012, p. 497). As she learns and witnesses her son’s enthusiasm, she believes in the power of education – especially that of children – as a tool for change.

Finally, there are several manifestations of judgmental discounting barriers in the novel. As mentioned, time discounting is closely related to the ancient brain, hence this part will focus on place discounting. The main example of it is represented by a Mexican family that one day knock on Dellarobia’s door. They are originally from Michoacán, where the butterflies used to migrate every winter before the entire town was flooded. Dellarobia’s judgmental discounting can be seen when she is explaining the events to Preston and tells him “not to worry, that was a long way from here” (Kingsolver, 2012, p. 213). In a way, she is not only telling it to her son, but to herself as well. As the narrator concludes Dellarobia’s feelings about this part of the story, she relates it to the news and how “You could feel more decent watching it when the victims weren’t sitting on your sofa”

(Kingsolver, 2012, p. 160). All of a sudden, the butterflies symbolically act as a medium between different parts of the world and break the distance discounting barrier.

Judgmental discounting is repeatedly mentioned in the form of refusal of things that are presumably far or not seen. There are several symbolic allegories that hint at climate change discounting, such as the neighbors' dying orchard: "Orchards like the Cooks' dying on the other side of the world" (Kingsolver, 2012, p. 431). Similarly, the narrator tells how Dellarobia's daughter goes from thinking that her toys disappeared when Preston covered them with a blanket, to wanting to be put under a blanket herself to disappear.

Preston couldn't resist repeating the experiment, amazed at his sister's conviction that unseen things did not exist. Some time between then and now, Cordie had conquered the biggest truth in the world. (Kingsolver, 2012, p. 173)

This excerpt captures the continuous analogical tone of the novel. It explains judgmental discounting in the sense that when seen in the media, climate impact is not assimilated as close enough and is consequently invalidated.

Following the previous instance, it is worth mentioning that the novel illustrates the media's contribution to judgmental discounting. Later in the novel, a news reporter who has covered the story of the butterflies reappears to interview Dr. Byron. The reporter and the scientist seem to have different objectives for the news story, which creates a confrontation. When preparing the interview, the reporter claims that she "can't do anything without a visual" (Kingsolver, 2012, p.570), to which Dr. Byron responds: "Intangible things are outside your range? . . . An election result! . . . A stock market!

Those are intangibles. And yet you manage to cover them. Ad nauseam!” (Kingsolver, 2012, p. 570). As in the previous example, Ovid Byron is accusing the media of manipulating their audience by deciding not to cover the topic of climate change. The fact that the environmental crisis is not palpable contributes to making it seem distant, or even non-existent in people’s daily lives. This confrontation will be further developed later in the thesis.

Overall, Dellarobia’s development is an example of overcoming the cognitive barriers to climate action – or, at least, to climate change awareness. She does so mostly through education. Yet it is likely that the other factors contribute to such change.

### **3.2. Ideology Related Barriers in the Novel**

Though the different characters’ stances on climate change in the novel are generally obvious, some of the ideologies that defy climate mitigating action are intertwined. That is, these are not mutually exclusive. Prior to the discovery of the insects, Dellarobia’s husband’s father-in-law – Bear – had planned to sign a deal to take down the forest where the butterflies appeared. Due to their struggle to pay rent and their owing money to his parents, Cub accepts to join the business contract. When the butterflies appear, despite Dellarobia’s insistence that Cub talks his father out of it, Bear “won’t give an inch” (Kingsolver, 2012, p. 2012). When discussing it with Dellarobia, her mother-in-law affirms that “it is the money” (Kingsolver, 2012, p. 206). Similarly, Hester herself and other locals try to take economic profit of the situation. Hester makes business out of driving and guiding tourists up the mountain where the butterflies are found. Another neighbor wants to turn the event into a theme park. In their case, it is not at the expense

of climate-mitigating behavior. This notwithstanding, and despite his similar views, Cub is the one who acknowledges the similarity of their behavior to the government's agenda: "The whole state is pushing the natural thing now. For tourists" (Kingsolver, 2012, p. 397). From these thoughts, Dellarobia concludes that "this so-called phenomenon was unnatural in the first place" (Kingsolver, 2012, p. 379). The scene shows the prevalence of capitalist values over natural preservation and how these have been misleadingly merged.

Regarding religion in the novel, there are two characters that stand out: Hester and the local priest, Pastor Ogle. These two, however, do not represent religious barriers to climate change. Contrarily, they could be seen as the possibility of consilience between religion and climate-mitigating behaviors. To understand this, it must be pointed out that the story is set in a small Appalachian town in Tennessee, which revolves around a Christian fundamentalist<sup>5</sup> community church. There is no doubt that all the characters in town, including Dellarobia, participate in religious affairs to some extent. Even if "she and Jesus weren't that close" (Kingsolver, 2012, p. 21), she relies on the Bible when she discovers the landscape full of butterflies for the first time – before she knows they are, in fact, butterflies: "Moses came to mind, and Ezekiel, words from Scripture that occupied a certain space in her brain" (Kingsolver, 2012, p. 21). Moreover, when describing her trip up the mountain to meet another man, she thinks of it as "a mission of sin" (Kingsolver, 2012, p. 23). In contrast to her gradual realization of the true cause of the events, the rest of the local characters perceive the appearance as God's work.

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<sup>5</sup> Fundamentalism: Belief in the absolute authority of a sacred . . . religious God. Religion is beyond any form of criticism. The Bible is inerrant, even scientifically. . . . religion dictates every sphere of their daily lives. (Bendroth, 2017).

Consequently, they do not believe that they have anything to do with its causes, and so they must take advantage of it. Cub himself defends the reaction of the town by stating that “The Good Lord supplies the butterflies, and Feathertown gets the economics” (Kingsolver, 2012, p. 396). Even when he seems to understand Dellarobia about the real issue, he suddenly invalidates all the evidence by saying “Weather is the Lord’s business” (Kingsolver, 2012, p. 405).

As mentioned, though, Hester and Father Bobby Ogle are examples of religious allies to climate-mitigating behavior. They believe that the arrival of the insects was God’s plan, thus it ought to be respected. In the following excerpt from a scene in church, Father Ogle alludes to nature and incites the audience to protect it from any kind of damage:

A love for our Creator means we love His creation. . . . The Bible says God owns these hills. It tells us arrogance is a sin. How is it not arrogance to see the flesh of creation as mere wealth, to be scraped bare for our use? (Kingsolver, 2012, p. 618).

In contrast to Cub’s religious stance to reject the real causes and effects of climate change, this passage shows that religion and pollution-mitigating behavior are not necessarily incompatible.

System justification is another great barrier in the novel. Everything Dellarobia does – or does not do – is marked by fear of losing what she has; change is seen as a threat to her supposed stability. Not cheating on her husband, for instance, prevents said change. When Dr. Byron arrives in town: she feels entitled to the butterflies because she has discovered them: “So how did an outsider just get to come in here and declare the whole thing a giant mistake? . . . Now the butterflies were theirs too” (Kingsolver, 2012, p. 231).

In this instance, she even mentions the land being property of her husband. Since she lacks a sense of power over her life, she needs to get it from knowing that she is important elsewhere. The scientists – mere foreigners at this early stage – seem to want to take it away from her. Nonetheless, her view shifts and she understands that they share environmental responsibility. Soon, the butterfly phenomenon becomes a topic of debate in town. When the option of exploiting it for tourism is contemplated, its opposers believe “outside attention on the butterflies might disrupt normal life” (Kingsolver, 2012, p. 358). Dellarobia later fails to understand why people in town listen to Father Ogle but not to Dr. Byron, despite their similarities. Cub summarizes it to “He’s not from here, that’s the thing,” (Kingsolver, 2012, p. 399). Cub represents the people in town, who do not trust the scientist not because of his position, but because he is a foreigner. Dr. Byron and Juliet – his wife – discuss with Dellarobia that “once you’re talking identity, you can’t just lecture that out of people” (Kingsolver, 2012, p. 612). As a small community, the way it functions is not just a question of comfort anymore, but it has become part of their character. Nonetheless, they also argue that “The condescension of outsiders” (Kingsolver, 2012, p. 612) contributes to local discredit toward external opinion.

### **3.3. Comparison Related Barriers in the Novel**

Given the importance of community in the novel, social comparison barriers are closely related to those of system justification. At the beginning, Dellarobia does not only judge the scientists as foreigners, but she also appears as a character that has had to adapt to an environment that does not seem to be her own. She and Cub depend economically on her in-laws, and she has been almost forced to help with the cattle the family owns. It is not surprising that, even if she appears different from the rest since the beginning, she

hesitates to trust outsiders. Most of her weekly routine is based on community norms and common social dynamics, such as attending Sunday mass. In such a closed community, it is likely that the barriers to mitigating-behavior are shared and passed from one another. Ovid Byron describes the animal as “the sum of its behaviors, . . . Its community dynamics. . . The population functions as a whole being” (Kingsolver, 2012, p. 491). Even though he is referring to the monarchs, there is a double meaning that might refer to the shared responsibility of humans as a community, rather than as individuals. Parallely, based on Gifford’s research, one can infer that if Dellarobia is able to change her behavior while being part of a community that does not, it is possible for entire communities to be influenced by such changes.

#### **3.4. Sunk Costs Related Barriers in the Novel**

Fear of financial loss is scarcely seen in the novel, yet it is arguably the main difference between Bear and the rest of the characters. As opposed to Hester and Cub, he cannot be convinced of the downsides of the deal. Retracting from the business agreement would result in economic loss, which – as stated by Cub – all the main characters depend on: “Show me where else you can get that kind of money from,” (Kingsolver, 2012, p. 242). Their lack of resources and economic precariousness are a barrier to decide what kind of investments they make, as well as to influence others’ investments. Dellarobia, Cub, Hester and Father Ogle try to convince Bear of leaving the deal, to what he responds “I’m not aiming to return that money. . . . that’s money in the bank and it’s my call” (Kingsolver, 2012, p. 624). Even when told that “his financial concerns can be met” (Kingsolver, 2012, p. 623), he does not change his mind on abandoning the contract.

Regarding values, habits, and aspirations barriers, the novel shows a different perspective: that of privilege. Or, rather, lack of it. Even though it is not a barrier to climate-mitigating behavior, it is what differentiates Dellarobia and her family from non-local characters. When Dellarobia begins to understand what the reason behind the butterflies' migration really is, one of her thoughts is that "There's just no room at our house for the end of the world" (Kingsolver, 2012, 439). Her daily goals and aspirations are those of the daily family life, and her worries are already overwhelming. Dr. Byron confirms the theory of the time investment barrier when he answers to the previous statement by Dellarobia: "People always want the full predicament revealed and proven in sixty seconds or less" (Kingsolver, 2012, p. 439). The same lack of privilege applies to Dellarobia's habits. She is approached by a man that gives advice on how to diminish impact on the environment. It becomes clear that she and her family do not contribute to climate change the same way more privileged people do when Dellarobia replies that she has no choice but to do what the man is advising, such as her declaring that she is aiming to increase their red meat consumption rather than reducing it, as advised by the man (Kingsolver, 2012, pp. 507-509). Similarly, some young activists arrive in Feathertown to protect the butterflies. When she realizes that they are wearing second-hand clothes, Dellarobia's thoughts are "They were second-time-arounders. Not unlike her family, only prouder of it" (Kingsolver, 2012, p. 526). With this, Dellarobia shows how the habit barrier needs not be overcome by those for whom most polluting behaviors are not a realistic choice.

### **3.5. Distrust Related Barriers in the Novel**

Although by the end of the novel Dellarobia has become an ally for the scientists, she has had to break the barrier of distrust. Linked to the system justification barrier, the novel also shows instances of doubt when faced with scientific arguments. At times, doubtfulness is shown through the narrator's free indirect speech. When Dr. Byron claims that the islands are drowning, the narrator's reply is "Were they?" (Kingsolver, 2012, p. 358). She also discredits what he says by saying that her husband and radio stations say global warming is not proven (Kingsolver, 2012, p. 497). Part of her doubt comes from not hearing about it: "how could this be true, . . . , if no one was talking about it? People with influence" (Kingsolver, 2012, p. 434). It is not until she establishes a personal connection with the scientists that she believes their statements. She even recognizes the barrier on Cub, claiming "all knowledge measured, . . . , by one's allegiance to the teacher" (Kingsolver, 2012, p. 405) when he believes the weather forecast reporter has more authority on the environment than Dr. Byron. She comes to believe that "teams get picked, and then beliefs get handed out" (Kingsolver, 2012, p. 498). In the context of the novel, this refers to both social class and political views. Except for Dellarobia, the other characters' views on the scientists are influenced by external input, especially that of media. A news reporter team visit Feathertown several times to cover the butterfly phenomenon. Dellarobia notices how the only way they will spread truthful information is by interviewing Dr. Byron. However, the result of the interview shows how both parts' interests differ. While the reporter is concerned about selling a story through visual complacency and neutral terms, "Is this really where you want to go with this segment? . . . you're going to lose your audience" (Kingsolver, 2012, p. 567), Dr. Byron aims to be objective and spread awareness. This scene creates tension between the two characters,

which might represent conflict between the scientific community and the media. When discussing this issue, Dr. Byron's colleague describes it saying that "every environmental impact story has to be made into something else. . . . It's what sells" (Kingsolver, 2012, p. 357). This is what the news team does with the butterflies. To increase audience ratings, they initially infer that Dellarobia was going to the hill to kill herself. The effects of this strategy are seen in Hester's trust in the story told by the news, instead of believing Dellarobia's version (Kingsolver, 2012, p. 629). Ultimately, though, the news' fake report creates debate rather than highlighting the real problem. Dr. Byron blames the media, corporations, and some sectors of the scientific community for the distrust among the population. In the interview, he claims "scientists agree now. Unless some other outcome is written on the subject line of his paycheck" (Kingsolver, 2012, p.568), and defends the rest of scientists by saying that they are the honest ones (Kingsolver, 2012, p. 570). This is a direct reference to the funding of media and scientists by corporations and parties interested in prolonging climate harm. His proposed solution is changing communication strategies (Kingsolver, 2012, p. 573), which also proves a failure in communication on the topic. In watching Cub's reactions to the climate issue, Dellarobia also becomes aware of the impact of media on people's opinions: "If people played their channels right, they could be spared from disagreement for the rest of their lives" (Kingsolver, 2012, p. 400). She is aware of the disparity of representation and nods at the partiality in media funding.

Concerning the barrier of denial, denying the existence of climate change in the novel has been mentioned in the worldviews section. As for its connection to feelings, fear is mainly represented by Dellarobia. As the protagonist, she craves change but does not act on her feelings because of fear. Oppositely, when it comes to climate related action, she acts

precisely out of fear. As mentioned, most of it is caused by future expectations for her children. Dr. Byron alludes to the connection between feelings and denial when he states that “Humans are in love with the idea of our persisting,” (Kingsolver, 2012, p. 437) which, in truth, refers to fear of extinction. Denial is explicitly mentioned in the novel, even ironically. When describing a local woman’s tight clothes, Dellarobia defines it as “Wardrobe of Denial” (Kingsolver, 2012, p. 248). Dr. Byron establishes a connection between denial of climate change and people refusing to look at proof (Kingsolver, 2012, p. 438) to sustain denial. As Dellarobia argues, there is comfort in not knowing an unbearable truth: “She didn’t know how scientists bore such knowledge” (Kingsolver, 2012, p. 382). She and Preston are the only locals who pay attention to the problem: “No one close to her shared her dread. . . Cub was. . . unable to believe that this outpost of life was irreplaceable” (Kingsolver, 2012, pp. 381-382), partly due to their close contact with the issue and their distance from the media. Finally, most of the debate around denial in the novel focuses on intangibility. That is, if a problem is not seen, people do not believe it exists. Dr. Byron breaks this barrier for Dellarobia: “You don’t believe in things you don’t see? . . . Your children’s adulthood?” (Kingsolver, 2012, p. 434). Here, the barrier of denial is broken precisely by another barrier: fear. Later, Juliet defines climate change denial as “a way of defining survival in their own terms” (Kingsolver, 2012, p. 611), referring to how denial may be a way of sparing themselves of another problem that might affect their well-being.

### **3.6. Perceived Risk Related Barriers in the Novel**

Every decision made by Dellarobia is dictated by external factors, and social risk is one of the most influencing. Since the introduction, she is presented as a character that is

concerned about others' perception of her. When she is walking up the mountain willing to cheat on her husband, the consequence that she first thinks of is "The shame would infect her children too, . . . , in a town where everyone knew them" (Kingsolver, 2012, p. 1). The thought of being perceived as "*that one*" (Kingsolver, 2012, p. 1) captures the relevance of the sense of familiarity in such a small, rural community. Fear of social disapproval is later applied to a larger scale, when Dellarobia appears on national television and fears being scrutinized and ridiculed by others. Even when tourists recognize her, she disapproves of the image that has been projected. Drawing attention to the butterflies is not worth the impact on her social environment. In the beginning, this fear also applies to her interest in the environmental crisis and her bond with the scientists: "people are not keen on a person like me coming up here to work with a person like you" (Kingsolver, 2012, p. 501). This quotation not only represents the social pressure among the people in town, but it also draws a line that separates the population from the scientists. The kind of people that Dellarobia refers to could be analyzed from different perspectives. Nonetheless, it is the fact that she is seen as a member of the community that makes the cooperation look bad. Related to the system justification barrier, it is hard to delete the lines between locals and outsiders. Her bond with the scientists could lead to people perceiving her as an outsider, too

Psychological risk is more implicit than social risk in the novel. That said, from Dellarobia's description of her state, it might be appropriate to conclude that social barriers derive into psychological problems. There is constant mention of her picturing herself living any life other than hers: "wondered what it would feel like to be in that kind of family. . . other than the one whose walls contained her" (Kingsolver, 2012, p. 555).

In a symbolic reference to the butterflies' 'flight behavior', her need to fly is at once caused and subverted by outside opinion, even if it goes against her well-being. Contrarily to the barrier to climate mitigating behavior, Hester mentions the psychological effects of acting against the environment. She tries to convince Bear that "you pay with your health and peace of mind" (Kingsolver, 2012, p. 624) if he carries on doing business with the land.

### **Conclusions**

When it comes to climate change, there is a need to make the science behind it approachable, and scientists can contribute to that through storytelling and humanizing the phenomenon (Tima Bansal, 2020). As a scientist, Kingsolver adheres to her background knowledge and scientific research to tell a story about being human in times of ecologic turmoil. In this case, even if Kingsolver uses some of the *novum* common in science-fiction work – such as locating her story in a potential future instead of in the present reality –, she is not considered a science-fiction writer. Consequently, *Flight Behavior* is not a science-fiction novel (Johns-Putra, 2011). In a way, the fact that the novel is about climate change without the need of an alternative reality helps in the task of making the climate crisis approachable to a broader audience. When writing the novel, it seems like Kingsolver developed the characters thinking about the possible range of readers who might identify with different personal and contextual variables. And it is through this variety that she manages to reflect some of the most common approaches and reactions to global warming, especially those in her country.

Barbara Kingsolver's treatment of climate change in *Flight Behavior* is obvious in its theme, yet subtly incorporated in the plot. There is a constant parallelism between the characters' approach to their personal lives and their approach to climate change, which enables the psychological insight. As the novel evolves, the term in the title, 'behavior', becomes nuanced. At first sight, it refers to the unusual mass migration of a butterfly species in a rural town in Tennessee. As well as "the way someone conducts oneself or behaves" (Merriam-Webster, 2021), it refers to how an organism answers and reacts to stimuli (Merriam-Webster, 2021), and "the reaction to the environment from an individual, group or species" (Merriam-Webster, 2021). The insects' behavior is seen as a reaction to a larger change in their surroundings, which is the most apparent nod to the climate crisis in the story. But the novel is ultimately about human behavior; it describes how the characters – as individuals and as part of different communities – respond to the changes around them. The butterflies symbolically glue humans and nature. From the first page, Kingsolver draws similarities between the problems of the endangered species and those of the main characters. Especially with the protagonist, who embodies a "fight or flight" behavior in her personal matters – just as humans do in relation to climate change. This resemblance allows for the reactions to the climate crisis to be interpreted and understood through the characters' individual behavior in the book.

With this novel, Kingsolver recreates the connection between internal and external factors that are likely to determine behavior, and which are very present in Western societies. Through the protagonist's arc and her interaction with the rest of the characters, it becomes clear that it is not simply a matter of individual capacity for change. In lieu, individuals can be influenced by outside parties that are aware of said factors, and that

have the power to ignite or prevent behavior change. Kingsolver seems to approach her novel from a communicative perspective: not only is she taking part in it herself by delivering – through writing a novel – her knowledge as a scientist, but the story that she creates is based on conciliation among different personalities and communities, too. The complexity of the problem asks for an equally complex solution. Kingsolver seems to propose a solution based on cooperation between a variety of disciplines which have power over individuals and societies, such as scientists, communicators, and politicians. The ultimate message of the novel, though, might be one of hope. Through a readjustment in the way facts are presented to her, Dellarobia manages to overcome the barriers that prevent her from taking part in climate change mitigating behavior – the same barriers that separate her from the life she desires. As Gifford (2011) mentions, the key to better communication lies in a deeper understanding of these psychological factors. That way, they can be a tool to convey the environmental crisis in a manner that overcomes these barriers. And Kingsolver seems to have had a go at it in writing *Flight Behavior*.

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