

Uncertain Stereotypes and the Intellectual Brain: Knowledge and Culture in the Perception of A “One-Sided” Person

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Abstract

Over the past 30 years, research into the concept of hidden stereotypes has expanded. In particular, using the hidden association test, participants in the experiment demonstrated uncertainty in support of stereotypical associations, such as “young” and “good” (and “old” and “bad”), which confirm the hidden age. This is even true for people who consciously refuse to use such stereotypes and strive to be fair in relation to other people. This discovery has been interpreted as “cognitive bias,” which implies latent superstition in man. This article complicates the following views: it is argued that hidden stereotypical associations (like other latent associations) arose as a result of the normal functioning of the “predicted brain”. Based on the Bayesian principles of the predictive brain, associations are developed and accepted based on the experience of their distribution in the social world of the perceiver. If the predictive brain had to be tested randomly or in all directions, then stereotypical associations would not be selected if they did not reflect the state of the world. However, people are born in culture and communicate on social networks. Thus, the hidden stereotypical associations accepted by the individual do not reflect cognitive bias, but are general associations in their culture - evidence of “culture in the mind”. Therefore, in order to understand the hidden stereotypes, research should dive deeper into the methods of integration through social networks, and not focus only on the alleged cognitive bias of the individual.

Keywords: *Psychology, social group, motivation, stereotype, cognitive, methodology, optimism, culture, character, temperament, semantics, nationality, social behavior, research, psyche, personality, group, experiment, social culture.*

Traditionally, stereotypes have been defined as attributes associated with members of a social group (for example, individual English or a geotechnical engineer), and this applies to all group members (Hinton, 2000). Psychological researchers tried to find out why some people use stereotypes, and throughout the twentieth century they were considered because of mental weakness or a misconception about a social group that a person is “unfair”, for example, (Koenig and King, 1964) and social motivation resulting from upbringing (especially “authoritarianism”, Adorno et al., 1950). Later, much effort was made to persuade people to avoid using the stereotype, emphasizing its uncertainty and injustice (e.g. Brown, 1965). However, since the 1960s, cognitive researchers such as Typhelle (1969) have argued that stereotypes are a common feature of a person’s social category. However, people deliberately avoid using negative stereotypes and support misconceptions about others; it has been suggested that aspirations may arise (Devine, 1989; Schneider, 2004). Indeed, Fiske and Taylor (2013) say that only ten percent of the population today (in Western democracies) use open stereotypes. Unfortunately, recent studies, especially using methods such as the hidden association test (Greenwald et al., 1998), have shown that stereotypical associations can influence public opinion even for people who knowingly do not want to use them. These hidden stereotypes lead to the management of the vague effects of stereotypes that people consciously reject and accountability to the person (Krieger and Fiske, 2006). This article investigates the nature of hidden stereotypes, analyzing what it means to be “unfair” in the psychological literature on stereotypes, and offers an explanation of how culture affects hidden perceptions through the concept of a “predictive brain”. (Clark, 2013). This study argues that instead of viewing hidden stereotypes as a problem of human cognitive bias (for example, Fiske and Taylor, 2013), they should be seen as a “culture of consciousness” that affects the minds of members of a cultural group. Besides, the combination of latent perception studies with an understanding of the complex dynamics of culture and communication leads to a deeper understanding of the nature of hidden stereotypes.

Incomprehensible stereotypes

The idea of a stereotype as a rigid set of attributes associated with social groups follows from the original experimental psychological studies by Katz and Brali (1933). One hundred students at Princeton University were asked to select attributes related to ten specific nationalities, ethnic, and religious groups from a list of 84 characteristics. Then the researchers collected the qualities that were most relevant for each group. Katz and Brali (1933: 289) called these associations “anti-group relationships,” referring to erroneous beliefs (or relationships) on behalf of the participants. The study was repeated by Princeton Gilbert (1951) and Carlins et al. (1969) and similar characters most often appeared in groups. Like conference-loving and conservative Britons, the sustainability of these associations for over 35 years has often been interpreted as evidence of the persistent nature of stereotypes. However, a closer look at the data reveals counterarguments. In rare cases, it was an attribute chosen by more than half of the participants: in 1933 only the “athlete-like” for the British, in 1969 the “conservative” reached this figure. Over time, both percentages and selected attributes have changed. By 1969, the “athletic-like” figure for the British had fallen to 22%. In 1969, the number of characters in the top five for some groups fell below 10%. In addition, stereotypes have changed for the better side over time. However, studies have identified a methodological approach to stereotypes as an experimental study of the attributes of “character” associated with social groups in the minds of people. The concept of hidden stereotypes is based on two basic theoretical concepts: associative networks in semantic (cognitive) memory and automatic activation. Concepts in semantic memory are thought to be more closely related to each other in terms of an associative network (Collins and Loftus, 1975). Thus, it is more connected with the “nurse” (or closer to the network) than with unrelated concepts such as “doctor”, “ship” or “tree”. Relevant concepts form a cluster in the local network (Payne and Cameron, 2013), sometimes called a scheme, such as a hospital, doctor, nurse, patient, therapist, routine, operating room, etc. 2014; (see Hinton, 2016). Activation of a single concept (for example, reading the word “doctor”) extends to related concepts on the network (for example, “nurse”), providing easier access to them during the activation period. The data on the associative network model is based on response time in a number of research paradigms such as word recognition, lexical solutions, and initial tasks: for example, Neely (1977) showed that the word “nurse” was recognized faster in a task during a reaction. Although people organized their semantic knowledge similarly to others, much research has been done on the nature of semantic association, which reflects both subjective experience and linguistic similarities. Loosely coupled concepts can be activated by distributing activation based on a thematic association, and the complexity of the association structure develops over time and experience (De Deyne et al., 2016). The extension of one concept to another is considered unconscious or spontaneous. In the mid-1970s, a distinction was made between two forms of mental processing: conscious (or controlled) processing and automatic processing (Schiffrin and Schneider, 1977). Conscious processing involves attention resources and allows them to be used flexibly and innovate. However, this requires motivation and takes time to process, which leads to relatively slow processing of information. Automated processing is careless, fast, and includes parallel processing. However, it becomes flexible and (at a high level) uncontrollable. Kahneman (2011) calls them System 2 and System 1, respectively (Schiffrin and Schneider 1977) found that identifying letters between numbers can be quick and weak, which means that categorical differences between letters and numbers can be detected automatically. To identify objects from the target group of letters, it took time and concentration between the second groups of wallpapers, which required careful work. However, new associations (letters known as goals and other letters) can be studied in widespread practice when associations correspond to each other (while goals have never been used as primary letters). After thousands of tests, the detection time was significantly reduced, and participants reported that the targets were “unlocked” by basic letters, which meant that the practice led to the automatic activation of target letters (based on new categories of target letters). Thus, the sequence of experience (practice) can lead to the emergence of new automatically activated associations. However, when Schiffrin and Schneider (1977) changed with their icons and letters, after a thousand consecutive tests, the performance lagged behind the baseline - the detection time was very slow because the participants struggled with old-fashioned activation, but they required conscious attention - wrong goals. Gradually, and after thousands of additional tests, labor productivity gradually improved due to a new configuration of target and inverse letters. Thus, highly professional semantic associations - compatible with human experience - can automatically be

activated when determining categories, but after studying them it is very difficult to eliminate them. Using these theoretical ideas, a stereotypical combination (for example, “black” and “aggression”) can be stored in semantic memory and automatically activated, creating a hidden stereotypical effect. This has been demonstrated (Devine 1989). White participants were asked to create the features of black stereotypes, as well as fill out a form for confusion. Devine found that people with low and high minds also know the characteristics of the black stereotype. At the next stage of the study, participants rated the hostility of a man named Donald in 12 sentences as vague behavior, for example, a demand to return something that he bought in a store. Before the description of the words related to the black stereotype were quickly displayed on the screen, but were too short to be recognized. It has been shown that the automatic activation of this stereotype depends on the assessment of Donald’s hostility by low and high opinion participants. Finally, participants were asked to anonymously record their views of blacks. People with lower behaviors gave more positive reviews and more confidence (for example, “all people are equal”) than qualities, while superstitious owners listed more negative statements and more traits (for example, “aggressive”) gone. Devine explained these results by interpreting the process of socialization, studying the beliefs that members of a culture have in relation to the various social groups that exist in this culture. Due to the frequency with which they occur, stereotypical associations about groups of people belonging to the stereotype remain firmly rooted in the memory. Because of their predominance in society, more or less cultivated people, even those who have not been criticized, have hidden stereotypical associations in semantic memory. Thus, the stereotype is automatically activated in the presence of a group member who is exposed to the stereotype and can affect the thoughts and behavior of the recipient. However, people whose personal beliefs reject superstition and discrimination can consciously suppress the influence of stereotypes on their thoughts and actions. Unfortunately, as mentioned above, conscious processing requires highlighting sources of attention, and therefore the effects of an automatically activated stereotype can be limited if a person knows the potential aspect of activation and encourages him to spend time and effort to suppress it. Replace it with a deliberately non-stereotyped decision (Devine 1989) considered the process of conscious control to be a “bad habit violation”. As already noted, conscious spotlights function as perceived “cognitive misfortunes” (Fiske and Taylor, 1991) only when necessary, which leads Macrae to argue that stereotypes can be considered “tools” for efficient disposal, eliminating the need to “spend” valuable conscious resources for recycling. However, Devine and Monteith (1999) argued that previously unimaginable perceptions could be deliberately eliminated in the search process. In addition, a hidden stereotype is automatically activated only when a group member has a certain social significance, so automatic activation is not guaranteed in the presentation of a group member (Devine and Sharp, 2009).

Devine and Sharp (2009) argue that conscious and automatic activation are not mutually exclusive, but that there is a relationship between the two processes in social perception. The social context can automatically influence activation, so there is a “stereotyped” (compared to white) ambiguity from the point of view of “prisoners”, but not from the point of view of “defenders” (Wittenbrink et al., 2001). Indeed, Devine and Sharp (2009) found that a number of situational factors and individual differences can influence the activation of automatic stereotypes and that conscious control can suppress their influence on social perception. However, Barg (1999) was less optimistic than Devin in the ability of individual conscious control to suppress automatically activated stereotypes, and the only way to stop the influence of hidden stereotypes is to “destroy the cultural stereotype itself”. Cognitive processing instead of proposing a model of cognitive hiding, Barg proposed a “cognitive predator” and claimed that we did not have a level of conscious control to mitigate the effects of hidden stereotypes proposed by Devine. Grenwald and Banaji (1995) called for greater use of indirect measurements of latent perception in order to demonstrate the effects of activation outside conscious preceptor control. They were especially concerned about hidden stereotypes, arguing that “the automatic operation of stereotypes lays the foundation for hidden stereotypes”, based on studies such as Gaertner and McLaughlin (1983).

In this recent study, participants reported positive traits such as “black” and “smart,” despite the fact that they had a misconception in their direct self-report. For example, they reacted with greater confidence to the combination of white relations with blacks is the same positive qualities. Thus, they concluded that an indirect measurement of the reaction time determines a hidden stereotypical effect. So, Greenwald (1998) developed a secret association test (or IAT). The reaction

time of these phrases is a couple of words in a sequence of tests carried out in five stages, and each step checks the reaction time for various combinations of words. Based on the results at different stages, you can take into account the reaction time for different phrases. For example, the poles of the concepts of “young” and “old” can be connected in series with “good” and “bad” to find out when it is time for “good” and “bad” couples to react to pairs of “young - good” or “old - bad” faster than alternative compounds indicating an age-related stereotype. As a method, IAT can be used in any combination of word pairs and can be used to study a number of hidden stereotypes, such as “white” and “black” or “men” and “women” for ethnic stereotypes. A gender stereotype associated with any expression of stereotypical traits, such as aggression or dependence. The results were very dramatic. The use of IAT later demonstrated hidden stereotypes for various social categories, especially gender and ethnic origin. Hidden stereotypes are currently seen as an aspect of hidden social cognition that is involved in a series of social thoughts (Payne and Gawronski, 2010). The question has been asked whether IAT's discoveries determine unconscious superstitions that are independent of critical judgment or, as Devine (1989) suggested, a mountain of managed cultural associations are simply knowledge and hinder decision-making (Payne and Gawronski, 2010).

In support of the IAT, a meta-analysis of 184 IAT studies conducted by Greenwald and etc. (2009) showed that latent associations in various fields and in Greenwald and etc. have predictive basis for behavioral results (2015) suggest that this can have significant social influence. As a result, if hidden stereotypes express a potentially uncontrollable cognitive bias, the question arises of how to deal with its consequences when making decisions, especially for a person who sincerely seeks to make a rash decision. Excessive superstitions have struggled with a range of socio-political measures, from anti-discrimination laws to educating interviewees, but in reality these interventions are designed to persuade or force people to act in a deliberately biased manner, exploring intervention methods to deal with anti-stereotypical patterns or reduce hidden racial prejudices, such as primitive multiculturalism, but the conclusions were somewhat pessimistic. Different interventions had different effects on the latent stereotype (measured by IAT). For example, the completely opposite stereotypical example (read by the participants) of walking alone at night and raping by white man and saving a black man was very effective. But of the nine interventions reviewed (2016), all were somewhat effective, but subsequent tests showed that the positive effect disappeared within a day or so. The authors concluded that although specific combinations were made in the short term, these (short-term) interventions did not produce long-term results. This may indicate that hidden stereotypes are firmly established and respond only to intensive and long-term interventions (Devine 2012) also found that children change hidden stereotypes more often than adults. The question is, can people consciously change their hidden “prejudices”, and to what extent are they responsible for actions based on these hidden stereotypes? Krieger, a professor of law (1995), argued that lawmakers and lawyers should take into account the psychological interpretation of bias in their decisions. For example, a study by Cameron (2010) assessed the responsibility of a white employer who sometimes discriminates, despite the fact that he wants to be fair with respect to Afghan Americans. If this discrimination was the result of an unconscious preconceived attitude of the employer, then participants considered that personal responsibility for discrimination is lower. However, when he said that latent prejudice was an automatic “internal” feeling that was known to the employer but difficult to control, it did not lead to a decrease in moral responsibility. This also has potential legal significance (Krieger and Fiske, 2006), because the law traditionally assumes the responsibility of the person who committed the discriminatory act, assuming the main discriminatory motive (intention). The effect of hidden stereotyped prejudice can be discriminatory behavior that a person does not want or does not know. An unclear stereotypical prejudice solves the problem as the only source and cause of human thoughts and actions. In a large study involving more than two hundred thousand people, Aht and others found that all US citizens (2014) used the MC-IAT, a version of IAT, to study the vague aspects of ethnic, religious, and age groups. Although participants demonstrated favoritism within the group, consistent hierarchies of social groups arose during the responses. In terms of ethnicity, whites were the highest in terms of a positive assessment, followed by Asians, blacks and Spaniards, with the same order established for participants from each ethnic group. A consistent order of Christianity, Judaism, Hinduism and Islam religion was developed.

Positive estimates for the age study were given to young people, children, young people, middle-aged adults and older people among participants of all ages in order from adolescents to sixty

years. Permanent hidden assessments reflect the cultural hierarchy (and social structures) of social power as "deeply rooted in the public mind." They also argue that these hidden fantasies are "unacceptable and may even contradict conscious beliefs and values." The influence of cognitive bias, an objective judgment of a person, tends to deny the importance of culture in cognition. This issue is currently under consideration. Hidden cognitive bias Hidden stereotypes were described in the literature and taught to psychology students as cognitive biases (Fiske and Taylor, 2013). Previously, if it was assumed that only a certain group of people had a stereotype (for example, authors or simply cognitively), they could be considered vague from the point of view of the liberal views of the rest of the population. However, Fiske and Taylor (2013) point out that currently only 10 percent of the population uses open stereotypes in liberal Western democracies, the main problem being vague stereotypes that can affect us all. Indeed, some psychologists (the reader rightfully wants to be a supporter of egalitarian values) are ready to reveal in their tables examples of the careless use of hidden stereotypes in their lives (for example, Steinon Rogers, 2003). Now guess that hidden stereotypes can affect everyone. This makes it difficult to use the term "cognitive "fantasy" in a universal application, especially when it includes the concept of unconscious cognitive "failure" ("the cognitive beast within"), given the failed attempts. The question also arises of how to make a real decision. This idea of a hidden stereotype as a cognitive bias is called into question here. The wheel is shifted if it rotates on the arrow (if others do not). Correction or correction of deficiencies makes it "correct" and works smoothly and along the right axis. In fact, the word deviation comes from the word "devi" (for diagonal yarn for knitting) or deviates from perpendicular. From a social point of view, the idiomatic "right (or narrow) and narrow" point of view is based on "self-evident truths" based on religious or philosophical beliefs that ensure their position (US Declaration of Independence). However, unlike "real" wheels and "honest" coins, there is no universally accepted absolute ethical norm, and there is a long philosophical debate on this issue from Plato and Kant to Hume. In different cultures, as a nation, there are different religious systems that are integrated into different national legal systems and have laws that change dynamically.

Despite the constitution of the United States, there are many differences between the views of Republicans and Democrats and their conservative and liberal supporters and what is "good and appropriate" in terms of other political idioms. There is constant political controversy. Recently, psychologist Hydet (2012) investigated the difference between liberals and conservatives in the United States for ethical reasons. Ordinary wisdom is associated with power and politics and is still criticized (modified) by social movements such as civil rights and the emancipation of women. Thus, from a human point of view, a "one-sided" view often differs from the coordinated position of an influential group in society; power relations are often considered in the sociology of stereotypes (for example, Pickering, 2001), but this is rare in cognitive research. Finally, human cognitive abilities have developed for a specific purpose, and secret associations aimed at quick decision making are useful for survival. Fox (1992) argued that this judicial form had evolutionary significance. Studying the union of large animals can be "unfair" for harmless large animals (we avoid unnecessary ones), but it costs very little compared to a quick saving solution. Indeed, Todd and others (2012) emphasized that our ability to make "quick and economical" strategic (heuristic) decisions that make people smarter. The decision to use simple combinations based on factors such as recognition or acquaintance may not always lead to a logical "right" answer, but by conducting research on topics such as economics and making investment decisions, emergency medical care and the consumer can lead to very heuristic results (Gigerenzer and Gaissmaier, 2011). The personality model that emerges from studies of vague stereotypes seems to describe a just person as fighting a vague cognitive animal within them. However, here, it is emphasized that is wrong.

We study the cultural ethics of society through socialization and daily contacts with other members of the culture. We may not approve of all aspects of our culture (and we can sharply oppose some of them), but cultural knowledge, like any other knowledge, is necessary for our pragmatic activities in society. The wide range of semantic associations that we study in our culture can successfully determine our judgments about what to wear at the interview, on which side of the road and how to talk with the boss. To change the specific set of hidden associations that we consciously consider unacceptable, change the culture to destroy these specific associations, and not focus on the alleged "prejudices" of the human mind, the study of methods may be better: in the following model

of the “intellectual brain”, cognitive activity of a person is functionally carried out for the adoption of laws and the development of hidden associations from the world around us.

Predictive brain

It has been suggested that the human brain is a “prediction machine” (Clark, 2013) in which assumptions develop. Perception works by effectively placing previously placed probabilities in order to reduce processing requirements when considering each new experience as completely new. Although Clark (2013) studied mainly object perception, this relates to social perception, and applied it to social knowledge. For Clark (2014), perception predicts; for example, we can quickly and efficiently recognize a friend who has decided to meet outside the restaurant, even at a distance. Thanks to the friend’s repetitive experience, we developed a complex forecast based on a lot of nuances, from their pictures to their favorite coats. Usually such a forecast is true for the person we expected. The dynamics of the predictive brain is to minimize the forecast error, that is, the difference between forecasting and the experienced event. Always and again we are “surprised” - a stranger’s mistake for our friend - and this “unexpected” (engineering term for a mistake) also has a growing influence on probability. With each experience, the brain seeks to reduce “surprise” through an ongoing process of updating probability. However, a random error, which is sometimes the only error, usually has little effect on previous probabilities resulting from multiple successful perceptions. In this model of the brain, cognitive bias is not an indefinite deviation from the “real” position, but an assumption or an assumption based on previous probabilities that arose as a result of experience. Forecasting is not always accuracy, but minimizing errors and improving the accuracy of forecasts. This process follows from Bayes' theorem that one event (A) occurred (because another event (B) occurred (for example, as a friend and companion, observed coat and hairstyle). This is called “probability.” Perception of a person working on the basis of The Bayesian decision-making process has been studied in psychology and economics, so the predicted brain model is also called the “Bayesian brain” (El-Gamal and Greter, 1995; Bubik 2010).

Unknown semantic combinations of “bread” and “fat” or “table” and “chair” (Neely, 1977) arose as a result of our repetition of world experience. Apparently, in ancient Japan (without bread and butter or without tables and chairs in the Western style), these clearly hidden associations did not develop. In social perception, we can ask the question: what is the likelihood that this person will become a basketball player, given that he is a tall, black professional athlete? This probability is based on previous probabilities, which are based on information about experience or culture, so that a person from the United States can be evaluated differently compared to a person in Kenya. Allport (1979) proposed stereotypes as “exaggerated beliefs” associated with a social group, using the example of “all lawyers are false.” The idea that all members of the stereotype category share a common attribute has been retained in cognitive research (Hinton, 2000). However, Allport (1979) also claims that a stereotype is “a generalized judgment based on a certain probability that an object of a class may have a given attribute”. This is not the same. The assumption that stereotypes include “all” judgments, presents them as rigid and fixed, but the stereotypical member of the group and the potential association of a particular attribute do not allow this. The presence of a conscientious lawyer proves that the previous statement of “everyone” was incorrect. In the second case, which follows from the predictive model of the brain, the experience of an honest lawyer only adjusts the probabilities in accordance with Bayes' theorem, and the probability of predicting the curve of the next (unknown) lawyer decreases slightly. In a well-known study, Kahneman and Tversky (1973) gave participants a description of Jack that matches the stereotype of an engineer: Jack is a 45-year-old man. He is married and has four children. He is usually conservative, cautious and ambitious. He is not interested in political and social topics and spends most of his free time on his favorite carpentry, sailing and math puzzles. They were then asked to rate the likelihood that Jack would become an engineer in a room of 30 engineers and 70 lawyers. The participants tried to ignore the probabilities of the base rate (0.3 for the engineer and 0.7 for the lawyer), but made their own conclusions about the stereotypical nature of the description. Participants Kahneman and Tversky expressed their opinion that the definition is not based on the probability of probability of the base rate, but on the stereotype of the engineer, which he calls “representative heuristics.” They note that this strategy is less good at using the probability of using the base rate because the description may be incorrect and, moreover, it may be more suitable for a group of lawyers because there are so many of them. However, they recognized that the Bayesian prophecy, if the definition is clear and diagnostic, could lead Jack to become an

engineer. This underscores the serious problem in the claim that people's opinions are “vague” compared to the “right” measure. Outside the psychological laboratory, people are almost unaware of the probabilities of the basic level (Todd et al., 2012), and the associations studied often need to be studied. Looking for accurate demographic data for engineers, I found that 80 percent of engineering students in the United States were men (Crawford, 2012), in which case there was no diagnosis, but he could not find information on the total proportion of engineers. Not interested in politics or using math puzzles. In many cases like this, there is no clear demographic situation, because it does not exist or we don't have time and reasons to look for it - we can only rely on our general knowledge of engineers. The Bayesian brain derives its statistical probabilities from the experience of engineers, such as those that engineers encountered in real life and studied through the media. The fact that an engineer is a person who is not indifferent to politics and loves mathematical puzzles does not mean that all engineers must possess these qualities; they simply were popular among engineers in the social world, such as engineer Howard Volowitz.

Thus, a predictive brain that works on the basis of previous experience and carefully adapts to each new experience is a pragmatic functional system, and not a “bias” that does not exist or does not exist at all. Consider the following example where I can find some demographic information for Footnote1. In one room there are 70 professional golfers and 30 professional basketball players (all from men and the USA). The only information available is that the roof height is 193 cm. How likely is it to become a basketball player? From Kahneman and Tversky (1973), we can conclude that Tom was a basketball player in an association that learned that “basketball players are tall” using a heuristic of representative participation. You only need to predict that Tom will play golf using the probabilities of the base bet. However, Bayes's demographic analysis confirms that Tom is unlikely to be a basketball player. Instead of assuming that people's minds are statistically simple, people take turns interpreting that people are unconsciously Bayesian, and the description that usually identifies the hidden associations studied is clear and diagnostic (unless they consciously decide otherwise). Kaheman (2011) acknowledges the recognition of the connection between growth and basketball as an example of a place where an athlete's random assumptions become more accurate. Outside of a psychological laboratory, a limited description is all that people can go through information. Indeed, Jussim (2012) claims that when the recipient has almost no information about a person outside the social category (for example, “This person is an engineer”), they can use stereotypical associations based on the social knowledge that they predict. However, when they encounter a specific person, they study new information to change this view if the forecast is not supported. Jussim (2012) agrees with Kelly (1955) that people act like simple scientists, trying to accurately predict assumptions about people and events, and that evidence based on inconsistencies in research is evidence of social perception, usually accuracy was not taken into account, and when discussing the accuracy of a stereotype, various independent factors were often interrelated. For example, if the discerning Ben predicts that from the point of view of the stereotypical association of the social group and achievements, Joe (the group member) will not go to the best university to which he belongs, and if Joe will be rejected by the university, then Ben's social perception is clear. However, this has nothing to do with why Ben did not accept Johnny or the real reason that Joe was not accepted. Ben may have a bad attitude towards a social group (belief in a stereotype), but instead he may be an honest person who thinks that the university considers this group in its procedures. The university may also have rejected Ben because of a wrong decision in his choice, or as an alternative, because Ben has a fair grading system and Ben was rejected for reasons not related to membership in his group. These additional factors do not diminish Ben's evidence of public opinion. Jussim (2012) accused researchers of criticizing “admissibility” in making court decisions, an ethical emperor arguing that stereotypes should not be used in social decisions, and denying accurate information. It is important to note here that the intellectual brain acts on the state of the world in accordance with experience, and not on the state of the world, as we think. Moving towards gender equality and attracting more women to engineering is a key goal in many Western societies, but an amazing social and political goal should not lead us to a misunderstanding of the unconscious functioning of the predicted brain. Indeed, according to Crawford (2012), the likely association of “engineer” and “man” is a clear reflection of the “real” situation in the United States in 2012, where 80 percent of those employed are men. The second important aspect is that the Bayesian brain seeks predictive reality by choosing laws (to form associations) based on experience. A variety or, conversely, stereotypical examples (for

example, a meeting of a female engineer) reduce the likelihood of association (between the "engineer" and the "man"), but they are simply in their own experience. However, the presence of one female engineer refutes the idea that "all engineers are men" and demonstrates that gender is not an important factor in engineering ability — the presence of only one female engineer (the rest are men) has little effect on the likelihood that the engineer is a man. From the predictive model of the brain, it follows that the more women engineers, the more stereotyped the combination of "engineer" and "man" becomes, the more noticeable they become in everyday life (and in the media). The predictive brain, as a sensitive mechanism, aims to minimize only surprisingly. He does not make moral judgments and does not explain the state of the world. He simply seeks to make a clear forecast. Perfors and Navarro (2014) noted in a study of language learning that Bayesian brains learn through iterative learning (from other members of society). While previous researchers argued that it was just a linguistic structure that constitutes derived linguistic meanings, Perfors and Navarro (2014) argue that the structure of the outside world (and its meanings) also influences the process. We, an engineer, do not know how to design and build systems by definition, but we can find out that in the outside world they are mostly men. Thus, the obtained semantic knowledge is formed by the structure of the associated meaning. Since what people are talking about reflects the interdependence of things in the outside world, the studied semantic relationships reflect the meanings that exist in the outside world. Thus, the connection between concepts comes from the values conveyed by others. Moreover, the Bayesian brain assumption does not require that it function optimally (or rationally) - simply that the Bayesian model best reflects its behavior (Tauber 2017). A study of the Bayesian brain involves testing assumptions (hypotheses) using data from the world and applying Bayes' theorem to determine probabilities (Perfors, 2016). The extent to which latent stereotypes are studied and triggered for the predictive brain depends on the likelihood that latent associations between the social class and attribute are expected and experienced in communication. This is a socially susceptible world, hidden stereotypes and a "culture in the mind". Hidden stereotypes, like other secret associations, can be seen as cultural knowledge or folk wisdom acquired through human experience in their own culture (Bruner, 1990).

The idea that the origin of stereotypical associations is cultural was put forward in early work on stereotypes, but no attention was paid to the distortion or bias of individual perception. Walter Lippmann, a journalist and political commentator, usually encourages academic study of stereotypes with his 1922 book, *Social Thought* (Hinton, 2000). When Lippmann used the term "stereotype", which was familiar to him when publishing a newspaper, he saw in it a cultural phenomenon: "we accept what we choose as a direction accepted by our culture". (Lippman, 1922). According to Lippman, this is a culture that creates a stereotype, not an individual (Hinton, 2016). As Allport (1979) points out, stereotypes "come from a certain place." To demonstrate this, we look at a British example of the origin of associations identified in the Princeton study, which was discussed at the beginning of this article. As Hinton (2016) points out, the selected qualities reflect the idea of an English gentleman, an ordinary representative of the English language in the American media of the first half of the twentieth century and, therefore, only of high-class Princeton students, if they met the English, they were from the same demographic class as themselves. Perhaps these participants did not consider (and did not ask) a number of categories of the British, such as women or the working class, so it is not surprising that they focused on a clear and familiar representation for them, English is distinguished by its culture (in the literal sense of the word Lippmann). By 1969, the reputation of the English gentleman had become quite archaic, and even the form of ridicule in the British and American media (Hinton, 2016) and the selected English attributes had changed. It is also important to note that the students were asked to "choose [attributes] that seemed normal to you" (Katz and Brali). However, some students refused to complete the task in 1951 and 1969 (Brown 1987), indicating that there was no evidence that this represented representative qualities even for students who agreed to participate in the study of their personal relationships, so the answers do not reflect incorrect participants' perceptions or cognitive biases. To complete the assignment without any knowledge other than the category name, students can simply act on the basis of attributes that they know are common to the English language in their culture. In 1933, the most popular attribute for the British was "resemblance to an athlete," and even if it existed at the time, it could be shown on the IAT. But this does not mean that students consider all Britons to be athletes. However, an English gentleman who looked like an athlete was familiar in the popular American culture of the time. He

was portrayed by actor Ronald Coleman in *The Dark Angel*, 1925, and *Bulldog Drummond* (1929). Five attributes for Princeton English (Carlins et al., 1969). In Allport example, we can take the “false lawyer” stereotype as a second example. Anyone who does not personally sympathize with lawyers and knows well that this is primarily an honestly regulated profession of people can assume that they will (probably) be persecuted when the character of a lawyer appears in a popular crime drama. The experience of lawyers in popular films, such as the series *The Godfather*, 1972–1990 and television programs such as *Breaking Bad*, 2008–2013. (Sol’s Wrong Call, 2015 show of the cunning lawyer). As Devine (1989) points out, well-studied associations during the period of socialization form hidden stereotypes even for those who hold the wrong opinion. It is argued here that a putative brain model provides a mechanism for this. The process of association is probably based on Bayesian principles that occur unconsciously throughout a person’s cultural life. However, culture is not monolithic and rigid and unchanging. People are actively building their social world and media environment (Livingstone, 2013; Burr, 2015). As Smith (2008) notes: “In fact, the social environment of people is well described as social networks. People should meet with other people, make friends and so on, which unites them into a complex network. "In any society there will be different social networks with different information about different social groups. According to Moskovich (1998), it is these ideas that define a culture or group of subcultures. Different cultural groups ideologically differ in their position in society and their ideas, which revolve around communication in a social network. One cultural group can actively promote one representation (for example, “immigrants” bring enormous economic benefits to our society and ensure the diversity of our culture), and another group promotes alternative representation through various means of communication, such as television, newspapers and social networks. (for example, “immigrants” “burden society, get a job and undermine our culture”). In communication within any social network, there are constant and consistent associations between social groups and attributes, which are selected by its members through the functioning of the intellectual brain. The extent to which people share secret associations depends on the hegemonic social perceptions in society in cultural groups (Gillespie, 2008), such as a positive belief in democracy and a negative point of view on communism, which are widespread in broad social institutions, are examined in the process of sociological study of stereotypes (e.g. Pickering, 2001). The role of stereotypes in social media communication has been demonstrated by Kashima and colleagues (Kashima and Yeung, 2010; Kashima 2013) in their study of sequential repetition of stories. The results showed an emphasis on stereotyped data. Although information that did not fit into the stereotype attracted attention, it did not necessarily continue. Thus, the story remained stereotyped and consistent in the process of serial photography. They argue that “stereotypes can be seen as important cultural sources that help convey cultural information” (Kashima and Yeung, 2010). General concepts are developed through the use of stereotypes in social networks. Representatives of the culture receive knowledge about stereotypes from other members of the group, which facilitates social interaction, but also helps to maintain stereotypes, despite misinformation. From this study, it can be argued that the analysis of hidden stereotypes should focus on semantic communication in a social network, and not on their interpretation as “unfair”. The complex personality dynamics in a social network (e.g., Kristakis and Fuller, 2009) should be taken into account when studying the formation, transmission and storage of hidden stereotypes. In today 21st-century world, people ability to create a social environment has increased dramatically (Giddens, 1991). The media is growing rapidly thanks to the distribution of several television channels, the distribution of media and the development of social networks via the Internet. Although this allows people to have different ideas and anti-stereotypical information, it allows people to stay within the framework of cultural ideology, interacting with like-minded people whose cultural ideas about others are constantly being disseminated. In terms of intelligence, secret associations evolve from the constant messages that people receive in their daily lives. If certain latent stereotypes are considered unacceptable, these associations are likely to be eliminated only after people have for a long time received the opposite anti-stereotype information. To achieve this, everyday experience requires not only people who constantly studied a certain culture, social groups circulating in a social network, but also demonstrating (and enough) evidence against these vague stereotypes, a “bubble” in social networks should include.

Conclusion

Over the past 30 years, stereotypical research has focused on hidden stereotypes, in particular on the use of IAT, which is interpreted as revealing a latent or unconscious cognitive bias even for a consciously fair person. Despite studies that cast doubt on the predictability of IAT as a method for identifying unconscious misunderstandings (e.g., Oswald 2013), the psychology of stereotypes dominated the center of hidden stereotypes in the 21st century (Fiske and Taylor, 2013). However, it is emphasized here that hidden stereotypes and attributes associated with social groups do not imply an unconscious “bias” of a conscious person (a “cognitive beast”), but represent associations that arise as a result of normal functioning. These associations are based on the information disseminated in human culture and are determined by the brain, which predicts associations, so they can be described as a “culture in the mind”, and not as an individual look. According to the predictive model of the brain, when culture changes, the hidden stereotypes of its members also change (even slowly for some associations). Therefore, in order to correctly understand the essence of hidden stereotypes, it is necessary to combine cognitive research with the study of the dynamics of culture in order to understand the specific associations that are common in intercultural communication and their impact on representatives of this culture.

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