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CONVERSATION : MIND

THE SIMPLIFIER

A CONVERSATION WITH John A. Bargh [6.15.09]

Introduction by:
John A. Bargh

We discovered a new vein of research — the relation between physical and social or psychological concepts — that we came to by taking evolutionary principles seriously and applying them to psychology. We weren't using evolutionary psychology, which has largely been focused on mating and reproduction. Our focus, rather, was in terms of evolutionary biology and the basic principles of natural selection: and that field makes clear that humans must have had these kinds of mechanisms or these processes to guide our behavior prior to evolution or emergence of consciousness.

[16:52 minutes]

EdgeVideo

Introduction

"They say that in science there are complicators and there are simplifiers," says John Bargh, Yale social psychologist known for his early work on the topic of automaticity, and more recently for bringing experimental methodology to the philosophical question of free will.

According to Bargh, the tension between the complicators and the simplifiers is a good thing in any field of ideas or science. "I've always been a simplifier." he says, "looking for the simple mechanisms that produce complex effect, instead of building a complicated model. Once we find one of these veins — one of these avenues of research — we just go for it and mine it and mine it until we run out of gold.

Bargh's lines of research all focus on unconscious mechanisms that underlie social perception, evaluation and preferences, and motivation and goal pursuit in realistic and complex social environments. That each of these basic psychological phenomena occur without the person's intention and awareness, yet have such strong effects on the person's decisions and behavior, has considerable implications for philosophical matters such as free will, and the nature and purpose of consciousness itself.

He maintains that the resulting findings "are very consistent and in harmony with evolutionary biology. And this is very unlike psychology, which has always presumed a kind of consciousness bottle-neck or a self, some kind of a homunculus type of self sitting there, making all the decisions and deciding without any explanation of where they comes from or what's causing the self or what's causing the conscious choices. Emphasizing what our unconscious systems do for us, in turn, links us very strongly to other organisms and other animals very closely. Recent primate research is showing that primates are closer to us than we thought. They fall for the same kind of economic fallacies that Kahneman and Tversky talked about in humans 30 years ago."

— Russell Weinberger, Associate Publisher, *Edge*

JOHN A. BARGH is professor of social psychology at Yale University and director of the ACME (Automaticity in Cognition, Motivation and Evaluation) Lab.

John Bargh's Edge Bio Page

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THE SIMPLIFIER

[JOHN BARGH:] Well, we have a trajectory downward, always downward, trying to find simple, basic causes and with big effects. We're looking for simple things — not anything complicated — simple processes or concepts that then have profound effects, and this is really the best time that I can remember for this kind of research because everyone is showing physical experiences. We did our experiment with warm and cold coffee, which is a good example of this type of embodied effect. But there are others — texture and distance and physical experience of all different types are mapping onto psychological concepts and social concepts.

They say that in science there are complicators and there are simplifiers, which is a good tension to have in any field of ideas or science. I've always been a simplifier — looking for the simple mechanisms that produce complex effect, instead of building a complicated model. Once we find one of these veins — one of these avenues of research — we just go for it and mine it and mine it until we run out of gold.

We discovered a new vein of research — the relation between physical and social or psychological concepts — that we came to by taking evolutionary principles seriously and applying them to psychology. We weren't using evolutionary psychology, which has largely been focused on mating and reproduction. Our focus, rather, was in terms of evolutionary biology and the basic principles of natural selection: and that field makes clear that humans must have had these kinds of mechanisms or these processes to guide our behavior prior to evolution or emergence of consciousness.

These unconscious systems are thus the most basic and fundamental psychological systems we possess. Before we were able to decide or be aware or integrate or conceive of the past or future, we were able to do the right thing to survive. If you take that simple principle very seriously, it helps explains our field's findings of the last 20 or 30 years — strange stuff that no one could accept easily because it went against the idea that we're in conscious control of everything we do, especially in terms of behavior and important decisions. Everything we've found points to the conclusion that we're not so much under conscious control.

Unconscious processes lead to influences on our behavior and our decisions due to the interaction of different cognitive systems. How we form preferences, likes and dislikes; what we're motivated to do and the purposes we have; whether we're going to be cooperative or competitive with people; whether we're going to help them or not; our tendency to mimic others and to naturally fall into line with what other people are doing in sort of a contagion effect. All of these are systems that connect directly to our overt behavior. And this is in total harmony with an evolutionary perspective because that's how things are selected for. You don't get thought processes or internal feelings that no one

else is influenced by or sees. Those have no basis for being selected for by natural selection and pressures. All these things have to directly connect to behavior.

Putting all of these systems together gives us something like the guidance systems that humans used before we were consciously aware of what was going on. They gave us the muscular tendencies to approach or avoid, to like or dislike, to see someone as friend or foe, or to be able to read someone's face (recent research in our ability to read faces is amazing). We're actually very sophisticated in the unconscious mode — all these streams of information are coming in and we're using them without realizing where they're coming from or the role of each system and the unconscious force at play in everything we do.

Given all that, our findings are very consistent and in harmony with evolutionary biology. And this is very unlike psychology, which has always presumed a kind of consciousness bottle-neck or a self, some kind of a homunculus type of self sitting there, making all the decisions and deciding without any explanation of where they comes from or what's causing the self or what's causing the conscious choices. Emphasizing what our unconscious systems do for us, in turn, links us very strongly to other organisms and other animals very closely. Recent primate research is showing that primates are closer to us than we thought. They fall for the same kind of economic fallacies that Kahneman and Tversky talked about in humans 30 years ago.

Our connection to the outside world and to other people is amazing. We have natural tendency to mimic each other; we react to others distress empathically; we feel pain empathically as if it was our pain, and there are fMRI imaging studies showing these effects pretty clearly.

We're also finding that we're totally linked to the physical world and the natural environment. It turns out that we perceive and react to the world differently depending on how we perceive its dimensions — closeness and distance and up and down and left and right and forward, backward. They're all metaphorically related to how we talk and think about things: forward-looking is a good thing; backward-looking is a bad thing; looking up is a good thing, the higher the better; looking down, that's bad. I mean, if we think about it rationally, these are ridiculous things to factor into our decision making process, but they do have an effect and that comes from our early experience with the world.

We're looking at infants' or toddlers' early experience to see what their world is like before they have these abstract concepts and finding that those are the building blocks for the more abstract concepts we use later as adults, but that you could activate the one with the other. You can have feelings of closeness to people or feelings distance from your family caused merely by whether you just plotted two points that are near or far apart on a grid. The physical experience of distance, in other words, underlies the feeling of psychological distance; the latter concept is built on the former.

So if I was going to say what is exciting right now, it's this convergence of biology and psychology that is showing how tied our minds and behavior are to the world and the physical world, to other people, to other animals through our natural brain systems and mind systems of which we're not aware

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This field of study — being able to show that unconscious influences are operating and free will may not be as pervasive an influence on us as used to be thought — emerged with computers. Before computers and really fast refresh rates on monitors, we couldn't do experiments on subliminal influences or millisecond timing of responses which has given us a good deal of insight into the operation of mental processes. Now we have fairly conclusive proof — in fact, showing subliminal effects is kind of the gold standard of proof to skeptics that something can happen unconsciously and influence you.

fMRI has shown us images of what's going on in the brain, and it's also provided us important constraints on our models — especially in social psychology because we're dealing with the most complex thing there is, human behavior and interaction with other people. It could be driven by a host of different kinds of mechanisms: mood effects, your

physiological state, your recent experience with other people, your past experience, the way you think. All these things are potential reasons why you behave a certain way.

fMRI and imaging shows us that this or that reaction may not have, say, an emotional component because there's no emotional processing going on in this effect — the areas responsible that usually light up with emotion aren't lighting up — but it does seem to have a social component. So you can use fMRI data as constraints to our models, which we need — we really need — because our effects are overdetermined, in that we have too many potential theoretical reasons for the complex effects we observe in social psychology.

So you've got the really high-tech technology on the one side. On the other side, you've got these really low tech experiments — handing someone a cup of coffee before asking their opinion of a photo — that seem to contradict a person's theory of why they do things. Of course, we all hold dear the idea that we're the captain of our own soul. It sure seems like we're in charge, and it's a very scary feeling when feel we're not. In fact, that's what psychosis is — the feeling of detachment from reality and that you're not in control, and that's a very frightening thing for anyone. So we want to believe we're in control.

But when you tell people that we may not have as much control as we think, they say, "Well, what's your evidence?" You can point to imaging of a brain, or you can point to some experiment that shows a subliminal effect which is very artificial and very detached from the real world. But that's not going to convince people, because it doesn't seem real — by definition no one has any memory or conscious experience with subliminal stimuli affecting them in real life? As for brain imaging, well, that's a nice picture, sir, my brain lighting up and all that, but it's sure a lot of inference to move from that to making claims about my thoughts.

The high-tech answer may be the best, but it isn't convincing to the average person. You also need the easy little experiment — touching a cup of coffee, looking at something in the distance, etc. Something to show that it just takes these physical experiences and it changes your perceptions, your thought patterns. We're trying to make all these effects as realistic and mundane as possible.

But you have to do both. If you do one and not the other people will come up with a million explanations for why touching coffee would make you feel nice towards somebody. But by showing that these effects happen when you're not even aware of it, we rule out a lot of the explanations involving deliberation and decisions because the natural tendency is to say that you don't have these biases, that you are always aware of what I'm doing at all times. The technological experiments can rule out these alternatives.

All this has happened in the last in the last 30 — it's been an incredible sea change.

B. F. Skinner's book Beyond Freedom and Dignity got me started in psychology. I was in high school in 1971 when it came out and it really hit at basic existential questions. The whole ferment of the 60s had me reeling — this little Irish boy being raised to be a good Catholic. Time magazine had a cover with "Is God Dead?" printed across the top in big letters, and it was literally frightening. IS God dead? I couldn't handle it — my world view couldn't handle it. Then comes Skinner, and Skinner's also on the cover ofTime magazine with his face painted blue when his book came out. It was all very symbolic. Here's here's this cold scientist saying that free will doesn't exist (akin to God not existing), and it turns out they're very related concepts.

This was really a challenge to my world view, and it threatened the nice little comfortable model of the universe that I had (including the afterlife and all its rewards and so forth). And it got me going as a fledgling scientist, and it just happened that that's when people were starting to question models in social psychology such as causal attribution processes -which was like the theory of mind from the 1960s.

They were all studying consciousness. Scientists were looking at what cause co-varied with what effect and then reasoned out what the cause was. There was all this elaborate

thinking going on. Actually, a person here at Yale as a grad student, Ellen Langer (she's been a professor at Harvard since the 70s), did a lot of work with the professor who used to be in this same office, Robert Abelson. They worked on mental "scripts" and showed that people were, essentially, mindless a lot of the time in their social interactions.

People don't always (or to Langer, don't often) pay attention. Rather we operate on automatic and go along with the script. You could show that people can do stupid things by pretending you're going along with the script but then doing something nonscripted — they respond as if you had done something scripted. Instead of responding to what you are saying, they respond to what they assumed you were going to say.

An example: somebody is sitting at a desk. You borrow a stapler, bring it back and put it back on the desk. He or she is assuming that you are going to say thank you for the stapler but, instead, you say, "It's out of staples." The person at the desk responds, "You're welcome." They operated on their assumption instead of what was actually said.

Those were the original studies that showed that maybe these complex social interactions aren't such a mindful activity. After that, my advisor at Michigan, Bob Zajonc, started talking about affect without cognition. He would show that you'd have immediate affective reactions to, say, abstract art. You know what you like immediately, whether or not you can say why.

The old model said that we'd look at the features of the painting — the color and the composition, etc. — and we'd decide how we feel. But this is not how we operate in real life. We felt this instinctively and so we decided to study these issues scientifically. Instead of thought experiments or discussing the philosophy on free will, we could actually go out and see how people react. And, in the process, get at an even bigger question: how necessary is consciousness?

Let's take it out. Let's, by indirection or by subliminal presentation or what have you, show that people can be influenced in all these ways of which they're not aware, and can't report later. Even if you tell them this is why they did what they did, they'll deny it and argue with you about it, which people always do. We were off and running. We just started seeing how far we could push it, starting out with little baby steps (which worked), and then a little bigger, a little bigger.

Now, 30 years later, we just go for it. We know now that there is a very high likelihood of finding unconscious influences that effect our decisions, preferences, etc. Once you have a good reason for suspecting an influence is there, they tend to be there in every single aspect of life — not just the simple cognition. We find automatic external influences in automatic reading (reading words off a page of text, but also reading faces), in making assumptions and forming expectations, in guiding behavior, in making important choices. It just goes on and on. There seems no limit, no ceiling yet in sight.

So, we have all these studies and experiments, but the question that remains is, where do these automatic or unconscious effects come from? Were they innate all along? Genetic? Were they a product of early learning?

Right now it seems early learning is the answer and we're just starting to look at this. Research with toddlers and infants, once it starts, will give us that answer. There's already research going on. Laurie Santos here at Yale and others are doing research comparing humans to primates — close primate relatives like apes and monkeys — and finding out that they exhibit some very similar behaviors (cognitive dissonance effects, even, occurs for both primates and humans).

So you triangulate with these different lines of research (the experiments with adults, the primate research, the work with children), and it does converge on the idea that, well, maybe all this conscious reasoning is not so necessary to produce complex higher mental processes and sophisticated behavior in adults.

The work on early development is extremely helpful in informing our models. Jean Mandler at San Diego, for example, studies pre-verbal thinking in children. How do

children think before they have words, before they have language? The model used to be that thought is dependent on language — you have to have words to think. But her work has shown that's not true.

Early childhood is all about analyzing what's going on in the physical world and those concepts are actively being formed. But they're also the basis for the later concepts that we use when we develop language — close relationships are characterized as warm, for example. The abstract concepts we use as adults really are based on these early physical concepts formed in infancy. There are people who say that these concepts might be innate, and perhaps they are. But it doesn't really matter for our argument — if it's there by two or three years old, then it's certainly there in adults.

So these are basic existential questions. Where did we come from, and where are we going? And this research really speaks to that, and that's why it is important to real life. This is about why we're here and what we're doing and what life is all about really. If you take away the whole connection (the Cartesian guess of a pineal gland connection) to the supernatural soul that many believe we have, you start taking evolution seriously, and then also look at the history of concepts like free will and how they're rooted in Christianity and early Christian writers. Then you begin to see that we do have motivations clearly rooted in our evolutionary biology.

All organisms are purposive and have reasons for what they do. We certainly have that of course. So it's not that will doesn't exist; it's that the free part is problematic — a lot of people see free will and say, "Well, you're showing there's no free will; therefore, people have no intentions or will." No.

There is will, and will can be shaped by a host of factors: your genetic background, your early experience with your home and your family, your caretakers, you playmates, cultural influences bombarding us through the media and through socializing with your peers (and, thus what they like and what they think and what they believe from their parents). All this is being soaked up like a sponge by little kids.

So I don't make a nature/nurture division at all. I mean, part of what Ernst Mayr and evolutionary biologists talked about is that these are open-ended systems of genetics. It gives you a good best guess about what the life is going to be like, but these influences come from 10,000, 50,000, 100,000 years ago. There's no way for them to "know" what the role is going to be.

Kids can be taken at birth, moved to any place in the world, learn that language and culture just like they were born there. We're totally transportable which means we're totally open to be adapted to wherever we land no matter the people, the norms, the language, or culture. We just absorb it.

A lot of recent research on unconscious effects is showing that it's culture, early learning and culture, and not genetics that that is responsible for effects in adults. It's not that culture is an argument for free will or for some kind of agency separate from the genetic influences.

Just like young birds in the South Pacific that go on night flights with their mama and papa birds. They navigate by the stars, but there's no way they have in their head already a map of the night sky, because the night sky changes every 400 or 500 years as we move through the galaxy. They can't innately have a map to navigate. They have to go out and have experience, but once they get the experience and check out what is the night sky, they have it. Same with people.

My daughter can speak English fairly well for her age. But she couldn't do it at all four months ago. Then, all of a sudden, she did. I didn't have anything to do with it. I mean, I'm sure I'm helping or the family is helping, but she just soaked it up suddenly as if she was one of those birds soaking up the night sky. And that is what evolutionary biologists argued for a long time: the fine-tuning of the organism to its environment (where ever it happens to land in evolutionary time) is done through this quick absorption of the rules

and the state of the earth — when you're born and who you're born to and with and all this kind of stuff.

So as far as practical significance, you know, we can still be unique. We can still have purposes and wills. We can still be responsible for what we do, because we're the products of all these things. The legal system has a problem with the idea of lack of free will and lack of personal responsibility, and that needs to be worked out. I don't know how to explain this yet. I'm working on it, but I see a clear path: that it is one's intentions that matter, not whether those intentions were unconscious or conscious. We just need to know the intentional or not, for legal questions of personal culpability.

Any discussion of free will has a philosophical component and there's a lot of writing and discussion about this. Dennett is a good example, but there are and have been a lot of excellent philosophers of mind writing on this subject, and they're really, really helpful. I don't know if I agree with everything, but it really helps me, because they're taking the same body of evidence that I also read and work with, and sometimes read it with more scrutiny and analysis, maybe reading it more carefully, logically, on some points. There can be a different level of analysis on the conceptual logical state of these models and theories, and we on the experimental, scientific side really have to pay attention to their work.

At the same time, recently some social psychologists have said "Why draw any conclusions about free will? It's a topic that's been debated and analyzed for a thousand years or more by philosophers. And what are we going to add to this long debate? Why don't we just drop it and not even talk about that debate?"

I'm saying no, no, no. For the first time we have methods, we have the computers and devices that we can use to study these things scientifically in ways that did not exist for the last 1,500 years. We have also found that we — and I hate to say this to philosophers — may not be able to trust thought experiments, because they are just simulations based on using the same system that's got all these biases and preferences built into it. The preference for certain conclusions over others is going to be driven by feelings, somatic markers, etc.

Well, these feelings could be leading us astray because we are motivated to have certain beliefs about ourselves and beliefs about the world. We may not realize that the feeling that something is good versus bad comes from our existing preferences for wanting to believe certain things over others unless the whole thing can be laid out very logically and transparently. Evidence has to be there as a counterweight and that is what psychological and cognitive science can provide.

There are still substantial areas of ignorance in our field which have been there for a long time, and it may be a problem that's very difficult to solve. We know about all these different influences — the color effects, temperature effects, or the effect of others in our peer group, etc. Well, how do they interact? How do they become integrated? What if they're in conflict with each other? What if they don't suggest the same thing? We're not paralyzed by these things if they suggest different courses of action. Somehow these conflicts are resolved without our awareness. Sometimes they are called into our awareness.

Ezequiel Morsella, a professor at San Francisco State, has a wonderful paper in Psychological Review a couple years ago on the functions of consciousness, and he gives the example of a carrying a hot pan with no glove on from the oven to the table. Your hand is burning, and you want to drop the pan. At the same time, you don't want to make the big mess.

How do you deal with this conflict? He argues that anything to do with physical tissue and physical muscles, any conflict at that level enters consciousness, and we resolve it through consciousness. But a lot of these other conflicts that don't involve physical or skeletal muscles are resolved for us by natural processes that we're not even aware of.

What's the dominance hierarchy behind consciousness? Which preference or effect dominates the other if they're in conflict, for example, or are they blended somehow?

An example: your friend has given a talk and asks your opinion. You want to be honest and tell your friend the truth about it because it's a job talk. At the same time, you don't want to demoralize them by being too critical. You have this little line to walk between being a friend and being accurate and objective — their feelings matter but so does their actual performance. How do you navigate these kinds of conflicts? We hardly know anything about these integrations.

As more and more of these little effects are being found, how they all go together and how they guide behavior in real time, moment to moment, remains a significant unknown.

When people hear about our work through articles, documentaries, etc. they're often disturbed by what we're concluding. Some people have existential crises. They wonder "what is the meaning of life?" if they don't have free will, and what does free will mean in the first place? I don't really have a good answer for that, but it doesn't really bother me anymore. I'm not exactly sure why it doesn't though, and I need to figure out, to explicate my own internal resolution, because this basic question bothered me for years, but not any more.

But there is another question that is more pragmatic and I think it's a wonderful question, "If all these things are going on without my knowledge, then I don't really know why I'm doing what I'm doing, and I don't really know myself that well apparently. So how can I make the right decisions or make the right choices for myself when all these biases are throwing my decisions all over the place?"

There's a really simple answer here, which I like and people also seem to like it. It is to ask your friends, ask your family, ask people who are close to you about yourself. Don't be afraid to hear what they have to say. Tell them to tell you the truth, because they do know you, and in many ways better than you know yourself.

That's the funny thing about all of this. It turns out we do know about other people pretty well. We're much better at predicting other people's behavior than our own, and Emily Pronin at Princeton, whose research has focused on this issue, gives a great example of when she was deciding on grad schools to go to.

She ended up going to Stanford, but she had (she believed) choices. And as she was deciding between all these great schools, and she was hemming and hawing and talking to her friends, and saying "Oh, where am I going to go to school? I only have a day more to decide." And they all told her, "Give me a break. You're going to Stanford." "No, no, no. I'm not." She would say "I don't know that yet. I haven't made my decision…. Really!"

So she ends up going to Stanford and her friends say "see, we were right." But when she was in that situation of deciding with the cauldron of all those conflicting things going on, she couldn't make up her mind. Her friends knew her from the outside, without all the noise going on inside. They didn't have the biases about her that she had for herself and they didn't have access to that internal cauldron. They could see her as she was and knew (better than she did, consciously anyway) what she was going to do.

There's a lot of research on this (Tim Wilson at Virginia and David Dunning at Cornell have studied the phenomenon for years now); we're much more accurate about predicting other people than we are at predicting ourselves. All these things going on inside of us get in the way, and especially the positive illusions about ourselves.

But really, if you ask other people around you, you well might get a better sense of yourself. That's the truth that's out there. It's not like it's unknown and you can never know yourself because of all your biases. The people around you know. It's the simple answer and it seems to work.