Adaptive Persuasion*

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Abstract

Human communication rests on a tension between the goals of communicators and audiences. As a result of this tension, communicators and audiences alike have developed increasingly sophisticated skills to fulfill their intentions both toward and despite each other. It has been proposed (e.g. by Sperber, 2000) that these adaptive skills have in turn evolved into cognitive modules, and driven the evolution of communication. I discuss how persuasive communication takes advantage of the functions of communication, adapts to an evolving communicative environment, and plays an important role in the evolution of communication.

1 The dual function of communication

In the words of Sperber (2001, pg. 9[2]), the "epistemic norms implicit in the process of communication are to a limited but interesting extent at odds with the very function of communication." The function of communication is two-fold: to the audience, it is a means of acquiring relevant information; to the communicator, it is a means of affecting the beliefs and other attitudes of the audience. I will start by illustrating how these goals may conflict.

To the audience, communication is often a more efficient means than direct perception, indeed sometimes the only means, to obtain relevant information. This information-gathering function seems to be reflected in a lack of focus by young children on the source of new information, and their automatic acceptance of communicated information that is compatible with what they know and is not overtly marked as a case of pretense. Harris (2002) discusses several studies which suggest that children, and to some extent adults, do not keep track of whether they acquired information first-hand, via direct perception, or second-hand, via communication. This failure might be seen as potentially detrimental and counter-adaptive, but may also indicate that because both types of source are, at least initially, equally trustworthy, the nature of the source is irrelevant to young

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[2] The page number indicated refers to the online version of this paper available at http://www.dan.sperber.com.

children. Clearly, information obtained from a communicator is only beneficial to an audience if it is true, and can therefore achieve relevance by leading to positive cognitive effects. This is the "epistemic norm" of communication, linked directly to the information-gathering function of communication: that it is expected to yield true (and relevant) information.

Whether all communicated information can be relied upon to satisfy this norm, however, is brought into question by the fact that the belief-production function of communication, which is of benefit to communicators, does not depend on communicating information that is actually true, but rather on communicating information that will produce the effects that benefit the communicator, whether or not it is true. The best (though not the only) way of changing the audience's behavior to the benefit of the communicator is generally to convince the audience that the presented information is true. So the communicator's goal in formulating her utterance is to make her message *seem* plausible to the audience (whether or not it is actually true).

Thus, while the communicator chooses the message that will best fulfill her intention to produce the desired effects on the audience, the audience reads the communicator's intentions so it can retrieve true (and relevant) information in order to fulfill its own goal of learning more about the world without putting itself at risk of storing false beliefs, or being manipulated to act in a way not beneficial to itself. To the communicator, conveying misinformation may, at times, be the best way to fulfill her intentions, while to the audience, the potential for misinformation or manipulation thus introduced creates the need for close examination of the information received and the intentions displayed. In any given communicative exchange, the audience has no choice but to face the uncertainty inherent in the tension between the two functions of communication: if it trusts the communicator, it runs the risk of being misinformed or manipulated; if it doesn't trust the communicator, it runs the risk of missing out on relevant information.

My aim in this paper is to argue that marketers, advertisers and 'persuasive' communicators in general, typically, and often successfully, exploit the mechanisms by which information spreads among a population, in order to fulfill their intentions. A better understanding of these 'cultural learning' mechanisms can make, I believe, an interesting contribution to the study of persuasive communication. I will begin by examining some of the cultural learning mechanisms that have been proposed in the anthropological and evolutionary literature, and how they account for the way cultures spread as well as for the way individuals accept or reject cultural information.

2 Reaping the benefits of communication - cultural learning

While much information that is communicated relates to the immediate situation of the interlocutors, at least some of it, we might call it cultural information, has a wider relevance, over a longer period, to members of a broader group. Not only do audiences typically seek out such information, but there is evidence to suggest that it has properties which make it attractive and relevant enough to be repeatedly communicated and remembered (Sperber, 1996). What are the mechanisms involved in the transmission and processing of cultural information? Who should audiences trust when they lack first-hand evidence of their own?

While there are many theories of how cultural information is transmitted from one generation to the next, our understanding of the subject has benefited greatly from research in evolutionary and developmental psychology, as well as in cognitive anthropology. One major obstacle to a better understanding of cultural transmission was removed by the collapse of the view of the mind as a "blank slate" with virtually no innate structure, and the related Standard Social Science Model according to which culture exists as an entity external to the mind. The blank slate model is clearly incompatible with most aspects of current cognitive psychology. The Standard Social Science Model is rejected more specifically by evolutionary psychologists, who bring together the principles of evolutionary biology and cognitive psychology in proposing a number of different theories of how culture is transmitted (Sperber, 1996; Tooby & Cosmides, 1992; Boyd & Richerson, 1996; Tomasello, 1999).

In spite of their substantial differences, these theories agree that the mind, far from being unstructured, is innately highly structured. Accordingly, at least some aspects of cultural information transmission are facilitated by the architecture of the mind. A number of hypotheses have been proposed to account for the structure of these cultural abilities and the mechanisms for acquiring cultural information, while allowing for cultural diversity, cultural change over "historical" time, cultural evolution over much longer time spans, and, conversely the relative stability of cultures over time. For instance, while rites of passage for adolescents vary greatly from one culture to another, most cultures seem to exhibit some form of ritualized transition from childhood to adulthood, marking the biological changes of puberty. In many Jewish communities of Western Europe and North America, the traditional bar mitzvah ceremony for boys has adapted in the latter part of the 20th century to include a similar ceremony for girls. In other words, having evolved over time from a biological milestone to a cultural rite, the custom remains stable (both across cultures and within a specific culture) in spite of its adaptation in a very short historical time span to 20th century cultural pressures.

2.1 Sperber, Hirschfeld and colleagues

The central theme of Sperber's theory of culture (Sperber, 1996) is borrowed from epidemiology, and involves the claim that culture is 'catching', and spreads when ideas, or mental representations, are propagated throughout a population. Clearly, representations do not propagate randomly; rather, they spread among specific groups of individuals who come into contact with each other. Representations are disseminated through human communication, according to Sperber, via causal chains in which similar representations are repeatedly produced and understood, passing on in this way from one person or group to the next. The appropriate relation between the representations involved is one of resemblance rather than of identical reproduction. The representation formed by the audience as a result of inferential processing shares many of the features of the communicator's original representation, but it is his own version of what he has understood. A culture is then created by a mass of microscopic communicative events, and the question is: what are the mechanisms which ensure that some representations survive and propagate, and others die out? These mechanisms are likely to be the key, not only to the spread of cultures, but also to the success of persuasive forms of communication such as advertising and marketing.

In the massive modularity view of the architecture of the mind defended by Sperber (2002), among others, information obtained from any source, including perception and communication, is processed in domain-specific modules. A given module is activated when it encounters an input which meets its input conditions: that is, which exhibits certain properties which identify it as belonging to the module's domain and allow for its efficient processing by dedicated mechanisms. Sperber (1996) draws an important distinction between a module's proper domain and its actual domain. The proper domain of a module consists of those inputs which it is the module's function to process. In everyday terms, the module *evolved* to process inputs of this type, and would not exist if they did not exist. However, not all the representations that satisfy the module's input conditions belong to the module's proper domain. Some inputs may 'accidentally' satisfy the input conditions for a module, although it evolved to process inputs of a rather different type. These inputs belong to what Sperber (1996) calls the module's actual domain. Many cultural artifacts and representations fall into the actual domain of a cognitive module by design rather than by accident, and therefore trigger its operation, even though they do not fall into its proper domain. These inputs constitute what Sperber calls the 'cultural domain' of a module. Examples include face masks (e.g. Sperber & Hirschfeld, 2004) which meet the input conditions of the face recognition module and therefore automatically activate it, even though it evolved to process real faces, not masks. Another example is music, which Sperber (1996) speculates may have started as a type of stimulus that happened to meet the

input conditions of an early voice detection module and evolved into a much wider cultural domain than its now obsolete proper domain.

While the intentions to trigger face or voice recognition by designing masks or producing music may have long been lost, Sperber suggests that similar strategies are used by communicators who exploit the mismatch between a module's proper and actual, or cultural, domains for their own benefit. In exploiting this mismatch, the manipulator takes advantage of the inherent salience of inputs that belong to a module's actual or cultural domain. Moreover, inputs that belong to a module's domain (whether proper, actual or cultural) are processed with relatively less mental effort than inputs not belonging to a module domain, and are therefore potentially more relevant on the processing-effort side. Cultural artifacts that are deliberately crafted to fit into a module's cultural domain may create even greater expectations of relevance, because they are apparently intended for some purpose which the audience may devote some effort to recognizing. This type of manipulative strategy exploits the basic architecture of the mind, taking a free ride on mental mechanisms that evolved for some quite different purpose. It is very similar to a general persuasive strategy in which the communicator with a persuasive intention (i.e. an intention to make an audience form an intention to act in a certain way) takes advantage of adaptive mechanisms or abilities in order to pass on a persuasive message, hoping that it will enter the practical reasoning process and therefore modify behavior. I will come back to these strategies later in this paper as I discuss the evolution of persuasive strategies.

Because it is inherently susceptible to small changes at each step in the multitude of communication episodes making up the cultural causal chain, Sperber's epidemiological approach accounts for the diversity of cultures and "changes in historical time" (e.g. Sperber, 1996), rather than on the much longer time scale of evolution. On the other hand, the stability of culture is accounted for by the modular structure of the mind and the overarching search for relevance proposed in relevance theory (Sperber & Wilson, 1986/95; Sperber & Hirschfeld, 2004). The general claim is that cultural information will be attended to because it is apparently relevant, and it is apparently relevant because it automatically triggers existing modules. What still remains to be explained is why some of this potentially relevant information is accepted as true, while other parts are rejected.

2.2 Boyd and Richerson

Boyd and Richerson's work on cultural evolution (e.g. 1985, 1996, forthcoming) also has its roots in anthropology, but differs in critical ways from the views of Sperber and his colleagues, at least in a first analysis. Boyd and Richerson view the mind as equipped with several rather "crude" learning mechanisms that take advantage of and help to disseminate the vast pools of information, accumulated

over generations, that are available to individuals in a population. These learning mechanisms, unlike the domain-specific innate learning mechanisms or "module templates" discussed by Sperber (1996 & forthcoming), are seen as domain-general in content. Boyd and Richerson's learning mechanisms make use of some very specific and targeted skills, or "transmission biases," such as the disposition to learn from experts, to conform to tradition, or to conform to the majority, which apply across all domains. As they put learned information to use, individuals make minute adjustments to the artifacts, institutions, beliefs and so on that are handed down to them. These adjustments aggregate over time to form what is referred to (e.g. Boyd & Richerson, 1996, Tomasello, 1999) as "cumulative cultural evolution," the accumulation of "cultural change over many generations leading to the evolution of behaviors that no individual could invent" (Boyd & Richerson, 1996, p. 3).

Boyd and Richerson use modeling techniques to show how domain-general learning mechanisms using "transmission biases" could result in cumulative cultural evolution, which adapts faster and more powerfully than genetic evolution. In this framework, the learning mechanisms themselves, imitation or observational learning, coupled with transmission biases, account for the stability and the accumulation over generations of innovative behaviors. If an individual innovates by improving on the knowledge that she has acquired from previous generations by, for instance, putting an existing tool to new use, the innovation may disseminate to younger generations who learn the new practice by observation. If the new practice is sufficiently adaptive to spread across large segments of the population, conformism will then guarantee further dissemination. At the same time, conformism, in conjunction with observational learning, reinforces "between-group differences", as even neighboring groups may evolve very different sets of traditions by conforming to what they observe within their own groups, rarely outside of them. Clearly, while the transmission biases proposed and modeled by Boyd and Richerson facilitate cultural learning and transmission by guiding new generations to the most suitable sources (e.g. experts or a majority of agents), these same mechanisms can be exploited either by one of these sources to persuade such willing targets, or by other individuals posing as suitable sources, or purporting to communicate on behalf of suitable sources. Again, there is a plausible link to persuasive strategies.

The critical difference between the views of Sperber and his colleagues, on the one hand, and Boyd and Richerson, on the other, appears to be in how each group construes the architecture of the cognitive mechanisms behind cultural learning. Both Sperber et al. and Boyd and Richerson recognize the existence of specific tendencies that guide the social learning process: Sperber and his colleagues attribute these tendencies to specialized modules operating on their proper or actual domain, guided by the overall search for relevance, while Boyd and Richerson

attribute them to specific heuristic processes. In other words, domain-general learning mechanisms and transmission biases favor particular sources of information or learning, whereas modules, for instance face-recognition or folk sociology, guide audiences towards specific types of content, regardless of the source.

On the other hand, Boyd and Richerson recognize that the capacity for social learning from selected individuals or groups would have been too costly to evolve on its own. With Tomasello (1999), they suggest that social learning has evolved as a by-product of theory of mind, and rests on the ability to read intentions. Unless the learner is able to understand the intention that lies behind the action performed by the mentor, social learning is mere copying without understanding, and does not enable improvements or result in cumulative cultural transmission. This notion of learning that allows and builds on innovation clearly has much in common with the epidemiological view of representation transmission favored by Sperber, as discussed in the preceding section. If the learning mechanisms advocated by Boyd and Richerson are indeed driven by mind-reading, they should, arguably, be guided by the search for relevance and exhibit modularity. In that sense, Boyd and Richerson's notion of social learning may actually be compatible with modularity-based perspectives such as Sperber's, a view expressed by Sperber and Hirschfeld (2004, p. 40) who have proposed that their perspective and Boyd and Richerson's are not necessarily mutually exclusive, but rather compatible and, possibly, complementary.

Another point on which the modularity perspective is probably closer to Boyd and Richerson's than may appear is the actual nature and source of the transmission biases. It seems that the natural dispositions to conform either to a majority, or to authority or to experts may ultimately be accounted for as by-products of the search for relevance, rather than being seen as driven by distinct tendencies. In fact, while Boyd and Richerson's view treats the learning mechanisms as general and the cultural evolution mechanisms as more specific, Sperber's perspective owes its generality to relevance, a general property of cognitive processes, and its specificity to the modular nature of cognitive processes. If one keeps in mind that culture plays an important role in the way Sperber's modules have evolved, in a way capturing cumulative cultural evolution, the differences between the two perspectives are less dramatic than may initially appear.

Having discussed the role of communication and learning in cultural transmission from the learner's perspective, I will now review how a manipulative communicator exploits communication, and arguably, the learning mechanisms just discussed, to achieve her own goals. Under the pressure of diminishing returns caused by the audience's adaptive abilities to cope with manipulative strategies, communicators adapt their strategies to maintain their ability to influence the audience. Also, an individual, whether in the communicator's role or the

audience's, uses her understanding of both manipulative and coping strategies to her advantage. Developing greater skills in one-role results in the ability to exploit these same skills in the other role. These observations are presumably true from both ontogenetic and phylogenetic perspectives. This, of course, suggests a "persuasion-counterpersuasion arms race." (Sperber 2000, p. 135) in which each participant is always trying to stay a step ahead of the other.

3 Producing intended effects on attitudes

From the communicator's point of view, as noted above, the function of communication is to produce specific effects on the audience's cognitive environment. Following the familiar Relevance Theoretic framework, the two levels of a communicator's intentions necessary to ostensive-inferential communication are her communicative intention and her informative intention. The informative intention is to alter the audience's cognitive environment and modify its beliefs, and, more generally, attitudes. The communicative intention is to have the informative intention recognized by the audience, creating a degree of overtness or transparency in communication. Ostensive-inferential communication, which involves both an informative and a communicative intention, is our standard form of communication. We overtly inform others of what we see, what we feel, what we believe to be true (because we have either experienced it ourselves, inferred it from our experience, or been told of it). We also overtly inform others of what we want, what we intend to do, what others are doing, what others have told us, and what we would like them to do. In general, much of our communication is focused on making manifest to others certain information that we have gathered via either perception or inference, or from communication. Much of this standard communication falls under the category of testimony: that is simply, conveying information to an audience about what we observe first-hand. We often qualify this information with some indication of our own attitude toward it or the amount of evidence we have for it. For example:

(1)   It looks like it's snowing again.
(2)   He must have been driving too fast.
(3)   I don't think she knows how to make this work.
(4)   I'm so tired of hearing her complain.

However, as communicators, we behave in a way that is most advantageous to ourselves and, at times, this goal is not accomplished by providing truthful testimony, but rather by affecting the audience's attitudes to our own benefit. (This, by the way, is the main reason why a theory of communication cannot be

based on a principle of cooperation.) If (or when) the communicator's interest is not served by truthful testimony, it may be best fulfilled by the use of deception. As seen above, the communicator's goal is to decide which information to communicate in order to achieve the desired effects on the audience, and this may not always result in her communicating truthfully. This difference between the communicator's and the audience's goals leaves room for the possibility of deception: as a result, the audience cannot blindly trust the communicator or assume that she has been cooperative in the sense of conveying the required type and amount of information. In turn, the communicator may, at times, have reason to believe that her utterance may not have the intended effect on the audience's attitudes. This could be because she senses that the audience does not trust her sufficiently, or because the audience holds a strongly entrenched attitude or belief which may not be easily modified. In such cases, the communicator may resort to argumentation and offer reasons for the audience to adopt a particular attitude or belief. This can be done either truthfully (5 & 6), or deceptively (7 & 8):

(5)   It must have started snowing again up there. Look! All the cars are coming down covered in snow.

(6)   He must have been driving too fast. Can you see the skid marks on the road where he tried to stop?

(7)   I'm just too tired to go to the movies. I'll probably fall asleep as soon as I sit down. (Scenario: the speaker is actually not too tired, but does not feel like going to the movies)

(8)   I'd love to take you around London on Saturday. I enjoy being a tourist for the day. (Scenario: the speaker pretends to enjoy an activity in order to make the audience accept the offer to take her around)

4 Producing intended effects on intentions

Just as a communicative intention can be fulfilled either by simple testimony, or with the additional help of an argument, a persuasive intention (i.e. an intention to cause the audience to adopt or modify an intention to act) can also be fulfilled via a range of cooperative strategies. In my framework, a persuasive communicator is one who intends the audience to adopt the intention to perform a specific action as a result of the communication. A persuasive communicator is in fact relying on her audience adopting or modifying an intention of its own, in order to achieve her intention to persuade. The process by which such intentions, and intentions in general, are adopted or modified, is one whereby an individual commits to the performance of certain actions in aiming for coherence and consistency with existing intentions, attitudes and beliefs. This process of intention formation is

characterized by Bratman (1987) as practical reasoning and allows for both full-fledged, effortful "elaborative" reasoning, and efficient heuristic processing. An illustration is in order. Social psychologists (e.g. Petty & Cacioppo, 1986; Chaiken et al., 1996) have long noted the existence of two "paths" to persuasion. In the case of advertising, specifically, the "elaborative" path might involve a consumer assessing the advertiser's claim that a given car offers the best value against the background of a range of attitudes or beliefs such as how much he trusts the car manufacturer, his needs for value vs. safety, and his intentions to buy a car in the near future, before adopting the intention to buy now, wait, or ignore the advertised car. On the other hand, a consumer whose intention it is to buy a safe car might buy one simply upon reading that it is rated safest by a credible consumer group. Grounding persuasion within a practical reasoning framework enables us to analyze it as a rational, adaptive communicative phenomenon, and to link the two types of persuasive processes traditionally proposed by social psychologists to a wider framework of current research on reasoning and rationality. The full picture we paint also gains considerable light from the introduction of relevance considerations at every step of the practical reasoning process.

   More direct and less cooperative attempts to modify the audience's actions or intentions that would not fall under the category of persuasion might be orders, threats, the use of coercion, or the use of mind-altering substances or treatments, in which the audience has virtually no rational choice but to perform the act intended by the communicator. In these latter cases, the communicator specifies the behavior she intends for the audience to adopt, usually in the form of an order, and relies on implied trust, authority, fear, or on physiological factors to produce the intended effect on the target's behavior. To the extent that the target is able to ignore the order and accept the negative consequences of his action, thus engaging in rational intention formation, these may actually still be seen as cases of persuasion, albeit extreme ones.

(9)   Scenario: mother speaking to young child, relying on blind obedience. "Wear your goggles today."
(10) Scenario: School rules require that all children wear boots when it is raining. Teacher, relying on authority, says: "Everybody is to put on their boots."
(11) Scenario: Firefighter (relying on fear) yells up to man at 1st floor window of burning house: "Jump!"

In more typical cases of persuasion, the contextual factors of blind obedience, authority, fear or such cannot be relied on (either because they are not part of the relationship between the two interlocutors, or because they are not sufficiently strong). So the communicator must appeal to the audience's rationality. Roughly speaking, we might want to think of persuasion as being to an audience's intentions

what testimony and argumentation are to an audience's beliefs. In providing testimony and/or argumentation, a communicator's intention is for the audience to form a particular belief with a particular degree of strength. In engaging in persuasive communication, a communicator's intention is for the audience to adopt or modify an intention on the basis of holding this belief. The belief underlying the adopted intention will itself have been formed as intended by the communicator via the most relevant type of communication – testimony, argumentation or other.

5 From meaningful signs to heuristic persuasive strategies

In intending to persuade an audience, a communicator first relies on the audience's desire for relevant and true information. Just providing such information, while it will fulfill a communicator's intention to modify the audience's beliefs, typically will not suffice to alter the audience's intentions as intended by the persuasive communicator (although it may do so accidentally). The communicator's higher-order intention is fulfilled by specifically targeting the audience's higher-order intention. The communicator relies on the audience's tendency to behave adaptively and fulfill her own intentions (in the first instance, by seeking relevant information to form her own beliefs; in the second instance, by using such information and the associated beliefs to form intentions to engage in self-beneficial, or adaptive, behavior). In both instances, the communicator's intention targets her audience's cognitive structure in the most relevant way by taking advantage of its naturally adaptive tendency to exploit information, learn, or seek to behave in a self-beneficial manner.

In the case of persuasion, the communicator will target the audience's intention structure, and rely on the audience's own practical reasoning processes. Intentions are structured in a hierarchical manner – the fulfillment of higher-order intentions requires the adoption and fulfillment of lower-order intentions. In order to fulfill my intention to work, I must find a job, which necessitates updating my CV, for which, in turn, I must install a newer version of Word, etc. In this way, according to Bratman, higher-order intentions serve as inputs to practical reasoning and "pose a problem" since they require one to choose between several courses of fulfillment. These options are screened against the background of one's existing intentions, desires and beliefs. The output of this process is the retention of one course of action and, as commitment to it develops, the adoption of a new intention. Built into these practical reasoning processes are mechanisms that ensure both rationality and efficiency by taking advantage of regularities and creating what Bratman calls habits, dispositions and norms, which others might call heuristics, (e.g. Gigerenzer & Selten, 2001).

This ability to persuade via intention formation has evolved, it seems, first from testimony, to argumentation, to the use of heuristic tactics specifically aimed at modifying intentions. This wide range of strategies and their associated tactics[3] is available to the fully-competent persuasive communicator. While a communicator offering testimony makes the audience aware of a state of affairs and relies on the audience trusting her, a communicator engaging in argumentation offers reasons why a belief should be adopted. In persuasive communication, the communicator's aim, to cause a belief to be accepted as the basis for adopting an intention, can be accomplished by testimony, argumentation or via the use of a heuristic strategy. Choosing between testimony, argumentation or the use of a heuristic strategy is itself a heuristic process undertaken by a persuasive communicator. We can look at the different utterances that might be used to fulfill a given persuasive intention as we move from direct observation to testimony to argumentation to heuristic persuasive strategy:

(12)   Direct observation: "People who drink milk seem in better health"
(13)   Testimony: Mother says to child, "Drinking milk makes bones stronger."
(14)   Argumentation: Health Science textbook for primary school children: "Milk contains high levels of calcium. Calcium helps build strong bones. Milk is an excellent source of calcium. Drink milk!"
(15)   Heuristic strategy: Television commercial shows famous sports star drinking glass of milk and saying: "It worked for me!"

I believe that we can actually go one step further in our analysis of the evolution of persuasive strategies. Having reviewed large amounts of data from advertising and other persuasive sources, Cialdini (2001), a social psychologist, has shown that persuasive communicators seem to rely on a fairly limited range of tactics to fulfill their persuasive intentions. My claim is that each of these tactics corresponds to a specific adaptive tendency, or "bias," (Boyd & Richerson, 1985) from which it derives its effectiveness. I will illustrate this point with two of the six tactics proposed by Cialdini, and show how they link to adaptive tendencies identified in the cultural anthropology literature. Cialdini points to a persuasive tactic which he calls "social proof." Roughly, this type of tactic relies on the adaptive tendency of individuals to conform to the behavior of large groups or the majority. An individual adopts a given intention because it enables him to conform, or chooses the more conforming of two possible courses of action. As discussed in section 2.2,

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[3] In general, I use the term 'strategy' to refer to the range of communicative strategies aimed at modifying an audience's behavior – persuasion being one of these strategies, whereas I use the term 'tactic' to refer to specific persuasive techniques such as "social proof," "liking," "commitment" etc. that are discussed below.

Boyd and Richerson (1985) have shown the importance of a conformist bias in facilitating cultural transmission as it "increases the probability of acquiring adaptive beliefs and values." (Henrich & Boyd, 1998, pg. 215). Simply put, the frequency of occurrence of a particular behavior is used as a heuristic indication of its quality. Appealing to a target's natural and adaptive tendency to conform to a particular group's behavior is an effective persuasive tactic. Examples abound:

(16)   Nine out of 10 families prefer X toothpaste.
(17)   You've got to go to the party, everyone else is going
(18)   Join the millions of satisfied customers who've switched from X to Y.

Another tactic proposed by Cialdini is reciprocity. In using reciprocity as a persuasive tactic, a communicator is setting the stage for some form of reward to herself (the target's cooperation) in exchange for her seemingly altruistic action towards the target. Research, mostly in game theory, has shown how individuals engage in both positive reciprocal behavior (responding cooperatively to altruism), and negative reciprocal behavior (retaliating, sometimes at a cost to themselves, in the face of defection) (e.g Axelrod, 1984; Bowles & Gintis, 1999). This is the tactic behind such marketing programs as free giveaways, tryout offers, supermarket samples etc. In non-marketing settings, this tactic can involve gift-giving or can take the form of a seemingly gratuitous compliment or apology in response to which the target reciprocates by fulfilling the communicator's persuasive intention. For instance,

(19)   Teacher: "I know a good boy who is going to put all his books away quickly."

The other tactics catalogued by Cialdini include "liking," "commitment and consistency," "authority" and "scarcity. These tactics all have much in common with the "transmission biases" identified by Boyd and Richerson (1985) and others (e.g. Henrich & Boyd, 1998; Henrich & Gil-White, 2001) as crucial factors in cultural transmission, and one should hardly be surprised to find them on a list of strong motivating forces. For a communicator to competently use these motivating forces as persuasive tactics with the specific intention of causing the adoption or modification of intentions in her target audience clearly constitutes a powerful persuasive strategy, one that circumvents much of the resistance exhibited by cautious audiences. Whether it relies on the target processing the persuasive message heuristically or elaboratively, the communicator's strategy is a heuristic itself, one that depends heavily on a thorough understanding of intentionality and adaptation.

As mentioned in section 2.1, Sperber and Hirschfeld (2004) discuss the manipulative production of information to meet a module's input conditions, regardless of whether the information belongs to the module's proper domain (pg. 41). This type of strategy relies, according to Sperber and Hirschfeld, on the mismatch between a module's proper and actual domains. So, a manipulative communicator can tailor an utterance that fits the input conditions of a "learn from experts" module by, for instance, positioning herself as an expert and offering information that appears to be beneficial to the audiences.

6 "Coping" strategies
6.1 Coherence-checking and argumentation

Sperber's argument (2001) is that the tension, discussed in section 1, between the "epistemic norms" of communication and its function as a tool to promote desirable effects for communicators, results in the evolution of a coherence-checking ability enabling audiences to examine information received for coherence with existing beliefs, thus helping defend their need for true information.

I mentioned earlier in this chapter some parallel work in developmental cognition by Harris (2002) who suggests that children do not focus much on the source of their information – testimony or direct observation. What they do focus on, however, is whether acquired information is consistent with previously acquired beliefs and attitudes. In other words, the exact source of new information is less critical than its consistency with existing beliefs, an important factor in achieving relevance. Thus, Harris suggests children are equipped with a "filtering device" that enables them to examine communicated information for consistency and coherence with a "model" which they have built of a given situation, encompassing all beliefs held about that particular situation. Certainly at first glance, Harris's filtering device bears some resemblance to Sperber's coherence-checking ability. Any information which clashes with the existing model is rejected outright, according to Harris, unless the child detects the communicator's intention to convey fiction or supposition, in which case the work performed by the filtering device is adjusted accordingly, in order to allow the seemingly-incoherent effects.

Sperber discusses the existence of a broader such coherence-checking mechanism and its adaptive role. Rather than being a domain-general reasoning mechanism, as generally believed, according to Sperber, this coherence-checking mechanism is an evolved domain-specific module that looks at the structure of arguments, either letting them through, or filtering them out. It is domain-specific in its application to coherence-checking in communication only, but can be perceived as general in its applicability to the full range of one's beliefs. The same module, further evolved, is in Sperber's view responsible for the elaboration of

argumentation, a communicative strategy available to communicators who, fearing distrust on the part of the audience, emphasize the coherence or consistency of the information conveyed with beliefs previously held by the audience. While Harris suggests that the filtering device used by children operates "before the emergence of reflective judgment," (Harris, 2002, pg. 315). Sperber's coherence-checking, reasoning, module is clearly at work at all stages of development. I suspect that the two mechanisms are indeed either the same, or two manifestations, one heuristic, the other perhaps more elaborative, of one particular ability. Furthermore, Harris's work may be seen as weighing in on the side of the content-driven, modular view of cultural transmission defended by Sperber, rather than the source-driven, domain general perspective favored by Boyd and Richerson.

6.2 Evolution of coping strategies

While a coherence-checking strategy and the ability to check for the logical structure of arguments are indeed appropriate coping strategies in the face of pure testimony and argumentation, audiences should also be able to cope with persuasive strategies ranging from the use of testimony, argumentation and heuristics to the more sophisticated manipulative uses of learning mechanisms and transmission biases. In these cases, coherence and logical structure are not the issue and cannot serve as sufficient criteria for acceptance. Rather, rationality considerations tied into one's planning structure are required as effective coping mechanisms against such instances of adaptive manipulation. These coping mechanisms are strongly anchored in one's planning structure and, according to Bratman (1987), consist of specific dispositions which control the deliberations and evaluation processes that lead to intention formation and/or modification. These processes can themselves be conducted in a fully elaborative fashion, or allowed to draw on heuristic processes for greater efficiency. Depending on how much one is willing to accept heuristically instead of expending the cognitive resources necessary for elaborative processing, one will set these parameters to more or less sensitive settings. Each step of these decision-making processes is a potential target for manipulation as efficient and adaptive heuristics open up windows of opportunity for equally adaptive manipulative tactics. On the target side, evolution is driven by the need for efficiency in performing the information-gathering function of communication; while on the manipulator side, it is driven by the exploitive function of communication. The ability to fine-tune the parameters that govern these intention formation mechanisms and to review them quickly and efficiently depending on contextual variables is clearly key to the target staying a step ahead of the persuader and may combine emotions with rational considerations such as trust.

7 Persuasion and cultural evolution

While I have discussed the evolution of persuasive strategies in an evolutionary perspective, a phenomenon that is much more immediate in historical time may turn out to have disproportionately strong and abrupt effects on this evolutionary process: the accelerated use of communication in the media in general, and specifically for marketing purposes. Consumer behavior researchers, for instance, have documented the increased sophistication of audiences in general, and children and adolescents in particular, in recognizing marketing strategies and resisting them. In response, the marketing industry is engaged in a constant search for ever more effective ways of selling and persuading. How these strategies will continue evolving and what their effects are beyond the realm of marketing and media, on the overall evolution of communication is anyone's guess. However, we can venture some very general attempts to forecast this evolution. A significant difference exists between this persuasion-counterpersuasion spiral effect in marketing and the more general evolution of communication prior to the acceleration of the media culture. While I pointed out earlier in this paper that the roles of communicator and audience are assumed by the same individuals more or less in alternation, the same is not necessarily true of the media and marketing industries. Clearly there is a dissociation of the two roles of persuader and target in these forms of communication that is bound to develop into a greater gap and increasing aggressiveness and lack of trust between the two now distinct groups.

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