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# The Itemic View on Culture*

# La visión itémica de la cultura

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*Abstract*

Since the naturalistic turn in the late 20th century the social sciences understood culture as an evolutionary process in its own right. This perspective brought new conceptual tools and methods to our understanding of culture, and its transmission. This article reviews the main approaches in cultural evolution: *memetics*; *the standard evolution approach* and the *epidemiology of representations*. It argues that those approaches share a common view of what the subject matter of culture is. In short, these approaches have an Itemic View on Culture: they understand and treat culture as a collection of items that are in people's brains and environment that are transmitted by the individuals of a population by non-genetic means, so that over time, they are stabilized.

*Keywords*

*Cultural item, epidemiology of representations, memetics, standard evolution approach.*

*Resumen*

Desde el giro naturalista a finales del siglo XX, las ciencias sociales entendieron la cultura como un proceso evolutivo por derecho propio. Esta perspectiva trajo nuevas herramientas y métodos conceptuales a nuestra comprensión de la cultura y su transmisión. Este artículo revisa los principales enfoques en el campo de la evolución cultural: *memética*; *el enfoque estándar evolutivo* y la *epidemiología de las representaciones*. Argumento que esos enfoques comparten una visión común acerca de qué es la cultura. En resumen, estos enfoques tienen una Visión Itémica de la Cultura: entienden y tratan la cultura como una colección de ítems que están en el cerebro y el entorno de las personas que son transmitidos por los individuos de una población por medios no genéticos, de modo que con el tiempo, son estables.

*Palabras clave*

*Enfoque estándar evolutivo, epidemiología de las representaciones, ítem cultural, memética.*

*Introduction*

In the late 20th century, social sciences began a naturalistic turn. The naturalistic program aims at explaining culture in causal and material terms without appealing to entities that go beyond human groups, or concepts that characterize human groups and their cultures in supernatural terms.[1] Culture as a natural phenomenon is taken as an evolutionary process in its own right. Thinking of culture in these terms has brought new conceptual tools and methods to understand and explain it.

This turn was ushered in by three naturalistic explanations of culture: the *standard evolution* approach (Boyd and Richerson, 1985; Mesoudi, 2011; Heinrich, 2015), the *epidemiology of representations* (Sperber, 1996; Sperber and Claidière, 2008) and *memetics* (Dawkins, 1976; Dennett, 1996; Blackmore, 1999) approaches. The main goal here is to explicate what those approaches take as the subject matter of culture.

Generally, we can say that all three approaches consider culture "as *that* which is transmitted in a human group by non-genetic means" (Sperber, 2000: 163; emphasis mine). Now, an important question is, what is "*that*" which is transmitted by non-genetic means? All three approaches mentioned above would agree that, whatever *that* is, its defining properties would be *non-genetic transmissibility, stability and distribution in a group*. In other words, the subject matter of culture, whatever it is, is non-genetically transmitted, it happens within a group or population, it is distributed as the outcome of some process of transmission, and it is stable in time because either

1 In the literature, the term item is use to talk about cultural objects in general terms because of the variety of stuff that comprehen cultures. Thus, by "item" I mean objects that can be either material (such as artifact, practices, speech, etc.), or abstract (like ideas and concepts).

the transmission process is stable or because there are mechanisms that make it stable.

The aim of this paper is to identify and clarify what "that" refers to in the general definition of culture, as understood by the three naturalistic approaches mentioned, and whether there is common ground between them. I argue that the three approaches share a common perspective, which I call the "Itemic View on Culture". According to this view, I contend that culture is constituted by a collection of items[2] that meet certain conditions (most importantly, to be shared in a group through non-genetic means, to somehow endure in time, and to have a significant distribution within a group). While doing this, I will mention the mechanisms responsible for the transmission, distribution and stability of cultural things but only as they serve to clarify the subject matter of culture according to those views. [3]

*The epidemiological account*

The epidemiological account endorses a "naturalistic program for the social sciences" (Sperber, 1996: 3) that seeks to provide a naturalistic explanation of culture. On the one hand, this approach studied the impact of cognitive factors in the transmission and transformation of cultural representations (Sperber, 1996; Atran, 1998; Sperber and Hirschfeld, 2004), expanding this framework to phenomena like religion (Boyer, 2001) and traditions (Morin, 2016). This line of research provides the ontological grounds for explaining *what* things culture is made of. In this framework things such as words, songs, fashions, political ideals, cooking recipes, ethnic prejudices,

2 In the literature the term item is use to talk about cultural objects in general terms because of the variety of stuff that comprehend cultures. Thus, by "item" I mean objects that can be; material such as artifact, practices speech; abstract like ideas and concepts.

3 Specifying exactly which mechanisms are responsible for all this to happen is itself a debate on its own. See Aunger (2000), Acerbi and Mesoudi (2015), Buskell (2016). I will briefly touch on this point concerning each approach.

folktales, rules, skills and so on are considered representations that contain information.

On the other hand, it proposes an explanation of how those things are distributed within human populations (via communication and imitation) and why they demonstrate stability in time with a certain degree of variation. For that they developed models (Claidière *et al.*, 2014) and conceptual tools to explain the transmission and distribution of culture (Sperber, 2006).

I will argue that the epidemiological account understands culture as a collection of items non-genetically transmitted and distributed in a stable manner in a human population, which are *mental representations* and *public productions*, that propagate forming causal chains called *cultural cognitive causal chains*, which preserve the *information* that characterizes or individuates the cultural items.

## ❖ Culture: mental representations and public productions

The epidemiological approach is so-called because it rests on the analogy between cultural phenomenon and epidemic disease. The idea is that cultural items spread through human populations as if they were a pathogen that gets passed from individual to individual. Think about ideas in our brains as being potentially "contagious" in the following way.[4] Some of our ideas determine how we behave, as, for example, my ideas about culture that caused me to write this article. The behaviors or the traces left by our behavior are observable by others, e.g., you reading these lines. Observing a behavior or its traces can give rise to ideas in the observers, like some of the ideas you are having right now.

Sometimes, the ideas caused by an observed behavior or its traces resemble the ideas that caused the observed behavior or traces in question: This will be the case, for instance, if I achieve my goal of you understanding what is written in these pages. When this process takes over, some ideas and its traces propagate within a population, e.g., imagine the very improbable (if not unrealistic) case of a version

4 Example borrowed from Sperber (1996: 1).

of this work, published in a book, translated into many different languages, and becoming a *best seller* so that the ideas in it are widely known and people talk about them. For the epidemiological account, those propagated ideas and its traces are in a broad sense what culture is. The point is that this propagation pattern (from one individual to others) displayed by culture somehow resembles the spread of diseases, so "[t]o explain culture, then, is to explain why and how some ideas happen to be contagious. This calls for the development of a true epidemiology of representation" (Sperber, 1996: 1).

The epidemiological account explains culture in terms of mental representations and public productions distributed across a population. The notion of representation is based on the everyday notion of representation: an object or event (physical or mental) that stands for another object or event for someone (Sperber, 1985: 11). Think about an image (a picture, a painting) or a description (written or spoken) of a particular computer, a map of a geographic area, my perception of a particular computer, the tale of *Little Red Riding Hood* I know from my grandma, or her belief in God, and so on and so forth.

This account distinguishes two kinds of representation: *mental* and *public*. Mental representations such as ideas, beliefs, memories, perceptions and the like "are brain states" (Sperber, 1996: 28). Examples of public representations are "speech, gestures, writing, and pictures" which "are a special type of public productions whose function is to communicate a content" (Sperber, 1996: 32; Sperber and Hirschfeld, 2006: 149). By "public production", in turn, Sperber means

> [...] any perceptible modification of the environment brought about by human behaviour. Productions include bodily movements and the outcomes of such movements. Some productions are long-lasting, like clothes or buildings; others are ephemeral, like a grin or the sounds of speech (1996: 99).

But what is the process of "culturization" of mental representations and public productions like? This account describes how songs,

fashions, political ideals, cooking recipes, ethnic prejudices, folktales, etc., are distributed by chains of representations and public productions. The epidemiological account distinguishes between various kinds of chains of representations to explain culture: *cognitive, social and cultural*.[5]

A cognitive chain is a process that happens within an individual's mind/brain. Let's take the example of the tale of *Little Red Riding Hood*. My grandmother has many mental representations and, among them are some fond memories of her mother telling the tale of *Little Red Riding Hood*. This mental representation is involved in her thinking in such a way that it leads her to the belief that I could enjoy the tale as she did. And this belief causes in her the desire to tell me the tale she remembers. This is a *cognitive* chain. According to Sperber (2001, 2006, 2011), cognitive chains are causal interactions between perceptions, inference processes, memories and beliefs, that is, causal chains of mental representations within an individual (Sperber, 1996: 99).

The cognitive chain in my grandma's mind/brain might end up causing my grandma to actually tell me the tale of *Little Red Riding Hood*. If she does so, and produces a public representation which affects me, she creates a social (cognitive causal) chain. Her telling of *Little Red Riding Hood* causes a mental representation of the tale in my mind. If things go right, the mental representation of the tale created in my mind would be accurate enough to (resemble minimally) the one in my grandma's mind, that is, my mental representation of the tale contains the "same" or very similar information that my grandma's mental representation has. This way, the representation of *Little Red Riding Hood* has been transmitted from my grandma to me. Thus, a *social* chain starts with a cognitive chain within an individual's mind that by means of a public representation triggers a cognitive chain in another individual (Sperber, 1996: 99).

5 Sperber's (2001, 2006, 2011) terminology is a bit more complicated. He calls these kinds of chain, respectively, "cognitive causal chains", "social cognitive causal chains" and "cultural cognitive causal chains". Probably "net" or "network" are better terms than "chain" for the latter suggests a one-to-one relation, while the former implies branching, a one-to-many relation.

Finally, a *cultural* chain occurs when the social chain involving the same represented item (in this case, the tale) gets repeated. That is to say, when I tell my niece the tale I remember, and then she tells it to her siblings and so on, a cultural chain has begun. When this process continues over and over, we have a cultural chain in which the information that constitutes the tale gets passed repeatedly, and minimally transformed, along the chain. Communication, of course, plays an important role in the generation of cultural chains (Sperber and Claidière, 2008: 437).

Thus, according to the epidemiological account, culture is a collection or set of cultural chains. The common informational content of the mental and public representations involved in a cultural chain constitutes the subject matter of culture. In other words, a mental representation *q* that has a content j causes a public representation *p* which has the content j', and a receiver of *p* transforms this public representation into a mental one *y* which has the content j", and j, j' and j" have a minimal resemblance. Only when this process takes place a significant number of times can the informational content be spread widely in a human group, and only then will the content be considered a cultural item: "only those representations which are repeatedly communicated and minimally transformed in the process will end up belonging to the culture" (Sperber, 1996: 83).

At this point a clarification is needed. A difficulty in explaining culture is that cultural items such as stories have many versions and many more token representations (tales, writings, audio records, memories…). We can describe some of these tokens as the media in which the story is stored (either in people's brains or on external devices: books, tapes, CDs, mp3 files, etc.), but also as the media for transmitting the cultural item.

Consider that there are as many mental representations of *Little Red Riding Hood* as people that know the tale and also that there are many public representations: books, audio records, films and cartoons of the tale. The epidemiological account describes those tokens as representations and public productions. Memories, beliefs, intentions, items of knowledge are considered mental representations. Story-tellings, audio recordings, gestures, artifacts (in sum,

behaviors or their traces in the world) are described as public productions, of which public representations are a special kind.

All of those representations conform to the range of different versions of *Little Red Riding Hood*. In some of them the main character brings wine, in others honey; in some the grandma and *Little Red Riding Hood* are saved by a hunter or a woodcutter, but in others they are not saved – not taking into account the differences in *how* people tell the tale. We can say then that there are different cultural chains of the tale. What then is the tale *Little Red Riding Hood*? According to the epidemiological account, the tale *Little Red Riding Hood* is the information that all representations of the tale have in common, and it is by means of this information that we recognize in them (the representations) the tale *Little Red Riding Hood*. "[I]t is by their content rather than by their material properties that we tend to identify representations" (Sperber, 2001: 303).

This could lead to a misunderstanding because the representations and the information they contain are two different things: What is culture? Is it the representations, that is, the objects and events that *contain* information or the information common to all of them? The epidemiological account answers this by considering the tale of *Little Red Riding Hood* as an abstract representation – a "cultural attractor" (Sperber, 1996: 107, Scott-Phillips *et al.*, 2018: 164) that is the common information to every representation of the tale in the cultural chain. It is in this sense that we should understand what this approach means when they say that a tale is a representation despite all the differences that may take place in the instantiations of it.

This is why argue that it is reasonable to think that the epidemiological account takes culture essentially as a collection of items that are representations. Think of it in the following way. If there were no books, memories, tales and so on there would be no cultural item such as *Little Red Riding Hood*. Besides, if I invent a story, but I don't tell anybody about it, it is not cultural because nobody else knows the story. There would be no transmission so it would not become a cultural item.

Although it is reasonable to think that the for the epidemiological account culture is a collection of items, in some formulations

they argue that culture is a property, that representations may have to greater or lesser degree, since "individual uncommunicated thoughts, plans, or even dreams are typically built with ingredients —concepts, pieces of knowledge, or of know-how— that were socially acquired" (Sperber and Claidière, 2008: 291, so that "the natural character of culture is not as a thing, or even a collection of things, but rather a graded property that things can have, to greater or lesser degrees. In other words, some mental states, behaviors, and artifacts are highly cultural and others less so" (Scott-Philips *et al.*, 2018: 170). However, in other formulations they consider that "it is both ontologically correct and methodologically useful to study culture as a population of items of different types" (Scott-Philips *et al.*, 2018: 168).

The epidemiolocal account needs to clarify what "collection of things" and "population of items" stand for here. If both stand for the same thing, what is commonly understood as cultural items (e.g., ideas, beliefs, tales, customs, artifacts etc.), then it cannot be that in one formulation "the natural character of culture is not as a thing, or even a collection of things" but in the other "is ontologically correct and methodologically useful to study culture as a population of items". They have to decide to which formulation they adhere, since the formulations turn out to be in contradiction. But if they mean different things, they need to specify then what "population of items" and "collection of things" refer to.

Even if in epidemiological account maintains that culture is best characterized as a graded property that mental representations and public productions can have in more or less degree, for this approach mental representations and public productions are still *the only* (or best candidate) entities that can be cultural. More precisely, only representations and public productions that are transmitted and distributed in a stable manner within a population, forming cultural cognitive causal chains preserving the information that characterizes or individuates them are cultural, more commonly known as cultural items.

The main idea for the epidemiological approach is that cultures are the collections of items shared in a social group: ideas, beliefs,

tales, customs, artifacts, etc. This account conceives a cultural item in terms of representations and the information contained in them. Thus, a cultural item is a chain of mental and public representations. Those chains are called "cultural cognitive causal chains" and those are the ones that preserve the information that characterize cultural items. The explanation of cultural items is not exhausted by actual public or mental representations, they are best understood by abstracting the common information to the representations that constitute the cultural item. That is, for the epidemiological account culture is a collection of items identified as representations by the information contained in them.

*Memetics*

Memetics is a naturalistic approach that is based on a strong analogy with biological evolutionary theories. In a nutshell, for memetics, culture is a collection of *memes* (entities that get replicated in the process of transmission mostly by imitation), which are information in brains and objects. In other words, what is commonly understood by culture (songs, ideas, beliefs, tales, customs, etc.) are, for this view, memes.

This account arises from a biological evolutionary theoretical point of view. As Dennett (1996: 343) argued following Dawkins (1976), to be considered evolutionary, a process must fulfill the following conditions:

- Variation or fecundity: there is a continuing abundance of different elements.
- Heredity or replication: the elements have the capacity to create copies or replicas of themselves.
- Differential "fitness": the number of copies of an element that is created in a given time varies depending on interactions between the features of that element and features of the environment in which it persists.

Back in the 60's, there was a debate about the subject matter of biological evolution, *species* or *genes*? The above characterization of evolution explains the mechanism of evolutionary processes. On this view, "elements" become central to the explanation of any evolutionary process, and whatever they are, they have to meet such conditions. As I understand it, the debate was settled by distinguishing between *which* are and *what* are those elements of biological evolution. To the question of which the elements of biological evolution are, the answer was genes. But to the question of what these elements are, Dawkins proposed the notion of *replicator* (1976).

The notion of replicator was meant to explain *any* evolutionary process. It is based in a generalization of the features observed in genes, that is, replicators are entities with the capacity to create copies or replicas of themselves given the proper conditions. Thus, if there is something with the capacity of replicating with variation in an environment with finite resources, an evolutionary process should take place.

This was the starting point for memetics: given that cultural items (some songs, tunes, stories, ideas, skills and so on) pass from generation to generation of humans by what seems like a copying process with little variation (but these are non-genetically *inheritable*), they also show the feature of *variation,* and *differential fitness*, then culture is an evolutionary process.[6] Therefore culture must be constituted by a "new" kind of replicator given that culture is an evolutionary process: "we need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission or a unit of *imitation*", and this is the *meme* (Dawkins, 1976: 192). Memetics takes cultural items as memes. In other words, memes are the subject matter of culture.

6 An interesting debate about evolutionary theory and evolution kinds surrounding culture: Claidière *et al.* (2014), Henrich *et al.* (2008) claim that there can be evolution process without the need of a replicator-like entity.

❖ Extensional definition of meme

Memetics explains what memes are by identifying them with cultural items. That is, by the extension of the word "culture". Dawkins (1976: 192) refers to "tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches" as clear examples of memes. Here Dawkins selects things that tend to be copied. He mentions that it is the fact of their "psychological appeal" that makes us copy (or replicate) them. We can think of them as viruses too. That would be similar to the epidemiological notion, but even closer to software viruses (Dawkins, 1994 Lynch, 1996; Brodie, 2004) spreading in the minds of individuals of a population. This is what nowadays is meant when some news, a video, a gif and the like "goes viral". These are memes too.

For Dennett the underlying notion is very similar, but he takes the concept of memes to apply basically to ideas: "distinct memorable units – such as the ideas of: arch, wheel, wearing clothes, vendetta, right triangle, impressionism …" (Dennett, 1991: 201; 1996: 344). The line of thought again is the following one: since everything cultural is transmitted from individual to individual, and thus to populations, the very fact that it is transmitted implies that they are copied somehow. Given this view, cultural things fit in the notion of memes. The notion of memes is, in this sense, a generic notion that captures what is commonly considered as culture. The lists above make clear that for the memetic approach cultural items are just memes, and therefore, culture is constituted by memes.

Although the things they refer to as memes are mostly mental objects, we will see that for memetics, memes are not just ideas, or things in people's brains/minds. For the moment, one might think that ideas, thoughts and beliefs in general are memes, but not all thoughts are memes, think about perceptions or emotions, those are ours only and we never pass to others most of them (Blackmore, 1999: 15).

❖ Memes as what is imitated

All the things mentioned above (such as the tunes, ideas, catch-phrases etc.) share a feature according to memetics: they are things that are

mostly transmitted by imitation. A way to characterize what memes are, then, is by looking at their transmission. Despite some mentions of verbal communication (Dawkins, 1976: 193; Blackmore, 1999: 34), according to memetics, memes propagate themselves in the meme pool by leaping from brain to brain via a process which, in a broad sense, can be called "imitation" (Dawkins 1976: 192).

When one person imitates another, a meme is transmitted from one brain to another: a meme has been replicated. Imagine that I hum a tune that I have in my mind. Another person imitates me because of the characteristics the meme has (perhaps because they like it). Memeticists would say that the tune (a meme) has been transmitted (Blackmore, 1999: 1-9).

A further step from this is to fully identify memes with whatever is imitated. The idea would be that if a person imitates another and succeeds, a meme has been transmitted from one person to another.[7] According to memetics this is the case for "your vocabulary, the stories you know, the skills and habits you have picked up from others and games you like to play. It includes the songs you sing and the rules you obey" (Blackmore, 1999: 7). They identify "everything" that gets passed from person to person by imitation as memes, and that "all" cultural items one knows or uses are things that one knows and uses because they have been "passed" (transmitted) by imitation.[8]

### ❖ Memes as information

When it is said that something is copied, there are two different senses of "copying". One makes a copy when one makes a new object that resembles another object or performs an action that resembles another action. Take, for instance, a ceramic pot I made by looking

7 An integral idea to this is that we (our brains, among other supports like books, computers and movies) are the vehicles for memes as we (our bodies) are the vehicles of our genes (Dawkins, 1982).

8 Notice that the issue of degree of distribution for an idea to be a meme vanishes with this way of looking at culture. If something is imitated just once, it is a meme and, therefore, cultural: its degree of success at being distributed seems to be what characterizes it as an evolutionarily "good" or "bad" meme, but not as cultural or a cultural thing.

at a model pot, or my first ever greeting of someone in Japan, by copying the movements (e.g., bowing) of my friend Noritaka. In this sense, copying would amount to imitation.

A different sense of copying is when someone produces an object or causes an event that contains information about an event. Think of my utterance "the coffee is hot" while pointing to a cup filled with hot coffee. John translates what I said, by uttering in Basque "kafea beroa dago" to a friend that does not understand English. John didn't imitate my utterance, but producing an utterance with the same content, he somehow produced a copy of it with the same information, without "re-producing" it. The same thing would happen with habits (Dennett, 1999: 317-318).

That is, in part, an aspect of memetics' strong analogy with biological evolution. In biology, broadly speaking, what is transmitted from one generation to another are genes and scientists talk about them as information.[9]

Memetics assumes that "we know that memes are just information being copied from one person to another" (Blackmore, 1999: 204). This, along with the view of Dennett that "what is preserved and transmitted in cultural evolution is *information*" (1996: 353), leaves no doubt about their claim: culture is a collection of items (memes) that are the information that humans transmit by imitation. Dawkins claims that

> A meme should be regarded as a unit of information residing in a brain (Cloak's 'i-culture'). It has a definite structure, realized in whatever physical medium the brain uses for storing information. If the brain stores information as a pattern of synaptic connections, a meme should in principle be visible under a microscope as a definite pattern of synaptic structure (1982: 109).

9 About the use of metaphors such as "genetic code", "genetic information" … see Knudsen (2005).

Nevertheless, despite that, a meme is not bound to "any particular medium of transmission", according to Dennett, the very existence of memes relies on being instantiated in a physical medium:

> Memes are also invisible, and are carried by meme vehicles – pictures, books, sayings (in particular languages, oral or written, on paper or magnetically encoded, etc.). Tools and buildings and other inventions are also meme vehicles. A wagon with spoked wheels carries not only grain or freight from place to place; it carries the brilliant idea of a wagon with spoked wheels from mind to mind. A meme's existence depends on a physical embodiment in some medium; if all such physical embodiments are destroyed, that meme is extinguished (1991: 204).

Up to now, memes have been defined as the units of cultural transmission or imitation in cultural evolution. Memes are the replicators of cultural evolution analogous to genes, which is to say, memes are chunks of information "stored" in our brains and the objects in our environment, which replicate. Memes are replicated by imitation, and by this way the information that constitutes memes gets transmitted from brain to brain or another object in which they are instantiated.

### ❖ Memes as instructions

At this point, another remark needs to be made. The idea of memes being analogous to genes may suggest that memes are copied with the same high-fidelity rate as genes; that cultural evolution may be, at least in theory, a high-fidelity copying process.

This issue caused some debate. Some positions arose against memetics as a possible explanation of culture and of how the process of cultural transmission works (Sperber, 1996, 2000; Kuper 2000; Bloch, 2000). For these authors, it is inconceivable that culture is based on a high-fidelity process run by a self-replicating entity, since, among other reasons, "[i]n the process of transmission, representations are transformed" (Sperber, 1996: 53).

Naturalistic approaches agree that culture shows stability, so, there must be some mechanism responsible for that. For non-memetic accounts, this stability is not due to the self-replicating characteristic of memes. In fact, they claim that cultural transmission has a "low" fidelity rate. That is to say, in every step of the transmission the information gets transformed to some degree. Roughly speaking, they locate the causes of the stability of cultural information not in the information itself but in the cognitive biases and capabilities of the human mind (Sperber and Hirschfeld 2004, 2006).

The debate led to a version of memetics which refines the notion of meme in terms of information by getting closer to the analogy with genetic information. Inspired by the distinction of F. T. Cloak (1975) between "i-culture" and "m-culture", Dawkins (1982: 109) distinguishes between the meme (the information, e.g., the idea of chair) and its phenotypic expressions (e.g., an actual chair). This is analogous to the genotype and the phenotype distinction in biology, which is the difference between the genes of an organism and the expression of those genes in the organism.

From this perspective memes are information consisting in instructions for producing a mind-external object, e.g., a behavior or an artifact, just as the information of genes which is described as the instructions to make an organism. The memetic account of culture, then, makes a distinction between *information* and *what* information produces, e.g., between my idea of a chair and the chair (the product of following the idea). This is how memes are defined as instructions (thought as a *kind of* information, that of which the meme is "made of") and what is produced by following the instructions (the objects that contain them, ranging from tools to words).

By this distinction, memetics tries to solve the problems of high-fidelity and explains how memes can be in people's minds and in artifacts. Dawkins gives an example to illustrate the point (Dawkins, 1999). His father shows him how to make a Chinese junk made of paper.[10] He watches him and imitates what his father does, and in the

10 A junk is a type of Chinese sailing ship with fully battened sails.

end, he gets a Chinese junk. Afterwards, he shows it to a friend at school. Later, all the children were making Chinese junks.

The point is that if one observes all the junks, one will notice that they are different, due to, say, the differences in the ability of the individuals and the loss of steps in the transmission of how they are built. Dawkins' conclusion is that we do not copy the junk (the phenotype), what we copy are the instructions (the genotype) we follow to construct the junk. So, as cited before, memes are information that are instructions and the junks are the instances of these instructions.

By understanding memes as instructions, memetics can explain why people, having the same meme (instructions) in their brains, may yet express that meme differently. This could be theoretically reasonable explanation, given that the differences between tokens of the same cultural item vanish, since the actual cultural item is the meme, which remains "intact". This is not a definitive solution, since memetics acknowledges that we can copy memes from their phenotypic expressions, which will mean that, somehow, they include the instructions, so they are somehow a meme too (Dennett, 2007: 81).[11]

Although, there has been a lot of discussion about the very existence of memes and their appropriateness as theoretical concepts to explain culture,[12] concerning the subject matter of culture, it is clear that, for memetics, culture consists of a collection of memes that are transmitted by "imitation". Memes are representations that are replicators: they use our brains to make copies of themselves, as genes use cell machinery to make copies. Memes are then a 100% successful transmission of representations. The cultural items that constitute culture are then memes, which are information stored in brains and in non-mental objects such us artifacts and behaviors, and are transmitted by copying. They are instructions for making copies of themselves.

11 As far as I can tell, the memetic approach offers no clear explanation or criteria of where a meme begins and ends. For example, when they talk about songs or tunes, they do not clarify if there is one or several memes.

12 See Aunger (2000).

*The standard evolutionary account*

The standard evolutionary approach to culture is the third and last attempt to naturalize culture that I consider.[13] In this case, the idea is to do it in a quantitative way. The approach is based on an analogy between culture and biological evolution and seeks to apply the mathematical models used in population genetics to culture or, more precisely, to what I have been calling "cultural items".

In the 80's Cavalli-Sforza and Feldman (1981) applied the mathematical models that described the genetic distribution of human populations to culture. This way, they created the models for explaining the distribution of culture. These models described three micro-evolutionary processes of transmission: vertical (parents to children), oblique (from unrelated elders), and horizontal (within generations), from one to one or from one to many and so on.[14]

Just after Cavalli-Sforza and Feldman (1981), Boyd and Richerson (1985, 2006) developed the approach further. They refined and expanded their models, describing, among other things, the idea of how "cultural selection" works.[15] Broadly speaking, there are three

13 I take the name for this approach from Acerbi and Mesoudi (2015). They distinguish between two views: the "standard cultural evolution approach" and the "Sperberian cultural attraction approach" or epidemiology of representation. From my point of view, the epidemiological account and the standard evolutionary account (with the exception of Mesoudi *et al.*, 2004) consider culture to be transmitted in non-discrete units differing from memetics. On the other hand, the epidemiological account argues that the process of cultural evolution is not based on selection (but in preservative and reconstructive processes) while the standard evolutionary approach proposes a model that captures the epidemiological explanation plus selection. See Henrich and Boyd (2002), Sperber and Claidière (2008), Claidière *et al.* (2014) and Henrich *et al.* (2008).

14 Furthermore, they ran some experiments to test if the predicted distributions of cultural items were close to the collected data. Cavalli-Sforza *et al.* (1982), surveyed Stanford students and parents and friends asking about their religious and political beliefs, sports and entertainment preferences, and daily habits, to test their models against actual data.

15 This is not the only mechanism or "force" that operates in cultural evolution that they observed. They defined models for explaining cultural mutation, guide variation, cultural drift and so on (Boyd and Richerson, 1985, 2005), which all operate on the same assumption that I'm trying to illustrate in this article: that for naturalistic approaches culture is a collection of items.

types of cultural selection, which are defined as biases in the transmission of culture: content, model-based and frequency-dependent biases.

Content bias consists in the selection of cultural traits by their intrinsic advantages and disadvantages or inherent psychological attraction. Frequency-based bias consists in the selection of cultural traits by their frequency presence. It relates the degree of adoption of a cultural item, to the frequency of that item in the population. There are two possibilities: adoption, because of high frequency, called "conformity", or, because of scarcity, called "anti-conformity". Model-based bias describes the cases in which there is a relation between a cultural trait and a person. It concerns the identity of the person, the model, from whom cultural traits are acquired (Boyd and Richerson, 2005: 69). A model-based bias is the prestige bias. This bias can explain how individuals will be inclined to learn from individuals in more successful groups (Henrich, 2015: 168).

As it can be seen, the standard evolutionary approach has developed various conceptual tools and models for testing many "informal intuitions" of the social sciences.[16] As I take it, the standard evolutionary approach wants to explain why cultural items are distributed in the way that they are; it does not seek to answer specifically what culture is. According to Boyd and Richerson arguing about the "correct" view of culture is not worth the effort, given the complexity of a natural phenomenon like culture 2005: 259).

Despite their practical stance, they do provide a working definition of culture:

> Culture is information capable of affecting individuals' behavior that they acquire from other members of their species through teaching, imitation, and other forms of social transmission (Boyd and Richerson, 2005: 5).

16 See the list about "a wide range of methodologies [that] are used in the field of cultural evolution" in Acerbi and Mesoudi (2015: 482).

As it can be seen, the notion of information is central for the standard evolutionary approach too, and it does not differ much from the one to be found in the other two approaches introduced in the previous sections. Cultural items are roughly identified with information:

> By information we mean any kind of mental state, conscious or not, that is acquired or modified by social learning and affects behavior. We will use everyday words like idea, knowledge, belief, value, skill, and attitude to describe this information (Boyd and Richerson, 2005: 5).

This is a mental notion of information very similar to the one in epidemiological and memetic accounts,[17] which takes almost anything that happens in the brain to be information. In other words, information is a "thing" in the mind/brain. This implies that culture is in people's brains (Boyd and Richerson, 2005: 61). But they also consider artifacts as warehouses of information. With the invention of writing and electronic devices, much cultural information has been stored in artifacts external to minds (Boyd and Richerson, 2005: 259, n. 5).

The idea of information stored in brains, in contrast with information stored in artifacts, is somehow intuitive. Think about an arrow found by an archeologist. In this case, the information contained in an arrow refers to the knowledge that the individuals who produced it used in order to make and use it. So, the arrow itself is cultural, but what makes it cultural is the information for producing and using it: "a "recipe"–a unit of cultural transmission that combines raw materials and the various behaviors that constitute a person's knowledge regarding how a tool is made and used" (Mesoudi and O'Brien, 2008: 63).

There is no clear definition of what they mean by "information", if not simply some *stuff* that brains or artifacts contain or carry. For

17 Although "representation" is not the notion they commonly use to talk about culture, by information in the brain they mean mental representations in the epidemiological sense. See Henrich and Boyd (2002), and Henrich *et al.* (2008).

Boyd and Richerson (2005), the standard evolutionary approach only uses the notion of information in order to explain why people behave similarly, without relying on reference to their genes (e.g., speaking different languages and having different tools). For this to be the case, something must be transmitted non-genetically, it must be transmitted socially.

In a sense, it seems inconceivable that culture is not something that is transmitted. I mean, if we see the same object in different periods of time, e.g., arrows, buildings or books, this might be an indication that is not only that the particular objects have been preserved by those groups. There must be distinct tokens of the same object because something remains even if the individuals that have produced such tokens change. Such instances remind us that information is transmitted socially and used to make and to use those objects.

Besides describing culture as information, this account inherits the anthropological notion of cultural trait, which is then "reduced" to what is behind the process of production and use. So, there is no doubt, for the standard evolutionary account that culture is a collection of beliefs, ideas, values, skills, etc. In other words, culture is the collection of cultural traits, which they characterize as information. Information is not a matter of debate in this view.[18] Nevertheless, they use different terms to talk about cultural items: cultural variant, cultural packages and recipes for action.

## ❖ Three terms for cultural items: variants, packages and recipes for action

The notion of cultural trait is central for the standard evolutionary approach. They focus on traits because they are the data that are plugged into their model to test if their models are good enough in

18 See Lewens (2015, Chapter 3), in which he analyzes the current naturalistic approaches and argues that for a "don't ask" and "don't tell" posture when giving an account of what naturalistic approaches mean by information. Since as far as it goes "The notion [information] is best understood as an open-ended heuristic prompt which encourages an examination of the ways in which bodies of behaviors, skills, beliefs, preferences, and norms are reproduced from one generation to the next" (2015: 44).

explaining the distribution and variation observed in cultural phenomena. But as happened in the first half of the twentieth century, what a cultural trait *is* has not been agreed upon yet.[19] As I take it, this is why within this view, they use three terms to talk about cultural traits (i.e., *variants, packages and recipes for action*).

#### a. Cultural variants or units

This term is used by Boyd and Richerson (1985, 2005). As for most naturalistic approaches, cultural items are not discrete units of transmission, and they define variants in opposition to memes (Henrich and Boyd, 2002). They use the term "cultural variant" in order to refer to the subject matter of culture, to what is transmitted in culture (Boyd and Richerson, 2005: 63).

Cultural variants, then, are just the information we talked about in this section: ideas, skills, beliefs, attitudes, and values, and so on, which are not discrete and of which we find instances in artifacts. While "cultural variant" is a common term for the standard evolutionary approach, let me note that when discussing other naturalistic approaches, the term "representation" is often used to mean the same. Nevertheless, representations are not discussed.

#### b. Cultural packages

Joseph Henrich (2009, 2015), a collaborator of Boyd and Richerson, uses the term cultural package to talk about variants and representations. What is distinctive about Heinrich's approach is that culture is constituted by "packages of information" of "knowing-how" which we use for interacting with our environment. One of the examples he uses is the techniques used by hunter-gatherers for hunting. This is a complex package which involves a precise way to run after prey (that exhausts them), bringing water in a container, knowing how to find water, and making and using hunting tools. This package is transmitted from generation to generation thanks to the biases we

19 For a review on the notion of cultural trait see Lyman and O'Brien (2003) and O'Brien *et al.* (2010).

have seen, prestige being a key one since the most prestigious hunters are the models from which others learn.

According to this view, a feature of culture that distinguishes it from the examples we have seen before is that these packages of information need not be explicit in people's minds. How to run on the hunt is something hunter-gatherers learn, but don't recall a specific way of doing it or a specific explanation of how to do it: "[T]he bearers of these cultural adaptations themselves often don't understand much of how or why they work, beyond the understanding necessary for effectively using them" (Henrich, 2015: 27).

### c. Recipes of action

Recipes of action as a unit of cultural transmission are analyzed by Lyman and O'Brien (2003)[20] and it defines cultural traits. This term, in the standard evolutionary approach, is similar to the one of meme.

According to this view, a cultural trait is composed of two elements: one is what they call "empirical unit" and the other is what they call "ideational unit". An empirical unit is simply an actual token of a cultural item. It is something that you can hold in your hands or hear or see with your senses. An ideational unit would be the ideas, concepts and knowledge that make it possible for someone to make an empirical unit. The ideational units are meant to be in the brain but they can also be extracted from other tokens by reverse engineering. This is an attempt to find a discrete unit for culture (similar to the one proposed by memetics).

For this view, these ideational units constitute the ingredients for what they call recipes for action. At first, the notion of recipes for action is meant to explain just artifacts, but they argue it can be extended to other cultural items. Ultimately, they consider that what is transmitted are recipes of action, by the transmission of the ideational units. One of the advantages of describing culture in this way is that the ideational units composing a recipe can be found in different recipes, and this is how they think that culture can be

20 Borrowed from the work of Krause (1985), Schiffer and Skibo (1987) and Neff (1992).

considered discrete even if on the surface there seem to be no clear boundaries between those recipes.

❖ Culture as information that affects behavior

For the standard evolutionary approach culture is the information that affects behavior. This is information that has not been transmitted genetically, but instead by social learning, or in other words, cultural information is what we learn from others by imitation, teaching or communication. The transmission of culture is affected and shaped by our cognitive biases that are the product of our biological evolution. The main contribution of the standard evolutionary approach to a naturalization of culture has been the development of mathematical models that describe such psychological biases which "select" the cultural items so that they get transmitted.

Culture is in the brains of individuals, but also in artifacts. So, when talking about the transmission of culture, this means that the information (the cultural item) in one individual's brain ends up in another individual's brain or encoded in an artifact.

Although they use different terms to refer to cultural items, it is not a matter of debate that the subject matter of culture is precisely such items. Despite their differences in explaining cultural traits, they all agree that the notion of cultural trait notion to ideas, skills, tools, attitudes, norms, songs, and so on, and those are information in our brains and in artifacts. For this approach the culture is the collection of cultural traits.

*Conclusion and some Implications of an IVC*

In the attempt to answer why culture is the way it is, the epidemiological, memetic and standard evolutionary account revolve around what seem to be key properties that cultural things have in common: being *socially transmitted*, *distributed in a group* and *stable* throughout the (transmission) process. These seem to be the *defining properties of the cultural*. Moreover, they seem to identify culture with whatever

fits these properties to a point that, for the epidemiological, memetic and standard evolutionary approaches "to explain culture is to answer the following question: why are some representations more successful in a human population, more 'catching' than others?" (Sperber, 1996: 85).

It seems clear then that, no matter which naturalistic approach one takes, culture is "reduced" to a single kind of item: mental or public representations; memes that are in people's brains and artifacts; or traits that have empirical and ideational units, all of which contain cultural information. Thus, we can say that for the naturalistic accounts those items are the subject matter of culture.

This is why I group these approaches under the label of the *Itemic View on Culture* (IVC, for short). IVC sort of reifies cultural subject matter. Namely, the notion of IVC subsumes any approach to culture that assumes that *culture is the collection of items that are in people's brains and environment; items that are transmitted and distributed among the individuals of a population by non-genetic means, so that they get shared by individuals over time*.

The naturalistic explanations of culture reviewed here brought new conceptual tools and methodologies to social science as we have seen. Naturalizing our views on culture, that is explaining culture in causal terms without appealing to other realms, allows for our "informal intuitions [about culture] to be tested far more precisely than is possible with informal, verbal arguments and thought experiments" (Mesoudi, 2011: 49). However, the IVC approaches examined above raise some issues that need to be addressed.

ICV characterizes culture as being transmitted. If the representations, memes or cultural variants are not (strictly speaking) transmitted then they cannot be considered cultural (Morin, 2016: 36). Thus, the transmission of culture requires representations, and representations require transmission if they are to be shared in a population, and thus, become cultural items. Another way to put it is that culture is the product of "social learning" (Heinrich, 2015: 12). This notion refers to the influence on an individual's learning by other individuals and the psychological processes involved. In this sense "cultural learning" would be a subclass in "which individuals

seek to acquire information from others, often by making inferences about their preferences, goals, beliefs, or strategies and/or by copying their actions or motor patterns" (Heinrich, 2015: 12).[21]

Defining cultural items in terms of transmission carries some risk of circularity: on the one hand "cultural learning" is the transmission of cultural items, on the other "cultural items" are the items that are transmitted by cultural transmission. This is what the IVC seems to involve, so long as it conceives of culture as that which is transmitted broadly distributed by non-genetic means within a population.

Another implication has to do with the notion of cultural groups. The notion of culture is closely linked to populations of people, as such talking about culture has involved talking about groups. The IVC accounts discussed above do not address this issue directly, but according to what I have presented so far, a notion of cultural group can be inferred from IVC.

For an account that bases the subject matter of culture on items, cultural groups would be defined by the items (representations) that are in the brains and environment of individuals of a population:

> A group can be characterized by the number of individuals who exhibit each different cultural variant. We refer to this as the "distribution of cultural variants" (or phenotypes) within the group (Boyd and Richerson, 1985: 23).

Then, for the IVC only the individuals who have *x* cultural representations in mind and have *x* behaviors caused by such representations would constitute the relevant cultural group, and the ones who do not, would not be members of it. Consider the case of sexism. People who share sexist beliefs would constitute a sexist cultural group.

21 Although Heinrich does not explicitly address the point that this kind of information is constituted by representations, in other papers discussing other approaches, Henrich and Boyd (2002), and Henrich *et al.* (2008) are clear that they are talking of representations in Sperber's terms.

But this definition does not allow us to capture cases in which beliefs, knowledge, ideas mismatch with behaviors. Consider cases of sexist bias where individuals of a group are not aware of their sexism, despite the fact that they hold egalitarian beliefs. Moss-Racusin *et al.* (2012) reported sexist bias when hiring candidates with same CV but gendered names, specifically "subtle gender biases are often still held by even the most egalitarian individuals [Dovidio, J. F., and Gaertner, S. L. 2004], and are exhibited by both men and women [Nosek *et al.*, 2002]".

This raises the question of whether IVC addresses implicit or tacit cultural phenomena. The IVC acknowledges that there is a *non-conscious* or *implicit* component in culture,[22] an issue which is mentioned but of which they don't provide an account. For example, Boyd and Richerson mention that culture is information which is not "always consciously available" (2005: 5) but do not develop this point.

For Henrich cultural items in many cases go beyond the understanding of the individuals "using" them. As he says, "the bearers of these cultural adaptations themselves often don't understand much of how or why they work, beyond the understanding necessary for effectively using them" (Henrich, 2015: 27).

Sperber, talking about cultural transmission, seems to make room for information that is transmitted implicitly, yet he acknowledges that some information is not properly communicated, *not even implicitly*:

> Much information, however, is communicated implicitly, that is, without being publicly represented. Information can also be transmitted without being properly speaking communicated, not even implicitly, as when one individual acquires a skill by observing and imitating the behavior of others (Sperber and Hirschfeld, 2007: 149).

22 See Bargh and Chartrand (1999) for empirical studies on the limitations of conscious intentional control in our everyday behaviour and choice making.

However, their insistence on the notion of representation leaves unexplained how implicit a representation can be and still count as a representation proper. This issue and those mentioned above point to the fact that the IVC requires further development. First, they need to address the circularity that arises from their characterization of culture. Second, even if the circularity is addressed it seems that defining culture as a collection of items leaves unaddressed most implicit cultural phenomena, such as cases of implicit transmission processes e.g., grammar (see Sperber, 2000: 171-172) and where cultural phenomena might not be mediated by items like representations, memes or cultural variants.

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