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Inference and culture : The distinction between low context culture and high context culture as a possible explanation for cultural differences in cognition

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Abstract

Nisbett et al. (2001) claim that Easterners are more likely to use holistic thinking to solve problems, whereas Westerners are more likely to use analytic thinking. This distinction in cognitive behaviors has often been explained by using a framework based on the fact that Western culture favors independent self-construal (individualist culture) and Eastern culture favors interdependent self-construal (collectivist culture). However, we propose another possible cultural explanation in the distinction between Western low context culture and Eastern high context culture (Hall, 1976). We particularly focus on the difference between the rule-based inference more common in low-context Western cultures and the dialectical inference more common in high-context Eastern cultures, and we argue that rule-based inference using global rules is more adaptive in low context cultures.

Keywords: Culture; Psychology; Reasoning; Cross-cultural analysis.

1. Cultural Differences in Cognition

Nisbett (2003; Nisbett, Peng, Choi, & Norenzayan, 2001) reviewed previous studies on cultural differences in cognition and described the differences in terms of a distinction between analytic and holistic cognition. He argued that individuals from Western cultures are more likely to engage in analytic cognition, whereas individuals from Eastern cultures are more likely to engage in holistic cognition. According to his definition, analytic cognition involves detachment of the object from its context, a tendency to focus on attributes of the object to assign it to a category, and a preference for using rules about the categories to explain and predict the object's behavior. In contrast, holistic cognition is oriented towards context or the field as a whole, attention to relationships between a focal

object and the field, and a preference for explaining and predicting events on the basis of such relationships.

The distinction between analytic and holistic can be described in terms of four dimensions: context-dependent/independent, dispositional/situational attribution, rule-based/dialectical, and stable/changeable views. In terms of the third dimension (rule-based vs. dialectical), people from Western cultures are more inclined to employ rule-based thinking, whereas people from Eastern cultures are more apt to employ dialectical thinking (Buchtel & Norenzayan, 2008; Peng & Nisbett, 1999; Spencer-Rogers, Boucher, Mori, Wang, & Peng, 2009). For example, Norenzayan, Smith, Kim, and Nisbett (2002) reported that, when being asked which group an object should belong to (categorization task), Americans tended to focus on a single property (rule-based inference), whereas Koreans tended to respond based on family resemblance (intuitive inference). Peng and Nisbett (1999) proposed that the cognitive style of Chinese was dialectical, whereas the cognitive style of Americans was rule-based.

2. Nisbett's Explanations for the Cultural Differences in Cognition

Nisbett et al. (2001) explained the distinction between Western analytic and Eastern holistic cognition by using the cultural value dimensions that underlines the individualist and collectivist cultures (Triandis, 1995). They discussed how each style is adaptive within its own cultural type. We regard culture as a hypothetical construct to explain people's behavior as well as to describe social patterns. In the long history of cultural studies, it has been claimed that Western societies have established individualist cultures, whereas Eastern societies have developed collectivist cultures

(Triandis, 1995). The distinction between individualist and collectivist culture is a hypothetical concept proposed to explain the observed differences in behavior, such as that people from Eastern cultures have a stronger preference for sociability and interdependence than do people from Western cultures. Markus and Kitayama (1991) connected this distinction to two kinds of selves. They postulated that, in general, Western cultures foster and favor an independent self, whereas Eastern cultures foster and favor an interdependent self. This distinction refers to differences in how people view themselves: people from Western cultures are likely to view themselves as individualistic, ego-centric, and discrete from society, whereas people from Eastern cultures are more inclined to view themselves as collectivistic, socio-centric, and related to others and to their society.

Nisbett (2003, Nisbett et al., 2001) argued that in a collectivist culture it is adaptive to attend not only to an object itself but also to its context in order to keep the harmony, hence Eastern cultures' holistic cognition is practiced and facilitated. More recently, Nisbett has said he prefers an explanation based on the personal level, in other words on the concept of self-construal (e.g., Varnum, Grossman, Kitayama, & Nisbett, 2010).

The both explanations of Nisbett's are compatible with the results of something called "cultural priming." As already mentioned, it is assumed that Western cultures foster development of an independent self, whereas Eastern cultures promote development of an interdependent self (Markus & Kitayama, 1991). Cultural priming is the mechanism that makes either independent or interdependent self-construal accessible, and the accessible self-construal in turn affects the style of cognition. For example, Kühnen, Hannover, and Schubert (2001) reported that participants who were asked to point out the differences between themselves and their friends or parents (primed as independent self-construal) showed a tendency to process stimuli unaffected by the context (analytic cognition), whereas those who were asked to point out the similarities between themselves and their friends or parents (primed as interdependent self-construal) were more apt to do context-bounded thinking (holistic cognition).

For the distinction between rule-based inference and dialectical inference, Nisbett (2003) adds the importance of cultural tradition. The Western style of thinking has been heavily influenced by the philosophy of Ancient Greece, whereas the Eastern style of thinking grew out of the traditions of Taoism, Confucianism, and Buddhism.

Aristotle's logic was accepted by many Western cultures as it is abstract and universal, whereas Eastern cultures preferred ideas that encouraged and reinforced the harmony of their society. For example, the dual concept of *yin* (negative aspects of the world) and *yang* (positive aspects of the world) form the central essential of Taoism, describing how polar opposites or seemingly contrary forces are in reality interconnected and interdependent. It reflects the tradition of Chinese ontology that the world is constantly changing and shifting, like the balance between *yin* and *yang*, and is full of contradictions. Nisbett concludes that the Chinese view the world as easy to change (e.g., Ji, Nisbett, & Su, 2001), hence abstract rules are not useful for predicting future events or guiding behavior. Nisbett postulates that this is why the Chinese (and thus Easterners) are less likely to use rule-based inference.

In short, these results support the view of cultural psychologists who assume that mind and culture are inseparable. In Western societies, people live in an individualist culture, develop independent self-construal, and thus are more likely to demonstrate analytic cognition, whereas people in Eastern societies live in a collectivist culture, develop interdependent self-construal, and are more apt to demonstrate holistic cognition. This view is summarized as the social orientation hypothesis (Varnum et al., 2010).

However, we see some problems with Nisbett's (2003) explanation. The first is the alleged adaptive nature of Eastern cultures' attention to contextual information. It may well be adaptive to pay attention not only to a target person (object), but to all in-group members (context) in order to maintain in-group harmony in a collectivist culture. However, strictly speaking, this cognitive style is adaptive only in the field of person cognition in a collectivist culture. How can this person cognition be transferred to objects and their context?

Secondly, if Eastern cultures view the world as changeable, the question is whether they try to predict those changes using rules such as *yin* and *yang*. However, Nisbett (2003) takes his interpretation of the Eastern view as fact, and infers that the concept of *yin* and *yang* reflects this view.

3. Low Context and High Context Cultures

3.1 Hall's (1976) Definition

In order to resolve the problems above, we propose an explanation based on the distinction between low context and high context culture. Hall (1976) introduced a dominant cultural dimension called context to explore the relationship

between culture and communication. His interest was built upon the need to understand the factors that facilitate or inhibit effective communication between individuals from different cultural backgrounds. In explaining this key cultural dimension, Hall and Hall (1990) integrated three main concepts: context, information, and meaning. These three concepts encapsulate context as a system of meaning for information exchanges between groups of people or within a group of people. They further argued that context is embedded in information for the purpose of creating meaning in a message. In other words, without information or context, a message is deemed to be without meaning, therefore insignificant.

With this understanding, Hall's context dimension provides a framework that enables people to comprehend communication forms ranging from the purely non-verbal — hand gestures, body language, facial expressions, and tone of voice (all of which are situational and important in high context cultures) — to the purely verbal, such as written text or spoken words (all of which are informational and important in low context cultures), in order to achieve meaning as the ultimate goal. Zakaria and Cogburn (2010) summarized it thus: high context is known as 'content independent', while low context is known as 'context independent.' There is some evidence that, generally speaking, Western cultures are low context whereas Eastern cultures are high context. For example, Ishii, Reyes, and Kitayama (2003) reported that Americans spontaneously attend more to verbal content than to vocal tone, whereas Japanese attend more to vocal tone than to verbal context. This evidence suggests that Japanese prefer indirect and implicit communication while Americans prefer direct and explicit communication. In their analysis of websites, Würtz (2006) found that websites created by Japanese, Chinese, and Koreans, who are from presumed high context cultures, adopted the visual effects offered by the Internet to convey their messages efficiently to a greater degree than did sites created by Germans, Americans, and Northern Europeans, who are from presumed low context cultures.

In this paper, we propose that the distinction between high context and low context cultures (the L/H context dimension) (Hall, 1976) offers a better explanation for cultural differences in cognition than the distinction between individualism and collectivism (the I/C dimension).

People in a high context culture can interpret messages from others without full descriptions, because implicitly shared information is available to assist the interpretation. For example, if people implicitly share the

idea that a diamond is very expensive and normally used for special occasions, then given the statement 'A presented a diamond ring to B' they may infer that A is proposing marriage to B. Therefore, a speaker can notify you of A's proposal just by saying that A presented a diamond ring to B without further information on marriage. On the other hand, people in a low context culture need explicitly expressed words for communication, because they have little or no implicitly shared information to draw on. Hence, they rely on communication which rests upon direct and explicit communication.

As for the problem of the transference from person cognition to objects, the explanation using the H/L context distinction does not need to rely on transference. According to Ishii et al. (2003) using the H/L context distinction can explain the degree of contextualization, and the degree of how people attend contextual or situational information, which are the first two aspects of the dimension between analytic and holistic cognition. In a high context culture, people's attention is attuned to contextual information because they are accustomed and encouraged to use this information for communication, whereas in a low context culture, people's attention is directed towards the target they want to identify. It is highly plausible that this cultural training affects people's cognition in each culture.

3.2 The H/L Context Distinction as an Explanation for Cultural Differences in the Usage of Rules

The H/L context distinction can also provide an explanation for cultural differences in the usage of rules. The outline of our argument is as follows;

- (1) A global rule is needed when a local rule becomes useless.
- (2) A local rule becomes useless when natural laws and/or social customs are variable.
- (3) Social customs are more variable in low context (Western) cultures than in high context (Eastern) cultures.
- (4) Eastern high context cultures' dialectical inference is not based on global rules but on local rules, while the opposite is true of Western low context cultures.
- (5) Therefore, Western low context cultures are more inclined to use rule-based inference than Eastern high context cultures.

This explanation resolves the problem of why the Chinese, for example, are less inclined to use rules to describe changes that they perceive in the world: because by and large they encounter less variability in their local world and therefore local practice remains useful.

Why have scientific theories been needed for humans? Rules are used to describe the world in terms of natural laws, and to predict consequences. Although they do not give direct suggestions for human action, they are useful in gaining resources (benefits) or avoiding hazards. For example, it is adaptive for people to learn the follow law in a hunter-gatherer society:

If you go to the river in autumn, you can catch salmon.

People learn that they can catch salmon every autumn and thus can smoke salmon for eating through the winter. A scientific theory may give an explanation for why one can catch salmon in autumn. If the law is always true, and you can count on the appearance of the salmon every year, theories are not necessary. However, theories which describe the biological mechanisms, habits or behavior of salmon become useful when there are no salmon one autumn. These theories may explain why this situation has occurred and give people some idea how to deal with it: give up fishing, move to another place, or clean the river. Therefore, theories are needed when the environment is not stable, and its natural laws are irregular.

However, we do not assume that the cultural differences in the tendency to seek for a global rule arise from differences in environmental variability between West and East. Rather, we focus on any rule which is used as a cultural coordination device. It takes the form of a deontic conditional, which codifies obligation, permission, and inhibition. For example, Tom fell in love with a girl whose name was Anne when he lived in her country. He wants to marry her, hence he presents her with a diamond ring based on the following belief:

If Anne wishes to marry Tom, she accepts the diamond which Tom presents her.

However, it is quite possible that this rule cannot be applied in another culture where people do not share the common belief that a diamond is a marriage gift. If Anne lives in such a society, she may not accept the diamond even if she wants to marry Tom because the rule that Anne knows is as follows:

If Anne wishes to marry Tom, her father accepts an amount of money from Tom.

Tom may find out or figure out this rule, give money to

Anne's father, and marry Anne. However, it is more adaptive for them both to know the reasons for the two different rules: that is, the principle of a marriage gift in order to have a happier life. If they know the reasons, they can abandon the old local rules and create new, more global, rules when their child gets married.

We propose that local rules are less useful in a low context culture than in a high context culture. The case of the marriage of Tom and Anne is a typical example: the variability between their backgrounds means that their local rules differ, and acting on them leads to miscommunication. In a nutshell, a global or fundamental rule is necessary when a local rule becomes useless. Cross-cultural studies indicate that people raised in Western cultures prefer more global rules than those raised in Eastern cultures. For example, the results of Norenzayan et al. (2002) cited above showed that Americans preferred to categorize based on formal rules, whereas Koreans inferred based on family resemblance. We propose that the rules used by the Americans are more global than the family resemblance used by the Koreans. Family resemblance consists of set of local rules, and each rule is not true for all members of a category. Spencer-Rodgers, Boucher, Mori, Wang, and Peng (2009) claim that Eastern cultures' dialecticism is naïve, by which they mean that Eastern cultures are more likely to retain some local rules which are contradictory of each other, without resolving the contradiction. Therefore, Eastern cultures' inference is also more local than Western.

The relationship between environmental variability and the necessity of local and global rules are shown in Figure 3. A global rule is not necessary if natural laws or social customs are completely stable. It is needed if the local rule based on natural law or social customs becomes useless. Therefore, the lower the utility of local rules, the higher the necessity of global rules. However, in a completely chaotic situation a global rule is not useful either. Hence, the need for global rules describes an A-shaped curve, as shown in Figure 1. In this figure, focusing on the H/L context distinction, we consider the variability of social customs on the horizontal axis and necessity of a rule on the vertical axis. Social customs are stable in a high context culture, hence it can be located on the left, whereas a low context culture can be located in the middle where social customs are variable to some extent (but not enormously so). However, Nisbett (2003; Nisbett et al., 2001) argues that the Chinese view the world as more changeable than Westerners do, hence he locates the Chinese culture further to the right, where the environment is not stable. This is contradictory with the idea

that Chinese culture is high context, and may therefore be wrong. In short, we cast doubt on Nisbett's argument that Chinese dialectical thinking is based on their view that the world is easily changeable.

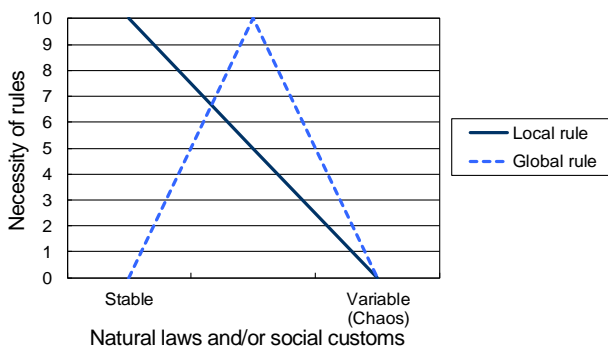


Figure 1: Relationship between Variability and Necessity.

3.3 Reinterpretation of the Experimental Results on Cultural Priming

How can the results of cultural priming be explained based on the H/L context distinction? Studies on cultural priming by Kühnen et al. (2001) are one reason for considering an explanation based on the I/C dimension. They assumed that participants who were asked to consider the differences between themselves and their parents or friends activated their independent self-construal, whereas participants who were asked to consider the similarities between themselves and their parents or friends activated their interdependent self-construal.

However, it is possible that their experimental manipulation changed the degree of their participants' feeling of shared context with other people. Asking people to consider differences between themselves and their parents or friends may activate their belief that others are different from themselves, and thus they are not able to rely upon the information which they share with others for communication. On the other hand, asking them to consider similarities between themselves and their parents or friends may activate their belief that others are similar to themselves. In other words, the former brought participants to a low context situation whereas the latter brought them to a high context situation.

3.4 Accounting for Cultural Diversity

Our more ambitious aim is to connect the L/H context distinction to the explanation for cultural diversity using natural, ecological, and geographical factors. In other words, not only to explain cultural differences in cognition using the L/H context distinction, but to explain the distinctions themselves using natural, ecological, and geographical

factors. The ecological bases for individualism and collectivism have been intensively discussed. The person level of social independence can be intermediate between their group life style and their analytic cognitive style. These studies are known as a socioecological approach (Oishi & Graham, 2010).

We do not deny these discussions. However, the L/H context distinction may be explicable by natural factors as is the I/C distinction. This problem is too large to fully discuss here; we simply point out some factors contributing to the difference between low context and high context culture, which lead people to either rule-based inference or dialectical inference respectively.

The concept of the L/H context distinction is often employed by researchers in human communication. When people perform intercultural communication, both parties are in effect in a low context situation because they share fewer implicit assumptions than when they communicate with someone from their own culture. This idea is a developed version of Langer (1989), who argued that mindful communication is needed for intercultural communication. His concept of 'mindful' communication can be interpreted as explicitly deliberate and careful communication in which people read others' minds when there is a lack of shared implicit assumptions.

Since a low context situation arises when people engage in intercultural communication, a low context culture is more likely to develop in a multicultural environment (one in which people from different cultures keep their own culture but interact with each other). This situation also creates an environment wherein local rules become useless more often.

A geographical factor that reinforces a multicultural environment is when there is no spacious plain which can become the place for a large culturally unified society; societies must therefore remain geographically separated. In order for multicultural conditions to arise and persist, however, these different cultural societies must interact with each other -- for example, if each society is not economically self-sufficient, and can prosper only if it trades with other societies. An ecological factor that enhances the likelihood of trade is an unbalanced distribution of resources among these societies. One place that satisfied all these conditions was Ancient Greece.

4. Conclusion: A New Framework

The primary goal of this paper is to propose a possible explanation for cultural differences in cognition, specifically

the analytic cognition practiced by Western cultures and the holistic cognition practiced by Eastern cultures, using the distinction between low context culture in the West and high context culture in the East instead of the distinction between Western individualist culture and Eastern collectivist culture.

Summarizing these points, we propose a framework as shown in Figure 2. In order to explain cultural diversity naturalistically, we give the primary role to geographical and ecological factors. People need rule-based inference in a low context culture, but whether a low context culture (multicultural environment) arises depends on these factors. Our framework is contrasted with that of cultural psychologists (e.g., Nisbett, 2003; Nisbett et al., 2001), who assume that culture and mind are inseparable and emphasize the role of self-construal in culture and cognitive style. By contrast, we propose that culture and *context* are inseparable and, as such, that context has a strong connection to the types of information required in order to draw effective meanings or sense-making into the thinking process.

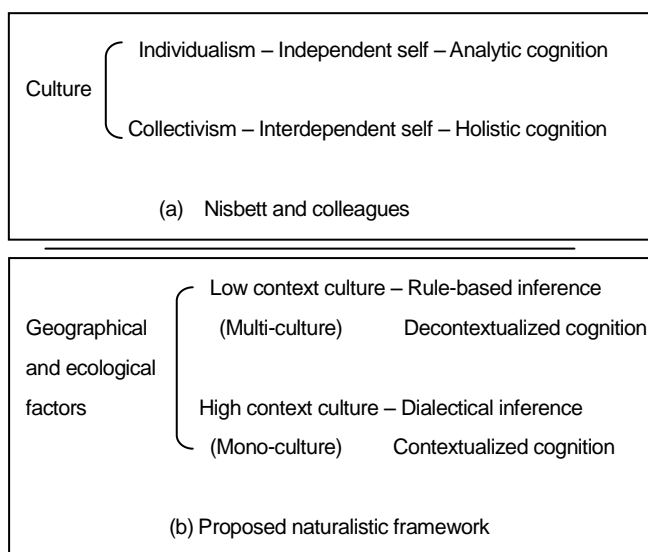


Figure 2: Nisbett's Framework vs Proposed New Framework

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