Do Easterners and Westerners treat contradiction differently?

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Abstract

Peng and Nisbett (1999) put forward an influential theory of the influence of culture on the resolution of contradiction. They suggested that Easterners deal with contradiction in a dialectical manner, trying to reconcile opposite points of view and seeking a middle-way. Westerners, by contrast, would follow the law of excluded middle, judging one side of the contradiction to be right and the other to be wrong. However, their work has already been questioned, both in terms of replicability and external validity. Here we test alternative interpretations of 2 of Peng and Nisbett’s experiments and conduct a new test of their theory in a third experiment. Overall, the Eastern (Chinese) and Western (French) participants behaved similarly, failing to exhibit the cross-cultural differences observed by Peng and Nisbett. Several interpretations of these failed replications and this failed new test are suggested. Together with previous failed replications, the present results raise questions about the breadth of Peng and Nisbett’s interpretation of cross-cultural differences in dealing with contradiction.

Keywords

Culture, Reasoning, Contradiction, Dialecticism, Replication.
People are constantly faced with contradictions. Even if we restrain the scope of contradictions to those arising from communication, they are a very common occurrence, from friends disagreeing about what is the best restaurant in the area, to pundits delivering equally confident but opposite opinions on the economic crisis. Given the importance of communicated information and the presence of contradictions in every culture, one might expect contradictions to be treated by dedicated, universal processes. However, Peng and Nisbett (1999) have suggested instead that the processing of contradiction is heavily influenced by culturally acquired beliefs. More specifically, different cultures foster more or less dialectical lay beliefs:

Naive dialecticism [dominant in the East] is characterized by the doctrine of the mean, or the belief that the truth is always somewhere in the middle, whereas Western folk theories are guided by the law of non-contradiction, or the notion that a proposition cannot be both true and false, and the law of the excluded middle, or the belief that all propositions must be either true or false (Peng & Nisbett, 1999). (Spencer-Rodgers, Williams, & Peng, 2010, p.297)

When exposed to two contradictory statements, someone with a lay belief in naive dialecticism might try to see the worth in each statement and form a belief that reflects both statements. By contrast, someone how shares Western folk theories would try to find the most logical statement and stick to it, entirely discounting the other.

If Peng and Nisbett’s conclusion is correct, intellectual dialogue between the East and the West may be seriously compromised. How could two populations relying on opposed ways of dealing with contradiction debate together? Peng and Nisbett’s theory entails that learning can radically affect the shape of human reasoning, suggesting for instance that inferences such as drawing $p$ from the rejection of non-$p$ are cultural constructs. This contrasts with other views that make of reasoning a more universal human endowment (e.g. Johnson-Laird, 2006; Mercier & Sperber, 2011; Rips, 1994).

Challenges to Peng and Nisbett

While Peng and Nisbett’s claims have been criticized from a theoretical point of view (Chan, 2000; Held, 2010; Ho, 2000; Huss, 2004; Lee, 2000) for a reply to some of these criticisms, see Peng & Nisbett, 2000), we focus here on the empirical challenges.

First challenge: failed replications. Peng and Nisbett’s Study 1 was a comparison of the liking of dialectical proverbs (“too humble is half-proud”) and non-dialectical proverbs. In line with the predictions, Chinese participants preferred dialectical proverbs whereas American participants preferred non-dialectical proverbs. Hypothesizing that this difference could be due to the poetical dimension of these proverbs,
Second challenge: failed extensions. If Easterners tend to favor the middle way when dealing with contradiction, they should be inclined to average when asked to form an opinion based on two pieces of information. Japanese participants were provided with two numerical estimates in the form of non-overlapping date ranges (Mercier, Yama, Kawasaki, Adachi, & Van der Henst, 2012). They were asked to generate an estimate relying solely on the provided information. Not only did very few Japanese participants give an approximation of the average between the two estimates, but two thirds relied almost entirely on one of the two estimates instead. On this point, the answers of French participants were not significantly different.

Third challenge: low external validity. One of Peng and Nisbett’s hypotheses is that “[Easterners] deal with contradiction by what might be a compromise approach, showing tolerance of contradiction by finding a “middle way” by which truth can be found in each of two competing propositions.” (1999, p.742). Two of their experiments, described in more details below, offer a direct support for this hypothesis (their Studies 3 and 5). In these experiments Chinese participants were more likely than American participants to find a middle way between two contradictory positions. However, in both experiments participants were purely exposed to the points of view of other people, having no personal stake in the matter.

Some of the most important contradictions people face, however, are between their own point of view and someone else’s. In this case, evolutionary considerations predict a preference for one’s own opinion, everything else being equal (Sperber et al., 2010). This preference has been observed in many experiments, but most of these experiments have been conducted with Western participants (Bonaccio & Dalal, 2006). Recent studies have extended these findings to Eastern participants. When asked to choose between two opinions, one of them having been arbitrarily attributed to them, Japanese and French participants both favored the opinion arbitrarily attributed to them. Moreover, Japanese and French participants’ preferences were equally strong, and they were equally likely to choose the middle way (Van der Henst, Mercier, Yama, Kawasaki, & Adachi, 2006).

In a more realistic experiment based on the literature on advice giving, participants had to answer a general knowledge question before being provided with the opinion of another participant. Both Japanese and French participants favored their initial opinion (Mercier et al., 2012). Moreover, both groups were equally likely to simply choose one of the two opinions—their own or that of the other participant—and equally unlikely to average the two opinions. These results show that when it comes
to one’s own views, Easterners are no more likely than Westerners to choose the middle way: both groups tend to favor their own opinion instead.

The present experiments

We present three experiments that add to the empirical challenge leveled against Peng and Nisbett (1999). In Experiments 1 and 2 an alternative explanation for the results obtained in their Studies 3 and 5 is suggested and tested. Experiment 3 tests a novel prediction derived from their hypotheses.

Experiment 1 Resolution of Social Contradictions

In Study 3, Peng and Nisbett (1999) tested their cultural theory by asking Chinese and American participants to analyze social contradictions. As the content of these contradictions is important to our argument, we present the two vignettes they used (p.753):

Mother-daughter conflict:
Mary, Phoebe, and Julie all have daughters. Each mother has held a set of values which has guided her efforts to raise her daughter. Now the daughters have grown up, and each of them is rejecting many of her mother’s values. How did it happen and what should they do?

School-fun conflict:
Kent, James, and Matt are college juniors. They are feeling very frustrated about their three years of routine tests, paper assignments, and grades. They complain that going through this process has taken its toll, undermining the fun of learning. How did it happen and what should they do?

Peng and Nisbett (1999) predicted that the Chinese participants, stepped in dialectical thinking, would be more likely to favor a dialectical resolution, one which “1) addressed the issues from both sides, and 2) attempted to reconcile the conflicts by compromising” (p.746). American participants should be less likely to provide this type of answer, taking the side of one of the parties in conflict instead. Their results support this hypothesis with 73% of dialectical responses for the Chinese participants and 27% for the Americans.

These findings, however, might not reflect general beliefs about how to resolve contradiction. They might instead be the product of particular cultural beliefs related to family relations and the attitude towards schoolwork. Being students, all participants might have been more inclined to spontaneously take the perspective of the daughter and of “fun,” respectively. Yet current Chinese culture stresses the importance of respecting one’s elders and of succeeding in school through hard work more than current American culture (e.g., C. Chen & Uttal, 1988; Yue & Ng, 1999). This difference, rather than a general affinity for compromise, could explain the cross-cultural difference observed by Peng and Nisbett (1999). Other stimuli, for
which American participants might more easily take both perspectives, or Chinese participants only take one, could elicit the opposite pattern.

Previous results support the hypothesis of strong within-culture variation in the tendency to seek compromise solutions to social contradictions. Frantz and Seburn (2003) confronted undergraduate American participants with two scenarios, a mother-daughter conflict, as Peng and Nisbett (1999), and a conflict between roommates, one of which was described in positive terms and the other in negative terms. In the former, the participants tended to favor the daughter, while they were evenhanded in the treatment of the latter, despite the asymmetry in the description of the characters. We know of no symmetrical experimental demonstration among Chinese participants, in which they would fail to seek compromise because the materials invite them too strongly to take a side. Overall, it is dubious whether one can generalize from the two vignettes used by Peng and Nisbett (1999), especially since “cultural group differences in conflict style have not always replicated across studies; high within-group variance often swamps between-group variance” (Fu et al., 2007, p. 191).

We suggest that the results of the Study 3 of Peng and Nisbett (1999) could be due to cross-cultural differences in perspective taking related to the specific materials presented. To test this hypothesis, new conflict scenarios were devised for which one might expect Easterners to be equally likely, or even more likely to take sides than Westerners.

Methods

Participants

81 Chinese participants took part in this experiment (29 females, mean age: 21.6). They were undergraduates pursuing various majors in Shanghai. 110 French participants took part (55 females, mean age: 18.6), undergraduates from Lyon.

Materials and procedure

Three vignettes were used. The first was the mother-daughter conflict from Peng and Nisbett (1999). The second was designed to elicit biased and opposite perspective taking from both groups. It describes a conflict between a French and a Chinese businessman:

Heng is a Chinese businessman who exports clothes in the entire world. A year ago, he signed a contract with a French buyer. Now the economic context has changed and he would want to renegotiate the contract. The French buyer disagrees and he wants to maintain the contract as it is. What should the Chinese businessman and the French buyer do?
The literature on the importance of social harmony in Eastern cultures (e.g. Kim & Markus, 1999; Markus & Kitayama, 1991) led us to expect that Easterners might be less prone to take the perspective of dissenters than Westerners. Accordingly, the third vignette depicted a classroom conflict in which a single student disagreed with the group:

A teacher has given his students an assignment to be completed in groups. Heng [Nicolas] belongs to one of these groups. Inside this group, everyone but Heng [Nicolas] agrees on the way to proceed. What should Heng [Nicolas] and the other members of his group do?

The vignettes were first written in English then translated into Mandarin and French. These translations were checked against each other by a bilingual speaker who resolved potential discrepancies.

The experiment was conducted in university classrooms. After students had agreed to participate, they were handed out the questionnaires. The questionnaires also included the material for Experiment 2 below.

**Coding**

Peng and Nisbett (1999) used the following coding scheme: “A dialectical response was defined as one which 1) addressed the issues from both sides, and 2) attempted to reconcile the conflicts by compromising” (p. 746). To replicate this coding scheme as closely as possible, each answer was coded according to the presence of the following three elements: (i) sentences that only support the first side; (ii) sentences that only support the second side; (iii) sentences that support a compromise position.

**Results**

To adhere to the coding scheme of Peng and Nisbett (1999), to count as dialectical an answer had to have (a) at least one compromise statement and (b) either no other statements or statements for each side. This category only contains balanced answers and can be dubbed *Compromise*.

The results appear in Table 1. Two-tailed Fisher exact tests indicate no significant difference in the number of Compromise answers between the two cultures (Mother-daughter, \( p = 1 \); Businessmen: \( p = 0.29 \); Dissenter: \( p = 0.21 \)). The aggregated results of the three scenarios do not yield a significant difference either (\( p = 0.14 \)).

<table>
<thead>
<tr>
<th></th>
<th>Mother-daughter</th>
<th>Businessmen</th>
<th>Dissenter</th>
<th>Average</th>
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<tbody>
<tr>
<td>Chinese</td>
<td>37%</td>
<td>27%</td>
<td>50%</td>
<td>38%</td>
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</table>
Table 1: Percent of Compromise answers given by Chinese and French participants to the three scenarios of Experiment 1.

Discussion

The results Peng and Nisbett (1999) were not replicated. Overall, the French participants provided non-significantly more compromise answers than their Chinese counterpart. Even on the scenario used by Peng and Nisbett (1999), French and Chinese participants provided the same number of compromise answers. We also failed to create scenarios that would elicit significantly more compromise answers among French than Chinese participants. In the conclusion, we suggest explanations for this failed replication and lack of cross-cultural difference.

Experiment 2 Contradictory statements

Study 5 of Peng and Nisbett (1999) provides another demonstration of cultural variability in dealing with contradiction. Participants had to evaluate the plausibility of statements presented in isolation or in pairs. The pairs of statements were contradictory, such as:

Statement A1:
A social psychologist studied young adults and asserted that those who feel close to their families have more satisfying social relationships.

Statement A2:
A developmental psychologist studied adolescent children and asserted that those children who were less dependent on their parents and had weaker family ties were generally more mature. (Peng & Nisbett, 1999, p. 754)

To measure the way participants deal with contradiction, the plausibility of the statements presented in isolation and in pairs was compared. Through the plausibility ratings of isolated statements, within each statement pair one statement could be deemed to be less plausible and one more plausible. Compared to these ratings, when the statements were presented in pairs Chinese participants gave higher ratings for the less plausible statement and lower ratings for the more plausible statement. In line with Peng and Nisbett’s hypothesis, they chose a middle way. The effects of the manipulation were very different for the American participants. When the statements were presented in pairs, the American participants increased the plausibility ratings of the most plausible statement, creating a wider gap between the ratings of both statements. According to Peng and Nisbett, this reflects “the simple heuristic might be that, if there is an apparent contradiction between two opposing perspectives, one must be right and the other must be wrong” (p. 749).
However, another explanation for these findings can be offered. The literature on persuasion and attitude change suggests that people have two ways to evaluate arguments: a peripheral route that relies on simple cues and a central route that allows for a genuine evaluation of argument strength (S. Chen & Chaiken, 1999; Petty & Wegener, 1999). When faced with a pair of contradictory statements, a participant can use either of the two routes. One cue she can rely on if she takes the peripheral route is the authority of the source of the statements. As in the example above, the authority of the source of the two statements making up each pair were roughly equivalent. As a result, the peripheral route might lead a participant to provide similar ratings for both statements. By contrast, a participant taking the central route and evaluating the statements in depth is more liable to realize that one is much more plausible than the other. In other words, the pattern of results obtained in the Study 5 of by Peng and Nisbett (1999) could be the result of the Chinese participants having relied on peripheral cues while the American participants engaged in deeper processing.

One of the main factors affecting the route taken is the personal relevance of the statements being evaluated (see Petty & Wegener, 1998). Accordingly, an alternative interpretation of the Study 3 of Peng and Nisbett (1999) is that the American participants found the specific materials used more personally relevant. The topics used, such as global warming, vegetarianism, prison overcrowding or the effects of nicotine, might have been more present in public debates in the US at the time the experiments were conducted, leading American participants to engage in deeper processing of the arguments bearing on these topics. To test this hypothesis, new pairs of statements were devised that would appeal especially either to Chinese or to French participants.

Methods

Participants

359 Chinese participants took part in this experiment (118 females, mean age: 21.6). They were undergraduates pursuing various majors in Shanghai. 346 French participants took part (166 females, mean age: 18.6), undergraduates from Lyon.

Materials and procedure

Six pairs of statements were used. Two pairs of statements (A and B) were drawn from Peng and Nisbett (1999), one about the importance of family ties and one about the effects of nicotine on weight. Two, bearing on wine and the Euro, were designed to be relevant for French participants but irrelevant for Chinese participants (C and D). Two, bearing on Chinese business and Chinese diet, were designed to be relevant for Chinese participants but irrelevant for French participants (E and F). The statements can be found in Appendix 1. The participants
had to rate the credibility of the statements on a 1 to 9 scale anchored by “I don’t believe in it at all” and “I believe in it very strongly.”

The statements were first written in English then translated into Mandarin and French. These translations were checked against each other by a bilingual speaker who resolved potential discrepancies.

In the first condition (only first statements) participants rated the first statement from each of two different pairs, so the two statements were unrelated. In the second condition (only second statements) participants rated the second statements from two different pairs, so the statements were also unrelated. In the third condition (pairs of statements) participants rated four statements, forming two pairs of related but contradictory statements. The experiment was conducted in university classrooms. After students agreed to participate, they were handed out the questionnaires. Some questionnaires included the material for Experiment 1 above.

**Results**

For each pair of statement, one was found to be more plausible and one less plausible based on the participants’ evaluations in the conditions only first statements and only second statements. The results of this ranking were such that some participants had had to rate the more plausible statement from one pair and the less plausible statement from another pair. Thus, it was not possible to create an aggregate score for each participant and to proceed with the same analyses as Peng and Nisbett (1999). Instead, we performed two series of comparisons. The first compared the ratings of the less plausible statements in the conditions only first statements and only second statements, on the one hand, to the ratings of the same statements in the condition pairs of statements on the other hand. In order for each data point to be independent, when a participant had rated two less plausible statements, these ratings were averaged. This was necessarily true for every participant in the pairs of statements condition, since they all had two less plausible statements, one for each pair, and for those participants of the other two conditions who happened to have had two less plausible statements to rate (as opposed to one less plausible and one more plausible). The same analysis was performed for the more plausible statements.

First, the overall results were analyzed, using Mann-Whitney tests (see Figures 1 and 2). None of the differences proved significant. Chinese participants rated the less plausible statements lower when presented in pairs ($M = 4.51$) than individually ($M = 4.63$) ($U = 11379$, $p = .48$), and the more plausible statements higher when presented in pairs ($M = 5.63$) than individually ($M = 5.27$) ($U = 10720$, $p = .11$). French participants rated the less plausible statements lower when presented in pairs ($M = 4.35$) than individually ($M = 4.42$) ($U = 8148$, $p = .54$), but they also rated the more plausible statements lower when presented in pairs ($M = 4.97$) than individually ($M = 5.34$) ($U = 7313$, $p = .015$).
Following our hypotheses regarding the effect of the statements’ content on cross-cultural difference, we conducted similar analyses for each of the three groups of pairs of statements (A and B, C and D, E and F). No difference reached significance (all $p$s > .05). On the two items taken from Peng and Nisbett, the pattern was similar to the overall pattern: Chinese participants rated the less plausible statements lower when presented in pairs ($M = 4.54$) than individually ($M = 4.35$), and the more plausible statements higher when presented in pairs ($M = 5.60$) than individually ($M = 4.95$) ($U = 10720$, $p = .11$); French participants rated the less plausible statements
lower when presented in pairs ($M = 4.48$) than individually ($M = 4.49$) ($U = 8148$, $p = .54$), but they also rated the more plausible statements lower when presented in pairs ($M = 4.94$) than individually ($M = 5.43$).

Discussion

The results of Peng and Nisbett (1999) were not replicated using their stimuli. Other stimuli, some of which were designed to elicit the same effect, also failed to yield these results. Visual inspection of Figures 1 and 2, compared to Peng and Nisbett’s Figure 5 shows that the trend goes in the opposite direction. In the present experiment, Chinese participants seem to use the heuristic that when two statements are contradictory, one of them must be right, whereas the French participants behave in a more dialectical manner. Importantly, pairs A and B, taken from Peng and Nisbett (1999), showed the same pattern, and thus the opposite of the one observed in Peng and Nisbett (1999). Contrary to our hypotheses, there were no effects of content. In the conclusion, we suggest explanations for this failed replication and lack of cross-cultural difference.

Experiment 3 Polarization

Experiments 1 and 2 were replications and extension of two previous studies of Peng and Nisbett (1999). Experiment 3 relies on a different method to evaluate the robustness of Peng and Nisbett’s theory: making and testing a new prediction derived from their theory.

Naïve dialecticism is characterized by “the belief that the truth is always somewhere in the middle” (Spencer-Rodgers et al., 2010, p.297). Such a folk theory should push people to have relatively moderate views on contentious issues. By contrast to this predominantly Eastern folk theory, the law of non-contradiction should push Westerners to have more extreme views: if one side holds the truth, then the other must be severely mistaken. To test the effect of these folk theories, we asked Easterners (Chinese participants) and Westerners (French participants) to cite contentious issues and give their position on the issue. If Peng and Nisbett’s cultural theory is correct, Chinese participants should have more moderate positions than French participants.

Methods

Participants

65 undergraduates from Shanghai (57 females, mean age: 20) and 68 undergraduates from Lyon (52 females, mean age: 18.7) took part in this experiment.

Materials and procedure
Given that it would have been very difficult to determine contentious topics that would be equally salient for both populations (even if they were different topics), each participant was asked to provide their own list of 5 contentious topics. Once they had done so, they had to indicate their position in these issues, on a scale going from -5 (completely against) to +5 (completely in support). While listing the contentious topics, the participants did not know that they would later have to indicate their own positions.

Results

Participants generated a wide variety of topics for debates, such as “should the [Muslim] headscarf be authorized in schools” (French participant) or “should judges have positions for life” (Chinese participant). Given the hypotheses, the relevant measure is the absolute value of participants’ answers, which indicates their degree of extremity or moderation. Chinese and French participants did not significantly differ in the average absolute value of their ratings (China: 3.29; France: 3.21; student’s t on the average of each participant’s answer: t(131) = 0.48, p = .63). The standard deviations are also very similar (China: 1.66; France: 1.77), indicating similar distributions. The distribution of answers is given in Table 2.

![Bar chart](image)

Table 2. Extremity of participants’ answers in Experiment 3.
Discussion

When asked to take a position on contentious topics, Chinese and French participants held equally extreme views. The prima facie interpretation is that these populations do not have different tendencies to take moderate or extreme positions on contentious topics. This would be a significant limitation for Peng and Nisbett’s cultural theory, as it is not clear why the theory should not apply in this situation.

Conclusion

Peng and Nisbett’s theory of cross-cultural differences in dealing with contradiction has proven very influential. By suggesting that culturally acquired folk theories exert a heavy influence on the way Easterners and Westerners deal with contradiction, they formulated a very fruitful research program (Spencer-Rodgers et al., 2010). One can surmise that part of the attraction of Peng and Nisbett’s theory comes from its generality: it deals with the human groups most studied by psychologists and it has consequences for behaviors in a wide variety of situations. However, when considered as a general theory of how people deal with contradiction, this theory has encountered difficulties, as several experiments have failed to observe the predicted differences between cultural groups (Mercier et al., 2012; Van der Henst et al., 2006). More problematic has been the failure to replicate some of Peng and Nisbett’s original results (Friedman et al., 2006). The present article provides two more failed replications and one failed extension. We start by examining the potential factors that could explain the failed replications (Experiments 1 and 2).

Crucially, the present experiments did not simply lack statistical power. Focusing on the participants exposed to Peng and Nisbett’s material, we find very similar numbers across the original experiments and the replications (present Experiment 1: N=64; Peng and Nisbett’s Study 3: N=66; present Experiment 2: N=235; Peng and Nisbett’s Study 5: N=238). The lack of even a non-significant trend in the direction of Peng and Nisbett’s predictions further indicates that statistical power was not an issue. If we add the novel material, the statistical power of the present experiments becomes much more important than that of the original experiments, still without a trend in the same direction.

A potentially relevant difference between the present experiments and the original studies is the populations. The present Western sample consisted of French as opposed to American participants, and the present Eastern sample of participants from Shanghai as opposed to Taiwan or Beijing. These differences could account for the divergent results. However, that would entail a significant revision in the scope of Peng and Nisbett’s theory in order to explain why the French do not share Western folk theories, and the Shanghainese Easterner folk theories. Moreover, in their Study 3 Peng and Nisbett used as an Eastern sample Chinese graduate students at the University of Michigan, making it difficult to argue that the present samples were somewhat more Westernized.
Experiment 3 measured whether Eastern participants expressed more moderate positions on contentious topics than their Western counterparts—a straightforward prediction drawn from Peng and Nisbett’s theory. Easterners and Westerners were found to hold equally polarized positions on contentious topics.

Psychology has a significant file drawer problem (Rosenthal, 1979). In cross-cultural psychology, this file drawer problem is especially likely to take the form of non-reported lack of cross-cultural differences, leading readers to form an impression of overly strong and widespread cross-cultural differences. Given the popularity of Peng and Nisbett’s theory of cultural influences in dealing with contradiction, it is important to be aware of significant caveats (see also Mercier, 2011). First, culturally acquired folk theories fail to influence the treatment of contradiction in some situations not tested by Peng and Nisbett, such as when there is a personal stake. Second, even their original results should be subject to caution given failed replications.

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References


Appendix 1: Materials of experiment 2

Statement A1:
A social psychologist studied young adults and asserted that those who feel close to their families have more satisfying social relationships.

Statement A2:
A developmental psychologist studied adolescent children and asserted that those children who were less dependent on their parents and had weaker family ties were generally more mature.

Statement B1:
A sociologist who surveyed college students from 100 universities claimed that there is a high correlation among college female students between smoking and being skinny.

Statement B2:
A biologist who studied nicotine addiction asserted that heavy doses of nicotine often lead to becoming overweight.

Statement C1:
A wine expert from California has asserted that wine that was kept in oak barrel (compared to beech barrel) grows better with age.

Statement C2:
A wine expert from Chile has asserted that keeping wine in beech barrels (compared to oak barrel) can help to keep it longer.

Statement D1:
A banker has studied the evolution of prices after the adoption of the Euro in France and claims that the Euro has increased prices overall.

Statement D2:
An economist has examined the effects of the adoption of the Euro in France and concludes that the Euro has been good for the consumers.

Statement E1:
A food study center has observed that eating Crucian carp during lactation makes women produce more milk.

Statement E2:
A public health organization has observed that women who eat Crucian carp every day during lactation have a decrease in milk production.

Statement F1:
A consumer magazine has observed that people in Hefei are the people who have the highest purchasing power in China.

Statement F2: A web poll has shown that the inhabitants of Shenzhen are the people who make the most money in China.