

Workshop on Psychological, Economic, and Environmental Rationality 2008 (PEER2008)

January 24, 2008, Tokyo Institute of Technology, Ookayama Campus

Graduate School of Decision Sciences & Technology, Tokyo Institute of Technology hosts Workshop on Psychological, Economic, and Environmental Rationality 2008 (PEER2008), in cooperation with the center for Adaptive Behavior and Cognition, Max Planck Institute for Human Development. The workshop aims at exchanging cutting-edge research findings regarding rationality, very broadly defined, in contexts of economics, psychology, environmental sciences, evolutionary sciences, and related disciplines.

The workshop meets on January 24, 2008, at Tokyo Institute of Technology, West 9 Building. No advance registration is necessary, and everyone is welcome. We at Tokyo Institute of Technology are looking forward to an intellectually stimulating day.

Noboru Hidano, Workshop Chair

Kimihiro Yamagishi, Program Committee Chair

PROGRAM (at the Collaboration Room, Except for Posters)

10:00-10:10	Welcome and Opening Noboru Hidano
Spoken Session 1	Economics, Utility Theory, and other Decision Theories Chair: Kazuhisa Takemura (Waseda Univ)
10:10-10:40	Does a task to think about the monetary ranges reduce anchoring effects in contingent valuation for anti-global warming policy evaluation? Noboru Hidano (Tokyo Tech)
10:40-11:10	Adaptive function of regret: Cognitive and cultural aspects Takashi Kusumi (Kyoto Univ)
11:10-11:40	The Contingent Focus Model for decision making under risk that accounts for attention and frame condition Satoshi Fujii (Tokyo Tech) and Kazuhisa Takemura (Waseda Univ)
11:40-12:10	Contingent decision making based on one dimensional evaluation function: Threshold model of mental ruler Kazuhisa Takemura (Waseda Univ)
<i>12:10-14:00</i>	<i>Poster Session (at the Entrance Hall) and lunch (on your own)</i>
Spoken Session 2	Heuristics and Judgments Chair: Kimihiko Yamagishi (Tokyo Tech)
14:00-14:30	The benefits of forgetting Lael Schooler (Max Planck Institute)
14:30-15:00	One-reason decision making: Modeling violations of expected utility theory Konstantinos Katsikopoulos (MIT and Max Planck Institute)
15:00-15:30	Information theoretic analysis of the verbal probabilities Kuninori Nakamura (Tokyo Tech)
15:30-16:00	Preference reversals -- beyond the Evaluability Hypothesis Kimihiro Yamagishi (Tokyo Tech)
16:00-16:20	Break

(Continued)

Spoken Session 3		Broader Perspectives	
		Chair: Hiroyuki Akama (Tokyo Tech)	
16:20-16:50	What constitutes one's environment? Proposal of internal environmental hypothesis of personality		Kai Hiraishi (Kyoto Univ)
16:50-17:20	The effect of reward and punishment on the stimulus-preceding negativity (SPN): fMRI and ERP Studies		Yasunori Kotani, Yoshimi Ohgami (Tokyo Tech), Tetsuji Tsukamoto (GE-Yokogawa Medical Systems), Yusuke Inoue (Univ of Tokyo) and Yatsutsugu Aihara (Tokyo Metropolitan Univ)
17:20-17:50	Irrationality or limited rationality in network science		Hiroyuki Akama, Jaeyoung Jung (Tokyo Tech), and Maki Miyake (Osaka Univ)

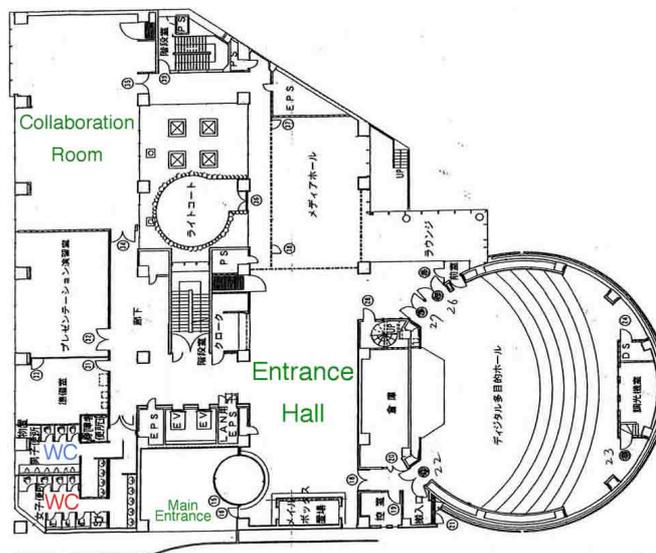
Poster Numbers, Titles, and Presenters

1	<i>Recognition of emotional association influences the evaluation of advertisement</i>	Ken Matsuda (Yamaguchi Univ) and Takashi Kusumi (Kyoto Univ)
2	<i>Psychological analyses of recognition heuristic; Effects of procedural manipulation</i>	Hidehito Honda (Tokyo Tech)
3	<i>Study of the organizational behavioral modification process on workplace policies for commuting behavior of employees</i>	Go Hagihara and Satoshi Fujii (Tokyo Tech)
4	<i>A model of behavioral intentions in multiple types of pro-environmental behavior that accounts for contingency of effect size of its determinant</i>	Hiroyuki Ohta (Tokyo Tech), Kazuhisa Takemura (Waseda Univ), and Satoshi Fujii (Tokyo Tech)
5	<i>Cheater or out-group member?: Combination of two deontic reasoning tasks</i>	Ryo Oda (Nagoya Inst. of Tech)
6	<i>No more tremendous options! We don't have so much time to choose from them.</i>	Rumiko Dohke (Hitotsubashi Univ)
7	<i>Perceived consequentiality of a CV survey and respondents' effort for finding answers.</i>	Takaaki Kato (Univ of Kitakyushu) and Noboru Hidano (Tokyo Tech)
8	<i>An answer on K. Arrow's question about Rabi (1974)</i>	Masakazu Kitano (Univ of Hyogo)
9	<i>"Smile" as "honest signal": Measuring handgrip while showing smile.</i>	Ryo Tamura (Saitama Gakuen Univ)

Direction to the Workshop venue (West 9 Building) is available here:

Tokyo Tech Top Page (<http://www.titech.ac.jp/home.html>) -> "About Tokyo Tech" -> "Campus Map & Direction" -> "Ookayama campus" (<http://www.titech.ac.jp/access-and-campusmap/e/o-okayama-campus.html>)

Floor Plan
Second Floor,
West 9 Building



Paper Abstracts

Spoken Session 1: Economics, Utility Theory, and other Decision Theories

<p>Does a task to think about the monetary ranges reduce anchoring effects in contingent valuation for anti-global warming policy evaluation?</p>	<p>Noboru Hidano (Tokyo Tech)</p>
<p>Kahneman et al (1999) claimed that elicited WTPs in contingent valuation are skeptical for decisions on public policies due to anchoring effects on the values. We examined the effects of asking the respondents of their ranges that they may pay for the public goods before selecting their dichotomous choice in referendum format and eliciting their WTPs on the anchoring effects. The task is effective to reduce anchoring effects and to increase the subjective belief not to change the values. The times required to think about the WTP values are also reduced by this task.</p>	
<p>Adaptive function of regret: Cognitive and cultural aspects</p>	<p>Takashi Kusumi (Kyoto Univ)</p>
<p>In this study, we explored the adaptive function of regret and its influence on behavior regulation in one's culture. Regret is a negative emotion we feel when we imagine or realize that our present situation would be better if we had made different decisions in the past. Regret is divided into two types: experienced and anticipated regret. Individuals always try to minimize or better manage these regrets. Experienced regret motivates us to undo or compensate negative outcomes and helps us to adapt to similar situations. In turn, anticipated regret helps us to choose to act differently in the future based on the outcome of a past regrettable experience (e.g., Gilovich & Medvec, 1995; Zeelenberg, 1999). We conducted three studies to explore the adaptive function of regret. Firstly, we conducted two experiments using the production and rating method by Japanese and American undergraduates. The results revealed US-Japan cultural differences in regret under interpersonal and personal situations. In the interpersonal situation, regret was more important to the Japanese than to the Americans for regulating their interpersonal behavior. In the personal situation, regret was important to both American and Japanese for pursuing their goals. Secondly, we conducted an experiment using a gambling and a skiing computer game by Japanese graduate students. The results showed that experienced regret affected the next risk-taking behavior mediated by risk controllability and perception in repeated decision making situations. Thirdly, we conducted a questionnaire study using eight risky situations by Japanese undergraduates. The results of a structural equation modeling showed that anticipated regret directly influenced risk-taking/avoidance behavior in several situations (e.g., physical, monetary, and life situations). Finally, we discussed about the adaptive rationality of regret. Experienced and anticipated regret lead to more appropriate behavior under conditions of uncertainty within one's cultural environment.</p>	
<p>The Contingent Focus Model for decision making under risk that accounts for attention and frame condition</p>	<p>Satoshi Fujii (Tokyo Tech) Kazuhisa Takemura (Waseda Univ)</p>
<p>Decision problems which are identical in form may give rise to different decisions due to decision framing, in which the decision-making process can be altered depending on how the situation is described. This is called the <i>framing effect</i>. We applied the Contingent Focus Model (Takemura, 1994) to an explanation of the framing effect. The model hypothesizes that a risk attitude depends on the extent to which a participant focuses on possible outcomes and probabilities, that is the <i>focusing hypothesis</i>, and focusing on possible outcomes and probabilities are, in turn, contingent on contextual factors including positive/negative frame condition, that is the <i>contingent focus hypothesis</i>. Although these hypotheses was tested by experiments which manipulated size of letters describing outcomes and probabilities (Fujii & Takemura, 2000, 2003), the relation between the participants' attention and their risk attitude, and the relation between participants' attention and the frame condition was not able to be directly tested because an indicator of attention was not directly observed in the experiments. In this study, we will present a series of experiment to test the hypotheses. First, we conducted 2 experiments which manipulated the relative size of letters of</p>	

outcomes to the other letters ($n = 180$, respectively). The data confirmed not only the theoretical prediction of a framing effect due to the manipulation, but also our hypothesis. We also implemented third experiment that used an eye gaze recorder to observe participants eye movement which was expected to be related to their attentions, and analyzed the relation between participants' eye movement, the frame conditions, and decision making in the decision making problems under risk. The result implies that the framing effect due to positive/negative frame condition may be explained by the contingency of attention on the frame condition, as the Contingent Focus Model predicts.

Contingent decision making based on one dimensional evaluation function: Threshold model of mental ruler	Kazuhiisa Takemura (Waseda Univ)
---	---

Brandstätter, Gigerenzer and Hertwig (2006) proposed the priority heuristic for describing contingent decision making. This model is considered to be a kind of lexicographic semi-order, such as applied by Tversky (1969) and others. They interpreted the model “fast and frugal” because choices can be made by not examining all of the information. They analyzed several published data and stated that their model fits those data better than parametric models such as Tversky and Kahneman’s (1992) Cumulative Prospect Theory (CPT) and Birnbaum’s (1997; 1999; 2004; Birnbaum & Chavez, 1997; Birnbaum & Navarrete, 1998) transfer of attention exchange (TAX) model. This paper shows a psychometric threshold model of contingent decision making in which the priority heuristics works. The proposed model is an extension of "Mental ruler model" (Takemura, 1998, 2001) which assumes that a decision maker constructs a mental ruler to evaluate options for judgment and decision. A mental ruler is assumed to have two endpoints (reference points) like an ordinal physical ruler. It is assumed that a mental ruler is constructed on the support for a subjectively framed situation which is dependent on the focused situation. Contrary to the most of the utility theories and the prospect theory, the evaluation function is an S-shaped function, which is concave below and convex above a certain point between the endpoints of the support for the mental ruler. In the proposed model, we assume that the threshold exists when a decision is made using the mental ruler. Thus, in a decision making, there must be a real-valued function where an indifference relation holds. That is, for all $x, y \in S, xRy \Leftrightarrow v(x) > v(y) + \delta(x, y)$, where v is assumed to be an evaluation function of the mental ruler, and $\delta(x, y)$ is a positive value function of the threshold, which is a function of the elements, x and y . This threshold is assumed to correspond to the graduation of the mental ruler. The large valued $\delta(x, y)$ indicates the rough graduation of the ruler, and the small valued $\delta(x, y)$ indicates the fine graduation. The propose model using the one dimensional evaluation function also illustrates S-shaped probability weighting function as well as threshold based decision as assumed in the priority heuristics (Brandstätter, Gigerenzer & Hertwig ,2006).

Spoken Session 2: Heuristics and Judgments

The benefits of forgetting	Lael Schooler (Max Planck Institute)
-----------------------------------	---

A few theorists, ranging from William James to contemporary psychologists, have argued that forgetting should not be seen as a nuisance but as key to the proper working of human memory. In the context of David Marr's functional approach to understanding cognition, I will discuss the rational analysis of memory (Anderson & Schooler, 2000), which holds that much of memory performance, including forgetting, might be understood as adaptation to the structure of the environment. Schooler & Hertwig (2005) proposed that forgetting may in addition prove beneficial for making judgments that depend on whether objects are recognized and the speed of this recognition. For example, you could predict which of two candidates is likely to win an election based on the heuristic that if you recognize one but not the other, then predict the recognized one will win. To explore the mechanisms by which forgetting could boost the efficiency of such memory based inference heuristics, I describe a modeling and empirical effort that bridges two

<p>research programs grounded in an appreciation of the adaptive value of human cognition: The program on fast and frugal heuristics explores cognitive processes that use limited information to make effective decisions (Gigerenzer, Todd, & the ABC Research Group, 1999); and the ACT-R research program (Anderson & Lebiere, 1998) that strives for a unified theory of cognition, a language in which to implement cognitive models. I will show how the ignorance that forgetting brings can, paradoxically, enhance inferences about real objects in the world.</p>	
<p>One-reason decision making: Modeling violations of expected utility theory</p>	<p>Konstantinos Katsikopoulos (MIT and Max Planck Institute)</p>
<p>Information theoretic analysis of the verbal probabilities</p>	<p>Kuninori Nakamura (JSPS/Tokyo Tech)</p>
<p>In everyday life, people prefer to use verbal probability phrases such as "certain" or "possible" to communicate uncertainty information. Many studies have demonstrated that people's understanding of the verbal probabilities is very vague and often deviate from the normative principle. This presentation, however, shows that people's understanding and use of the verbal probability phrases matches the information theory. This presentation is composed of two parts. First part concerns people's perceptions of "informativeness (Keren & Teigen, 2001)" of the verbal probabilities. Keren and Teigen (2001) proposed the "search for definitive predictions" principle. According to this principle, relatively high or low probabilities are preferred to medium ones because high or low probabilities denote the occurrence or nonoccurrence of a single outcome more strongly than they do medium ones. We formalize the judgment of the informativeness of probability statements in terms of the information theory and argue that the search for definitive predictions principle can be interpreted as rational information estimation under the rarity assumption (Oaksford & Chater, 1994). Second part explores how people use the verbal probabilities in their everyday life. According to Stewart, Brown, and Chater (2006), people can only sample items from memory and then judge whether a target value is larger or smaller than these items. We adopt Stewart et al's position, and demonstrate that the amount of the information that the verbal probabilities have can predict their availabilities in the real world distribution. From these results, we argue that people do optimal data selection in the communication of the uncertainty information.</p>	
<p>Preference reversals -- beyond the Evaluability Hypothesis</p>	<p>Kimihiko Yamagishi (Tokyo Tech)</p>
<p>This paper offers a descriptive model of cognitive processes that underlie preference reversals between Joint Evaluation (JE) and Separate Evaluation (SE). In SE, decision makers assess each choice alternative in isolation. In JE, multiple choice alternatives are valued concurrently. Hsee (1996) showed that preferential orderings in two multiattribute alternatives shift between JE and SE when their attribute values have tradeoffs. Hsee's account for such preference reversals, namely "Evaluability Hypothesis," postulates that the "evaluability" of each attribute changes between JE and SE (see also Hsee et al., 1999). Surprisingly though, despite the remarkable attention paid to this work (e.g., Slovic et al., 2007, Kahneman, 2003), no previous research has empirically measured evaluability. This paper attempted empirical estimations of evaluability, and the current contribution lies in articulating cognitive processes hypothesized by the Evaluability Hypothesis. I shall propose a model that allowed estimation of evaluability parameters under SE-JE preference reversals. The model detected shifts in the evaluability parameters between JE and SE. The Evaluability Hypothesis claims that a hard-to-evaluate attribute attracts much attention in JE, whereas an easy-to-evaluate attribute is weighted heavily in SE. These prescriptions were only partially followed by the model's parameter estimates. As a conclusion, an alternative account of SE-JE preference reversals emerges, along with possibilities for further empirical developments.</p>	

Spoken Session 3: Broader Perspectives

<p>What constitutes one's environment? Proposal of internal environmental</p>	<p>Kai Hiraishi (Kyoto Univ)</p>
<p>What is "rational" (or adaptive) can change depending on the environment in which an individual is placed. In a society with harsh physical competition, it will be rational for individuals to spend more time and energy to build strong bodies. On the other hand, it will be rational to work hard on schoolwork when one lives in a society which places much emphasis on academic records. However, is it enough to concern only with individual's outer-environment? Behavior genetics studies have repeatedly shown that almost all aspects of human individual differences are heritable. For instance, body size (BMI) is reported to be over 60% heritable (Carmichael & McGue, 1995) and heritability of general cognitive ability (or g) is reported to be about 50% (Plomin & Spinath, 2002). Then, it can happen that an individual who is born in a society with strong physical competition finds that he/she has inherited smaller body size and higher cognitive abilities. In this talk, I will propose the internal environment hypothesis on personality. The hypothesis states that individuals can flexibly tune their behavioral strategy according not only to one's outer-environment, such as ecological and social environment, but also to one's internal-environment, such as personality. In a support for the hypothesis, I will present data from twin study which shows that the individuals' level of general trust, how much an individual trust strangers, is influenced not only by outer-environmental effect but also by their level of extraversion and agreeableness, two of the five big personality dimensions. I will also discuss the implication of the hypothesis on the evolution of individual differences.</p>	
<p>The effect of reward and punishment on the stimulus-preceding negativity (SPN): fMRI and ERP studies</p>	<p>Yasunori Kotani (Tokyo Tech) Yoshimi Ohgami (Tokyo Tech) Tetsuji Tsukamoto (GE-Yokogawa Medical Systems) Yusuke Inoue (Univ of Tokyo) Yasutsugu Aihara (Tokyo Metropolitan Univ)</p>
<p>Anticipation facilitates the speed and accuracy of response and it is important for human to produce rational behaviors. The human cortical potential related to anticipation is the stimulus-preceding negativity (SPN). The Recent studies show that the perceptual anticipation and the emotional anticipation are crucial factors for the occurrence of the SPN. To investigate the emotional aspect of the SPN, we performed two separate functional magnetic resonance (fMRI) and event-related potential (ERP) studies using the same time estimation tasks with different subjects. In the time estimation task, subjects have to push a button 3 seconds after the offset of cue stimuli. Two seconds after the button push, a feedback (FB) stimulus was presented informing the subject whether the response was undershoot, correct, or overshoot. Subjects were presented with five experimental conditions: (a) reward condition, (b) punishment condition, (c) reward/punishment condition, (d) no reward/punishment condition, and (e) control condition. Under the no reward/punishment and the control conditions, subjects did not receive any monetary reward or punishment. In the fMRI study, the whole-head fMRI was used to resolve the sources of the SPN. In the ERP study, the SPN was recorded from 55 electrode sites using the same task and the same conditions as the fMRI study. The fMRI results showed the increased activations in the right frontal lobe, the supplementary motor area (SMA), the posterior lobe of cerebellum, and the thalamus in anticipation of the reward, the punishment, and the reward/punishment. In the ERP study, the topography of the SPN showed negative peaks at the right frontal area and at the parietal area. The physiological model of the SPN will be discussed using the dipole modeling based on the fMRI results.</p>	

Irrationality or Limited Rationality in Network Science

Hiroyuki Akama (Tokyo Tech)
 Jaeyoung Jung (Tokyo Tech)
 Maki Miyake (Osaka Univ)

A network is usually conceived in a graph form, which consists of *nodes* representing individual or atomic entities and *edges* linking them with information on semantic attributes or weight value. In the network science, the graph clustering is an interesting topic which means to decompose the whole network into small but strongly connected components. For example, the greedy algorithm of graph clustering (Newman et al., 2004) for subdividing a whole graph into neighboring local sub graphs consists of repeating the following bottom-up process: starting from the initial state in which all vertices are considered as singleton clusters and repeatedly merging the adjacent vertices or clusters--as intermediary products--so as to detect the maximum value of the coefficient called *Modularity Q*. This method can be intuitively understood because the vertices or the clusters adjacent to each other are supposed to be integrated in the identical cluster.

However, one may sometimes face strange results after applying to a hierarchical type of graph data the Markov Cluster Algorithm, in abbreviation MCL (Van Dongen, 2000), which consists of simulating *random walks* using two simple algebraic operations on transition matrices: conducting a normal matrix multiplication and a *Hadamard power* followed by a rescaling to reach the convergence of the iterative process. For example, a non-directed and cascading type of three-layer random graph with particular values of connection rates will be subdivided by MCL into clusters in each of which almost all the vertices are NOT adjacent to each other and the ones originally near are pulled apart and segregated after losing the initial edges.

The problem of the rationality to interpret this kind of clustering results arises here when one tries to use graph clustering methods as tools to simulate group dynamics considering that the analysis of a friendship network called Zachary's Karate Club are of help as evidence. Is this counterintuitive phenomenon of putting the adjacent nodes to another cluster taken as a limit case of the graph clustering based upon spectral analysis like MCL? Or, handling this case in a underhanded way, can we recognize it as a success of simulation for one of *The Thirty-Six Stratagems*, (collection of Chinese proverbs used to illustrate arts of warfare), "Befriend a distant state while attacking a neighbor (遠交近攻)" ? Anyway, it is an indisputable fact that the problem posed here is to know how we will arrive to mediate between *human instinct* and *computational reason* in the field of agglomeration processing.

POSTER ABSTRACTS

1. Recognition of emotional association influences the evaluation of advertisement	Ken Matsuda (Yamaguchi Univ) Takashi Kusumi (Kyoto Univ)
<p>This study investigates the causal factors of J-curve effect by evaluation and recognition of advertised products paired with affective pictures. Participants were shown advertisements with pictures that varied in emotional valence from negative to positive. Five minutes or one week later, two groups of participants rated old and new products on liking, purchase intention, and recognition or recognized association between advertises and images respectively. Although liking and purchase intention ratings at the 5-minute delay showed a monotonic increase from negative to positive valence, the ratings at the one-week delay showed a J-curve effect; both liking and purchase intention received higher ratings at both ends of the valence, relative to the middle. In addition, memories of products were maintained, but the association between affective pictures and advertisement decreased. The J-curve effect was explained by the decrease of association between affective stimuli and products, and by maintenance of affective intensity.</p>	
2. Psychological analyses of recognition heuristic; Effects of procedural manipulation	Hidehito Honda (Tokyo Tech)
<p>Goldstein and Gigerenzer (2002) proposed the recognition heuristic, which postulates that people rest on the human capacity, recognition, in inferences. So far, a lot of research has examined psychological processes about the recognition heuristic. In previous studies, participants were asked to infer which of two objects had “higher” value (e.g., which city has a larger population), and it was found that the participants could exploit recognition in the inferences. However, few studies have examined whether procedural manipulation of inference elicitation (e.g., ask “which has higher value?” or “which has lower value?”) would influence the exploitation of recognition. In order to explore this issue, an experimental study (pair-wise comparison about population of Japanese cities) was carried out. In this experiment, participants were asked by one of the two procedures, either “which of the cities has a larger population?” or “which of the cities has a smaller population?” Results showed that the procedural manipulation of inference elicitation did not affect inferences about population, although some of psychological processes (e.g., response time) were different between the two procedures. These findings imply that people can adaptively use recognition in inferences regardless of procedural manipulations.</p>	
3. Study of the organizational behavioral modification process on workplace policies for commuting behavior of employees	Go Hagihara (Tokyo Tech) Satoshi Fujii (Tokyo Tech)
<p>There are several researches on modification process model for personal attitude and behavior for the purpose of mitigating problems due to excessive car use by the approaches to modify peoples’ travel behavior voluntarily. However there are fewer attempts to identify the modification process model for organizational attitude and behavior though it is important to consider workplace organizational behavior modification because workplace organizational behavior strongly affects on the employees’ travel behavior. Based on these cognitions, a process model for organizational behavioral modification in the workplace, specifically covering the commuting behavior of employees was developed, based on the knowledge in a previous study. This process model was based on the assumption that organizational goals are influenced by two types of organizational motivations that influence organizational planning, which induces organizational behavior modification. To test the process model, a survey was distributed to 507 workplace offices in Japan, of which 322 responded. A structural equation model analysis confirmed the process model. Results of the analyses indicated that workplace organizations were motivated to modify their behaviors by both organizational-interest and social-interest such as social responsibility. Results also indicated that employees’ attitudes toward car commute restriction affected on organizations’ decisions to modify their behavior.</p>	

<p>4. A model of behavioral intentions in multiple types of pro-environmental behavior that accounts for contingency of effect size of its determinant</p>	<p>Hiroyuki Ohta (Tokyo Tech) Kazuhiisa Takemura (Waseda Univ) Satoshi Fujii (Tokyo Tech)</p>
<p>We proposed a model of behavioral intentions in multiple types of pro-environmental behavior that accounts for contingency of effects size of determinants. In the proposed model, we hypothesize that (1) the goal to reduce carbon dioxide (CO₂) emissions has a positive impact on pro-environmental behavioral intentions, and (2) goal effect size depends on the perceived effectiveness and ease of the pro-environmental behavior. The data from 341 Japanese respondents were used to test the model, while considering electricity and gas savings, garbage reduction, and automobile use reduction. The results of regression analyses supported the hypotheses. That is, people with the goal of reducing CO₂ emissions tended to intend to implement types of pro-environmental behavior that they believe to be easy and effective, more than those that they believed to be difficult and ineffective. These results could be interpreted from the framework of contingent focus model as attentions for attaining a goal to implement pro-environmental behaviors were assumed to be assigned more to types of pro-environmental behavior of which effectiveness and ease are high than ones of which effectiveness and ease are low, and thus such types of pro-environmental behavior of which effectiveness and ease are high are likely to be implemented when the individual has the goal.</p>	
<p>5. Cheater or out-group member? Combination of two deontic reasoning tasks</p>	<p>Ryo Oda (Nagoya Inst. of Tech)</p>
<p>Both social contract and sharing-rule cause the thematic content effect in deontic reasoning tasks. Oda et al. (2006) reported that respondents who performed well during the social contract task were also sensitive to exploitation by out-group members in the sharing-rule task. Although the definition of sharing-rules is different from that of social contracts, there is a possibility that peoples' mental representation of them do not differ. So we made a new sharing-rule task in which being in-group needs some costs. In this task, exploitation by our-group members also means exploitation by peoples who did not pay any cost. We also performed experiments with normal sharing-rule task and social contract task for comparison. The rule in each task was switched. The results indicate that in the sharing-rule task with cost less all four cards and more not-P and Q cards were selected than in the normal sharing-rule task. On the other hand, more P and not-Q cards were selected compared to the social contract task. This suggests that although the condition of cost affected the card selection patterns, the respondents did not recognize the sharing-rule with cost as a mere social contract task. The Darwinian mechanism for sharing-rule might independent of the cheater-detection mechanism.</p>	
<p>6. No more tremendous options! We don't have so much time to choose from them.</p>	<p>Rumiko Dohke (Hitotsubashi Univ)</p>
<p>This study examined whether people would be more satisfied with their choice when they had a moderate number of options than when they had too much options. It was expected that when the decision opportunity was limited, people would be more satisfied with their choice from a moderate number of options than when the decision opportunity was unlimited. Participants read a scenario and browsed a booklet that included either 30 (too much) or 6 (moderate) Japanese-style hotels with spa. They were asked to choose the best hotel that they wanted to stay. In the scenario, decision opportunity was manipulated. And then, they reported how much they were satisfied with their choice. As expected, participants were more satisfied with their choice from 6 options than from 30 options. However, a predicted main effect of decision opportunity was not found. The finding of this study is discussed from a perspective of bounded rationality.</p>	

7. Perceived consequentiality of a CV survey and respondents' effort for finding answers.	Takaaki Kato (Univ of Kitakyushu) Noboru Hidano (Tokyo Tech)
<p>Contingent valuation (CV) is a tool for evaluating projects of providing public goods. CV uses a survey for asking peoples' willingness to pay for the public goods. It is vital to design the survey so that well-considered answers are collected. This study focuses on the perceived strength of the consequentiality of CV as a determinant of respondents' effort for finding well-considered answers. If a choice of an answer by a respondent in a CV survey affects the decision by the government for providing the public goods in question then that survey is consequential. The CV literature has not investigated whether stronger consequentiality resulted in better-considered answers. The amount of the effort was measured by the length of time spent for the survey by each respondent. First, the study found a considerable heterogeneity in the strength of perceived consequentiality among the respondents who were subjected to the same experimental CV survey. Second, using a panel regression, the study found that a stronger perception of survey consequentiality resulted in a longer survey time, thus a greater level of effort paid for the survey. Third, factors affecting perceived strength of the CV survey were analyzed and some suggestions for improving the question technique of CV were presented.</p>	
8. An answer on K. Arrow's question about Rabi (1974)	Masakazu Kitano (Univ of Hyogo)
<p>K. Arrow once asked on Rabi's question: the contradiction between egoism and altruism, and how to make instantaneous decisions in every day life. Arrow's answer may be trust which, he suggests, is too difficult to deal with. I discuss on following points. The limit or inefficiency of rational calculation is actually resolved rationally, by behavior in terms of belief (or Max Weber's rational in terms of value). Therefore, the following question is, what and how a specific belief is, or should be chosen. On this question, evolutionary approach is effective. How could we explain the belief? I would offer one approach by "linked game" which is played by relatively small members who is identifiable at the parallel or repeated games. Methodology. In contrast with methodological individualism which Arrow contributed much, methodological totalism should be established, in which evolutionary approach would occupy major parts.</p>	
9. "Smile" as "honest signal": Measuring handgrip while showing smile.	Ryo Tamura (Saitama Gakuen Univ)
<p>The evolution of facial expressions was explained by three theories until now, the principle of serviceable associated habits, the principle of antithesis, and the principle of actions due to the constitution of nervous systems (Darwin, 1872). Especially, "smile", which is thought as facial expression related to resource exchange among people, was considered from the perspective of semantics (Kanazawa & Matsuzawa, 1992). However, previous study only described a speculation, but did not demonstrate it. This study investigated the probability that people show "smile" as it is an "honest signal". It is predicted that physical ability decreases when people make "smile", because weaken physical ability disable exploitation to partner at resource exchange. In other words, making oneself vulnerable soften other's fear of to be exploited. To examine this hypothesis, I used handgrip as physical ability and conducted experiment with two conditions. One was "smile" as experimental condition, and the other was "neutral face" as control condition. Participants were demanded to grasp grip dynamometer while showing "smile" or "neutral face". But to make participants show each facial expression unconsciously, I used "pen technique" (Stract et al., 1988). The probability that handgrip at "smile" condition was less than "neutral face" condition was analyzed.</p>	