

## Wavering and Sympathy Pricing

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### Abstract

A prevalence of evidence on the uncleared market at a market price (Okun, 1981) elucidates that it is not the market-clearing scheme but the *modus operandi* of the market, *viz.*, haggling, auction, ask-bid, markup, and administered pricing that carries out the transaction. Price is a necessary but not sufficient condition for a transaction to cut a deal. The negotiation process for trading is nothing but the interface of transactors' cognitive systems to conduct the steps of cognitive editing in a way to draw out a deal. The process of cognitive editing, *viz.*, the measure of nudge, differs from price adjustments necessary to deliver an equilibrium price. Human cognition begins with the system of perception-intuition. Reasoning comes up a step afterward. Trading may not provide a deal even when a seller's quote of price is acceptable to a buyer due to a lack of trust (Akerlof, 1970), regret (Thaler, 1980), or a lack of sympathy (Rhee, 2012b, 2013b). Wavering is a natural reaction of a transactor at a trading negotiation as a cognitive miser equipped only with heuristics and biases in uncertainty. The price is an outcome of cognitive editing. It is sympathy pricing.

**Keywords:** wavering, sympathy pricing, cognitive editing, market *modus operandi*, cognitive miser

**JEL Code:** D90

### I Introduction

The normative approach of economics presumes a rational agent model. Transactions take place at the market price determined by the market-clearing scheme. The descriptive method has appeared by behavioral economists (Kahneman and Tversky, 1979; Tversky and Kahneman, 1974, 1986) as an alternative approach to make up for the shortfalls of the former, especially in the study of uncertainty. Despite the progress in the decision theory, studies on eliciting a transaction are rare and in an early stage despite Thaler (1980, 1985) and Thaler and Sunstein (2003).

My study is motivated by Kahneman, Knetsch, and Thaler (1986)'s (denoted as KKT hereafter) study on the fairness issue in the transaction. Fairness is a representative heuristic. The perception of being 'fair' differs across sellers and buyers in a transaction. How can we elicit a negotiation process to cut a deal? Highlighting the perception by the descriptive method

contrasts with the market-clearing scheme of the normative approach.

Despite the pending need for the study, research in this line is rare. KKT highlights the mismatch in the perception between seller and buyer but doesn't explore the problem lying ahead to elicit a negotiation for cutting a deal. The study of the interface of individual cognitions remains beyond the territory of the analysis of human cognition. However, psychophysics analysis remains the only toolkit available for the study. How do cognitive misers interact to draw out a deal while holding on to different systems of cognition?

The findings of this research are quadripartite. Firstly, the price is a necessary but not sufficient condition for cutting a deal. Despite the buyer's acceptance of the seller's ask price, the trading may not strike a deal due to a lack of trust (Akerlof, 1970; regret: Thaler, 1980; sympathy: Rhee, 2012b, 2013b). Secondly, it will recognize that the trading carries out through the *modus operandi* of the market, *viz.*, haggling, auction, ask-bid, markup, and administered pricing, not by the market-clearing scheme. Thirdly, wavering is a natural behavior of transactors. With a catalytic role of the *modus operandi* of the market, trading may not cut a deal by being locked out at a wavering. Fourthly, a price comes up as the outcome of cognitive elicitation between transactors with different cognitive systems. It is not an equilibrium price but sympathy pricing.

Section 2 introduces Okun's (1981, p. 170) call for attention to the prevalence of uncleared markets at market prices before Kahneman, Knetsch, and Thaler's (1986) (denoted as KKT hereafter) exploration of a cognitive approach for the explanation. Section 3 unfolds the problem of mental schism lying ahead before two transactors who seek a negotiation process to strike a deal. Section 4 deals with the issue of cognitive eliciting for trading. The discussion comes up with a wavering problem as a natural mental consequence. The study tracks down steps of cognitive editing to elucidate a negotiation process for trading in Section 5. Haggling, auction, ask-bid, markup, and administered pricing are the market's *modus operandi*, replacing the market-clearing scheme of the normative approach in Section 6. The main findings of the research on wavering and sympathy pricing are put forward as proposition and corollary.

## II Mismatching between ask and bid prices

It is a mere coincidence if the buyers' and sellers' prices match from the outset. A commonplace is that ask, and bid prices entail a price spread. How to strike a deal is the problem of how to elicit adjustment steps between buyer and seller to achieve a transaction. A standard textbook answer to the question is the market-clearing scheme which relies on demand and supply schedules and seeks an equilibrium solution.

### **Persisting uncleared market at a market price**

Persisting uncleared markets at market prices shed a shadow on the validity of market clearing scheme (Akerlof et al., 2000). Increasing evidence appears to conflict with this tenet. KKT cited Okun (1981, p. 170)'s call for attention to the prevalence of uncleared markets at market prices and explored a cognitive approach for the explanation.

KKT has taken fairness as a cognitive percept that controls the

psychology of the transacting parties. To seek an alternative explanation of the phenomena, KKT contrasted the difference in the mental accountings of buyers and sellers. KKT surveyed experimental questionnaires with independent evaluators to explore the fairness judgment in eighteen questions concerning the conflicts of entitlements.

This paper explores the elicitation of the deal-striking process between buyer and seller that may present an alternative approach to the market-clearing tenet. The study begins with the story of a snow shovel and digs into the behavioral approach to the deal adjustment process between buyers and sellers. The story of the snow shovel case represents KKT's eighteen experimental questionnaires.

The following question is a case of experimental studies that KKT conducted to elicit the effects of the reference points on decision makings.

*Question. A hardware store has been selling snow shovels for \$15. The morning after a large snowstorm, the store raises the price to \$20. Please, rate this action as: Completely Fair, Acceptable, Unfair, Very Unfair.*

An opinion survey was conducted on 120 persons asking for their opinion on the hardware store owner's raising of price from fifteen to twenty dollars in the morning after a large snowstorm. A majority of respondents denied the legitimacy of the price rise. Eighty-two percent of respondents (N=107) return unfair (and very unfair) for the hardware store's strategy to take advantage of the snowstorm for their benefit in its pricing policy.

### **Fairness as representative heuristics**

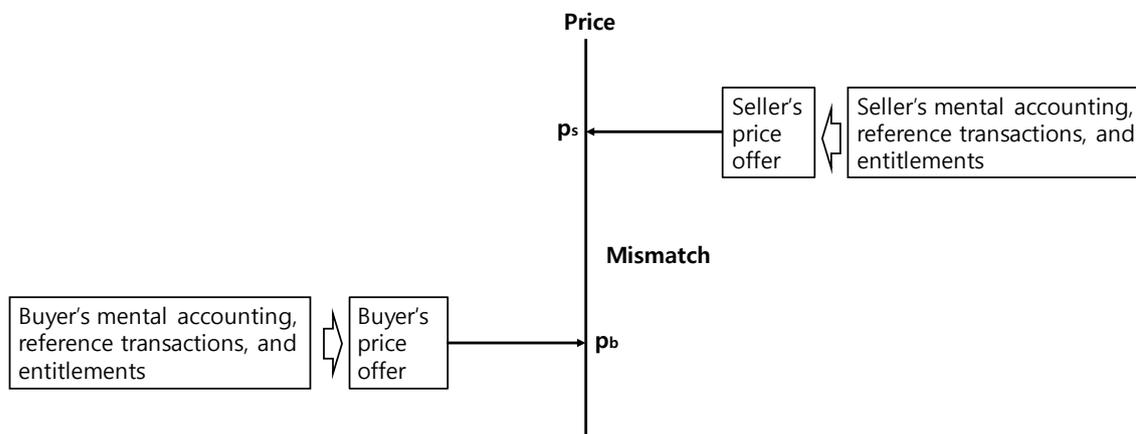
What intrigues us is the counterpoint of positions among market participants. The hardware store has an interest in profit-seeking. However, the narrative of the hardware store does not provide information to determine what cognitive process induced the store owner to raise the price by five dollars. The story of KKT's paper begins with the price rise taken for granted and asks the survey subjects for their opinions on the fairness of store owner's raising of price.

KKT's implication goes deeper than this. We can extend the logic of the customer's cognitive process to the decision process of the store owner when the latter raised the shovel price. Store owners and customers hold on to their respective cognitive systems when they develop decision heuristics. The cognitive system influences the setting of reference transactions and entitlements of market participants. Profit-seeking may be the representative heuristics of the store owner, whereas fairness is assumed to be that of customers.

Price offers  $p_s$  and  $p_b$  are the outcomes of mental arithmetic of seller and buyer. There

typically exists a mismatch between ask and bid prices, as shown in Figure 1.

Figure 1: Mismatching offered prices between buyer and seller



How does fairness become a representative heuristic? It pertains to the domain of uncertainty as if ad-hocness is effective in exploring norm theory (Kahneman and Miller, 1986). Individuals are vulnerable to cognitive biases when a transacting individual tries to find a reference transaction holding fairness as a norm. With a biased norm, they are prone to claim entitlements in their favor, as most survey respondents judged store owner's raising of price as unfair.

### III Cognitive schism at the interface of individual cognitions

An exchange is an outgrowth of the interactions between two or more trading parties. How can we interpret the interactive actions among trading parties into the behavioral language? The behavior of human beings cannot go beyond the cognitive domain of psychology. The cognitive process differs from rational reasoning (Sloman, 2002). The cognitive process preempts rational reasoning. Human intelligence falls short of the complacency that supports decision-making exclusively depending on rational reasoning. Humans adopt heuristics during decision-making and hence become vulnerable to cognitive biases (Tversky and Kahneman, 1974).

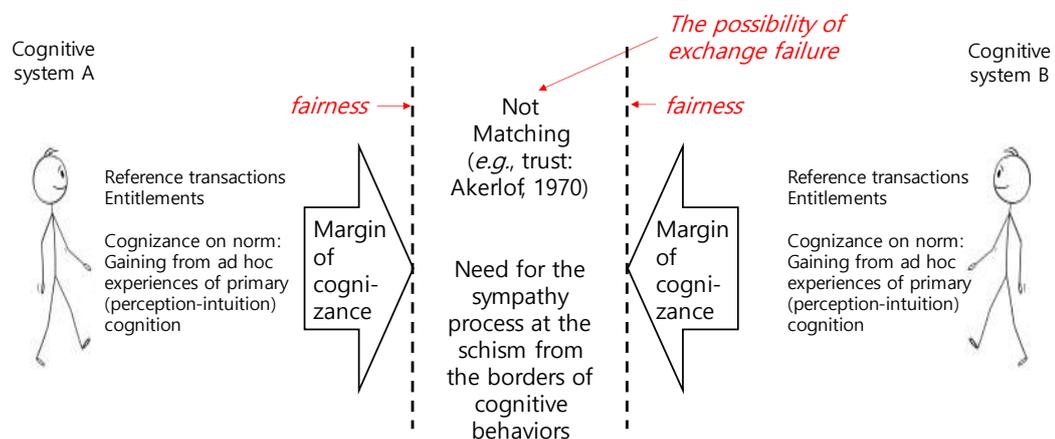
An exchange is an outgrowth of the interactions between two or more trading parties. Bearing the cognitive system in mind, how can we perceive the interface of trading parties and interpret its analytical sense? Two approaches appear as the candidates for an answer. One is seeking a solution from the market clearing scheme. This approach pretends that the value-cost measure may represent the cognitive process of trading parties.

Rhee (2021a, 2021b) addressed the metrizable problem of the approach. An early research exploration in this direction was pioneered by Akerlof (1970), taking trust as essential to a

market failure. Regret study addresses the regret causing a possible exchange failure at the conjunction of the human cognitive system with the market clearing scheme to the fear of welfare loss due to a foregone chance (Thaler, 1980). All the attempts in this line of approach fail to connect the representation of the cognitive processes of trading parties by the value-cost measure.

The other approach recognizes the cognitive systems of respective trading parties. It is the position that KKT holds. The seller of snow shovels has her intuitive cognizance that sets the heuristics and biases in place. This process renders a reference transaction and a feeling of entitlement to the seller. A similar process works for the buyer to determine her position. The problem is that the perception of fairness in the trade does not match between trading parties.

Figure 2: The schism from the borders of cognitive behaviors and the need for sympathy processes



The problems we face are a triad upon recognizing the differences in the respective cognitive systems of trading parties. Firstly, trading becomes a matter of interactions between different cognitive systems. In the snow shovel transaction of KKT, the unidentical perception of fairness divides the positions of trading parties. The perception of fairness is equivalent to the entitlements that come up as the outcome of setting a reference transaction. Placing a reference transaction is influenced by setting heuristics in place, the process of which shall necessarily be biased (Tversky and Kahneman, 1974). Figure 2 depicts the schism lying between two different systems of cognizance: a buyer and a seller.

Secondly, we should understand that the completion of a transaction necessarily requires the psychological elicitation processes between two cognitive systems. Taking the priority accessibility of perception-intuition cognizance over the reasoning for granted, the systematic biases of heuristics does not ensure the reliability of the market-clearing scheme as an instrument for the attainment of the transaction (Sloman, 2002; Rhee, 2021a, b). It is an unprecedented situation of cognitive conjunction where we need an entirely new instrument of

navigation to facilitate the transaction by which we go through the schism between two different cognitive systems. This paper will elaborate on the next section.

Thirdly, trading does not assure the ending that entails a transaction. Akerlof (1970) recognized a market failure due to the lack of trust. Thaler (1980) aptly described regret as “choose not to choose.” Rhee (2013b) noted that exchange could end up with indecision and dub it wavering. Perhaps, Keynes (1936) is the precursor who saw the possibility of exchange failure by recognizing involuntary unemployment.

#### IV Eliciting a Trading

Kahneman and Tversky (1979) compared descriptive economics with normative economics. Normative economics denotes neoclassical canons, whereas descriptive economics refers to behavioral approaches. Tversky and Kahneman (1986) lamented the reality of economics society where a behavioral study has to bear the burden of proof with the evidence to disprove the validity of neoclassical canons when it claims the legitimacy of its tenet.

The market clearing scheme may represent the normative approach to trading. Increasing evidence reveals this tenet's inefficacy as a trading model (Okun, 1981). Unlike the post hoc theorizing approach, the descriptive study of trading is built on trading apparatuses as modus operandi in the marketplace, e.g., haggling, auction, ask-bid, markup, and administered pricing. Each trading apparatus accommodates the cognitive behaviors of trading parties to strike out deals from wavering behavior.

This descriptive approach is aware that transactions do not come about without the proper operation of trading apparatuses as the institutions in the marketplace.

#### **Price as a Lantern**

The double coincidence of wants is often referred to as the role of price. Of course, it is an excellent contribution carried out by the price of making a deal. However, after taking the descriptive approach for granted, trading becomes a matter of interface between two different cognitive systems. Hence, cutting a deal requires sorting out a deal through the cognitive processes of trading parties. KKT takes fairness as a representative heuristic. Making a deal involves comparing the fairness of conditions offered by trading parties.

However, persuading the other party with the fairness claimed by one trading party is difficult. The cognitive perceptions of fairness are likely to differ between individuals. The appearance of price alleviates the difficulty of persuasion over fairness significantly. Claiming fairness became persuasive by the use of the price. Now, the condition for cutting a deal is delivered. Setting  $p_s$  as the price quote offered by a seller and  $p_b$  by a buyer, trading provides a deal if the following condition (1) is true.

$$p_s \leq p_b \quad (1)$$

$$p_s > p_b \quad (2)$$

The normative interpretation of conditions (1) and (2) is straightforward. Condition (1) denotes a buyer's price quote is bigger than or equal to a seller's quote, which will deliver a deal regardless of the complexity of cognitive processes involved. Under condition (2), trading is unable to provide a deal.

### The Domain of Wavering

The descriptive analysis of the condition for striking a deal does not end with conditions (1) and (2). They are not the terminal of a journey but merely a starting for a departure. Cognitive heuristics and biases leave a domain of uncertainty. A quotation cites Thaler's (1980) illustration of regret theory.

*Example. Mr. A is waiting in line at a movie theater. When he gets to the ticket window he is told that as the 100,000<sup>th</sup> customer of the theater he has just won \$100.*

*Mr. B is waiting in line at a different theater. The man in front of him wins \$1,000 for being the 1,000,000<sup>th</sup> customer of the theater. Mr. B wins \$150.*

*Would you rather be Mr. A or Mr. B?*

*... regret, in prospect theory, can be modeled through induced changes in the reference point. In Example, Mr. A simply gains \$100 or  $v(100)$ . Mr. B however must deal with the near miss. If, for example, the person in front of him cut into the line he may feel he has gained \$150 but lost \$1,000 yielding  $v(150) + v(-1,000)$ .*

A missed opportunity can quickly come up as a companion in every decision-making. However, the occurrence of a missed opportunity gets a reference point set in decision-making and allows the rendering of a loss function  $v^{\sim}(\cdot)$  to the psychophysics of price (Thaler, 1980). The steep and convex loss function inherited from the prospect theory enabled a value representation of the psychological pain from a missed opportunity, viz.,  $v^{\sim}(-1,000)$ .

The inherent ad-hocness of prompting the information processing through a cognitive-miser

route (Fiske and Taylor, 1991; Gilovich and Griffin, 2002; attribute substitution: Kahneman, 2003; norm theory: Kahneman and Miller, 1986) adds the margin of biases to the psychophysics of price by the magnitude of a loss function. In KKT, the seller's decision to raise the price may be triggered by, *e.g.*, her fear of the traffic jam due to the snow storm and the following wholesale price hike.  $u^{\sim}(-(-s))$  denotes the loss function due to the seller's possible fear. Then, the seller's price quote  $p_s$  will compensate for the potential loss. Hence, the seller's price quote remains within the range of the loss value from the current price  $p_0$ .

$$p_s \leq p_0 + u^{\sim}(-(-s)) \tag{3}$$

Similar reasoning applies to the buyer. An individual snow shovel buyer may come up with a personal story of regret  $b$  entangled with the purchase of a snow shovel. The possible borrowing of a snow shovel from a neighbor may leave a regret for purchasing a new one. Then, the regret value  $v^{\sim}(-(-b))$  sets the lower limit of a buyer's price quote.

$$p_b \geq p_0 - v^{\sim}(-(-b)) \tag{4}$$

Figure 3 depicts a story on seller and buyer price quotes, which conditions (3) and (4) spell out. The figure narrates that the transactor's perception of reference points and entitlements fixes the price quotes by a seller or a buyer. These perceptions are those of a cognitive miser and take root through filtering heuristics.

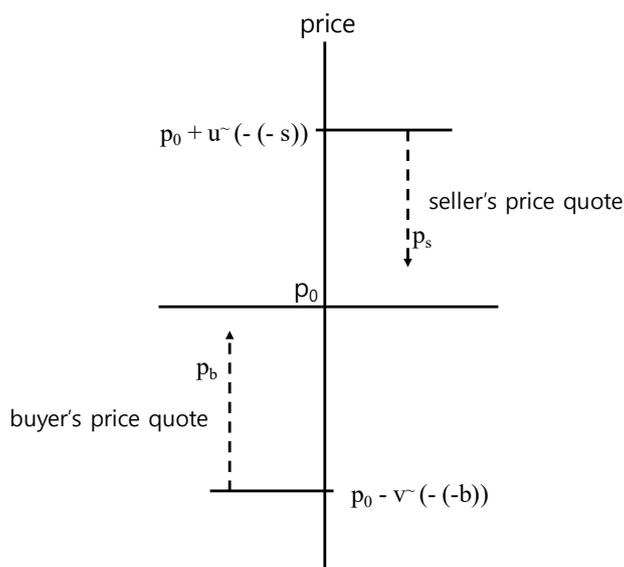


Figure 3:  
Price quotes  
of a seller  
and a buyer

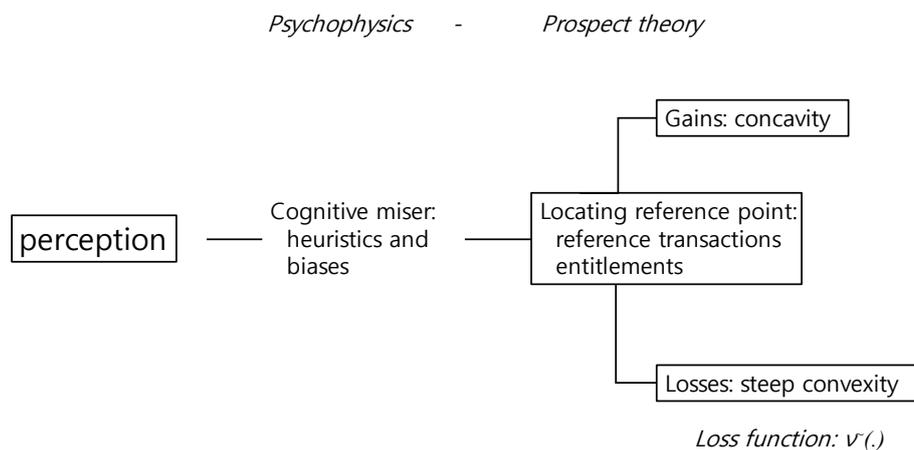
The discourse hitherto clarifies the following three points. Firstly, it is the psychic cost of the loss function  $v^{\sim}(\cdot)$  that diverts a seller's quote of price from a buyer's quote. Figure 4 shows an overview of a cognitive system that depicts how a psychic cost of the loss function incurs through the heuristic process of cognitive miser from the point of perception. Secondly, a trading deal is not a price negotiation process but a nudge or editing process of heuristics. Thirdly, wavering is a generic phenomenon in trading.

## V Cognitive editing

How can we elicit the mechanics of cognitive processes that work to handle a price spread between seller and buyer and induce the cutting of a deal? Trading appears as if it is the process of price negotiation. However, the real story is it is a process of persuasion through editing heuristics, *viz.*, mental accounting or nudge process (Thaler, 1985; Thaler and Sunstein, 2003).

A casual observation of a haggling incident unfolds that a seller endeavors to appeal to the cognition of a buyer. It is called a marketing action. Marketing is not an act of insisting seller's quote of price but an act of persuasion on the legitimacy of the quoted price. Sellers appeal to the cognition of buyers to persuade the legitimacy of a quoted price. Similarly, buyers appeal to sellers' perceptions to influence the legitimacy of their bid price. Figure 4 depicts an overall flow of the psychophysics of a cognitive miser (Fiske and Taylor, 1991). The figure reveals why transactors endeavor to persuade trading counterparties by appealing to the cognition instead of insisting on their price quote

Figure 4: the Psychophysics of a Cognitive Miser



for a reason.

The steps of cognitive editing represent the process of persuasion between transactors. The loss functions  $\tilde{v}(\cdot)$  denote them for a buyer and  $\tilde{u}(\cdot)$  for a seller. The  $i$ th order cognitive editing in the sequence of loss functions represents the  $i$ th sequence of persuasion.

$$\tilde{u}(-(-s)) : (\tilde{u})^1(-(-s)), (\tilde{u})^2(-(-s)), \dots, (\tilde{u})^i(-(-s)) \quad (5)$$

$$\tilde{v}(-(-b)) : (\tilde{v})^1(-(-b)), (\tilde{v})^2(-(-b)), \dots, (\tilde{v})^j(-(-b)) \quad (6)$$

Cognitive editing appears as editing in loss function in Figure 5. As the persuasion progresses, the range of sellers' and buyers' price quotes tends to narrow, revealing the progress in the trading.

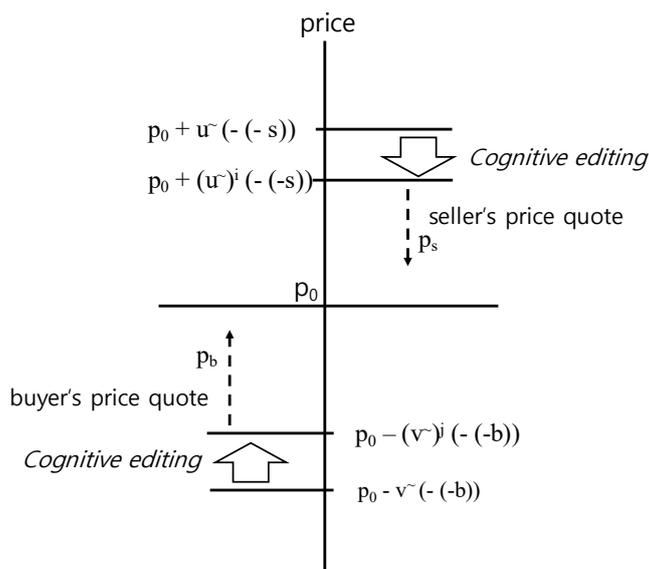


Figure 5:  
Editing  
reference  
points

The gist of the question is if the steps of value adjustment can represent the cognitive mechanics of trading. The logic of reasoning may eventually lead to the question of the metrizable of the mental mechanics of heuristics and framing (Rhee, 2021a, b).

What evidence can we find from the facts of life? In a descriptive world of life, trading is carried out not by the market-clearing mechanics as asserted in a normative canon but by the operation of a *modus operandi* of trading: haggling, auction, ask-bid, markup, and administered pricing. In Table 1, the seller's cognitive mechanism is compared with the buyer's when each endeavors to persuade the other through editing heuristics or framing.

**Table 1: The Persuasion of Sympathy Pricing through Editing Heuristics or Framing**

<i>Modus operandi</i>	Seller's Cognitive Mechanism	Buyer's Cognitive Mechanism
Haggling	Mobilizing narratives appealing to the sentiments of the buyer to induce an advantageous framing or heuristics-biases	Remaining at a buyer's defensive cognition and sticking to a wavering behavior
Auction	Creating an environment (brochures for antics and painting; quality classification for fresh fishes) to induce an advantageous framing or heuristics-biases of the buyers	Remaining vulnerable to seller's marketing strategies targeting buyer's sentiments.
Ask-bid	An ask price is the expression of a seller's claim on her reference points and entitlements.	A bid price is that of a buyer's claiming on her reference points and entitlements.
Markup	Most of the manufactured products: sellers' one-sided decision on the price-setting; sellers can mobilize media to enforce framing or heuristics-biases to their advantage.	Buyers are in a passive position to accept or reject the seller's marketing actions.
Administered pricing	Public utilities and financial assets: seller's one-sided decision on the price-setting; sellers have a monopoly power to enforce anchoring heuristics-biases to their discretion.	Buyers are in a passive position merely to accept the seller's policies.

## VI *Modus operandi* of markets and sympathy pricing

What Table 1 clarify is that they are not enforcing each's numeric pricing on the other trading parties but appealing to their cognitive mechanism by attempting to edit their heuristics-biases and framing. *The modus operandi* of markets is not the same across the differences in the product specification. For the artworks, antics, and paintings, a unique market *modus operandi*, viz, *Sotheby*, has to be designed to tailor to the commodities traded. The change in product specification changes the way of persuasion to cut a deal.

Being classified into the same clan, *i.e.*, auction, the auction market for fresh fish or fresh agricultural products differs from the former. The problem of the former market is how to stimulate the buyers' patience to ratchet up the price with preparations. The brochure aims at the former auction market. In the latter auction market, the speed of trading is vital due to the inherent restriction of keeping the freshness of products.

The critical question is, "can we consistently translate such persuasion activities in a market into a value measure?" Instead of addressing this question directly, the question paraphrases into a tractable form without a loss of contextual generality. Is it possible trading fails to cut a

deal despite the offered ask price of a seller being acceptable to the buyer? This rephrased question is precisely that of Akerlof (1970)'s lemon market question! A transaction may not reach a deal due to a lack of trust. Thaler (1980) recognized the possibility of trading failure with regret theory (Fiske and Taylor, 1991). Rhee (2012b, 2013b) identified the problem in the analytical dimension of sympathy.

**Proposition TS (Two Systems):** A trading may not cut a deal despite a seller's asking price being acceptable to a buyer.

**Proof:**

With a cognitive system 1 (perception-intuition) more accessible than a cognitive system 2 (reasoning) (Sloman, 2002; Slovic *et al.*, 2002; Kahneman, 2003), a buyer may refuse to make a purchase decision despite her agreement with a seller's asking price. The price is a necessary condition for cutting a deal but not a sufficient condition. It could happen due to a lack of trust (Akerlof, 1970), lack of sympathy (Rhee, 2012b, 2013b), possible regret (Fiske and Taylor, 1991), or affect heuristics (Slovic *et al.*, 2002).□

Proposition TS highlights the cusp of the two systems of human cognition. In the normative approach, cognitive systems are not distinguished from the canon of rational reasoning and are integrated into a unitary tenet of rational choice. Hence, the possibility of cutting no deal with a seller's ask price acceptable to a buyer is unthinkable. With the dual cognitive systems put into effect, trading may not roll out a deal without the active role of the market as a facilitator to soothe the odds of trading. Wavering is not an exception but a natural phenomenon.

**Corollary W (Wavering):** Wavering is not an exception but a natural phenomenon.

**Proof:**

The match of the seller's asking price with the buyer's bid price does not guarantee the cutting of a deal. Without an active role of market *modus operandi* to soothe the dysfunction of heuristics-biases, trading is likely to end in a wavering behavior. Wavering is a default option. Wavering is a natural and general disposition of human cognition.□

Sympathy pricing differs from the equilibrium pricing of the market clearing tenet. To the former, the price is a necessary but not a sufficient condition of cutting a deal (trust: Akerlof, 1970; regret: Thaler, 1980; sympathy: Rhee, 2012b, 2013b). However, to the latter, the price is

the necessary and sufficient condition. Sorting prices for cutting a deal is the process of searching for sympathy between cognitive misers.

**Corollary SP (Sympathy Pricing):** The price comes up as the outcome of cognitive editing in the steps of sorting a deal.

**Proof:**

Price is merely a necessary but not a sufficient condition for cutting a deal. We reach a deal through the sorting process of cognitive editing. The price is the outcome of either transactors' cognitive editing or nudge. □

Corollary SP is the twin sibling of Corollary W. They are the offspring of the behavioral approach that recognizes trading as the process of cognitive editing.

## VII Concluding remarks

A prevalence of evidence on the uncleared market at a market price (Okun, 1981) elucidates that it is not the market-clearing scheme but the *modus operandi* of the market, *viz.*, haggling, auction, ask-bid, markup, and administered pricing that carries out the transaction. Price is a necessary but not sufficient condition for a transaction to cut a deal. The negotiation process for trading is nothing but the interface of transactors' cognitive systems to conduct the steps of cognitive editing in a way to draw out a deal. The process of cognitive editing, *viz.*, the nudge, differs from price adjustments necessary to deliver an equilibrium price. Human cognition begins with the system of perception-intuition. Reasoning comes up a step afterward. Trading may not provide a deal even when a seller's quote of price is acceptable to a buyer due to a lack of trust (Akerlof, 1970), regret (Thaler, 1980), or a lack of sympathy (Rhee, 2012b, 2013b). Wavering is a natural reaction of a transactor at a trading negotiation as a cognitive miser equipped only with heuristics and biases in uncertainty. The price is a convenient guiding lantern in the steps of eliciting negotiation to cut a deal. However, it is an outcome of cognitive editing, not an equilibrium solution of the market-clearing scheme. It is sympathy pricing.

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