

Towards a Critique of Neoclassical Economics: how to Neutralize and Radicalize our Understanding of the Postulate of Independence of Agents and Goods

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Abstract

In line with Marx's *Zur Kritik der Politischen Ökonomie*, this paper intends to work towards laying the groundwork for a critique of neoclassical economics (NC). For this goal, this paper attempts at: conceptualization of objects of analysis; revelation of assumptions; concentration on qualitative aspects; systemization; contextualization and socialization. On the basis of the view that NC is built upon two pillars: price mechanism; individuals' rational choices, this exploration offers preliminary results about NC's postulate of independence. This postulate can be specified as: (i) independence among individuals as agents; (ii) quasi-independence among goods (and resources); (iii) independence between an individual and goods or things. In refutation of NC's strong version of methodological individualism, an increasing number of studies advocate the existence of social relations and interdependent self. Moreover, complementarity or interdependence among goods is to be conceded on the basis of behavioral economics. Furthermore, the so-called socio-materiality lays stress on interdependence between an agent and things. Lastly, the significance of social norm and of qualitative aspects of price is demonstrated.

Key words: Marx, neoclassical economics, independence, interdependence, social relations, dialectics, context, behavioral economics

In line with Marx's *Zur Kritik der Politischen Ökonomie*, this paper works towards laying the groundwork for a critique of neoclassical economics (NC). It begins this long-term work with neutralizing and radicalizing our understanding of NC by revealing its philosophical and ideological underpinnings. For this purpose, first, it offers a few methods of interpretation. On the basis of these methods it focuses on the postulate of independence of agents and goods as the primary issue. Second, some recent studies about methodological individualism are explored and are found to converge on interdependent self and social relations. Third, inquiry into social relations and social structure is made to attempt to improve units of analysis in economics. Fourth, interdependence among goods is recovered mostly from the findings of behavioral economics. Fifth, interactions between agents and goods or things are revealed. Lastly, the significance of social norm and qualitative aspects of prices are demonstrated.

1. Methods for a Critical Interpretation

In order to arrive at a deeper and broader understanding of NC, this paper relies in large part on Marx's methods. Marx was sensitive to objects of analysis, assumptions, concepts, qualitative aspects, and connections between different parts of thought. The Austrian economists share some of these methods with Marx, though ideologically opposed to Marx (Hong, 2000). From these two streams of thought, this paper adopts such methods as: conceptualization of objects of analysis; concentration on qualitative aspects; systemization of its unconnected claims; revelation of assumptions; contextualization in the history of economic thought. **These methods are not new but they would not have been obtained from the way of thinking in which NC is engaged.** Thus this paper attempts to apply methods alien to NC to NC. Besides, it draws on some empirical findings of behavioral economics to lend support to a critical stance towards NC. It is to be elaborated.

First, NC is not explicit about its objects and units of economic analysis. But it is possible to uncover, on close examination, some implicit tendencies for NC to construct its objects of analysis such as individuals and goods.

Second, NC's notions and definitions are examined with the focus on their qualitative aspects rather than on their quantitative aspects. For example, we are supposed to conceptualize demand, supply, utility, substitution, production, price, money, profit etc., while keeping apart their quantitative aspects such as function, quantity, ratio, marginal, relative, rate etc. for the time being (Levins, 2016, p. 53).

Third, links are to be forged between NC's various tenets so that a (hierarchical or otherwise) structure or system can be constructed out of them. This method pays close attention to relationships between logical coherence and ideology. In this regard, we may pose such questions as: internalities as opposed to externalities; analogy between an individual in NC and commodity and value in Marx; linkage between money as numéraire and money in its usual sense.

Fourth, implicit or hidden assumptions of NC are to be revealed. In general, in order to comprehend the hard core of a theory and to delimit its validity, it is indispensable to evaluate its assumptions. But some assumptions of a theory are left implicit or kept tacit, probably, due to ideological reasons. Moreover, implicit or tacit assumptions are very often more important than explicit ones. The effort to uncover assumptions, put in a wider perspective, is concerned with what NC does not say rather than with what it does. NC is silent about society, justice, equality, power, collective, class, race, gender, and so on. For instance, scarcity of resources which is presupposed by NC is not as universal or natural as it appears to be at first glance, but it assumes non-satiation of human desires.

Fifth, its theories need to be contextualized in the history of economic thought and to be reinterpreted and, possibly, reconstructed from alternative viewpoints. In order to comprehend the whole picture of a paradigm, it is necessary to compare it with other paradigms. Moreover, a paradigm is to be checked in light of common sense and intuition and every day economic life which are embedded in social, historical, and cultural milieus (cf. Stigler, 1939, p. 481). For instance, the question about differences between NC's framework for the market and the traditional conception of the economy can be posed so as to find the answer that NC gives priority to exchange.

Some preliminary results of this exploration are to be reported. NC prioritizes exchange among production, exchange, distribution and consumption. Moreover, it develops exchange into the equilibrium of market supply and market demand. Market demand and market supply are allegedly the sums of individual demands and individual supplies. Individual demands and individual supplies result from rational choices. As market equilibrium is built upon rational choices, rational choices govern not only exchange but also production and consumption. Moreover, agents are no longer to be specified as consumers or producers or merchants, but as demanders and suppliers, and, more precisely, as choosers and maximizers.

Rational choice for NC is tantamount to optimization of an individual agent subject to the constraints of prices and income. In reaction to price changes agents make marginal adjustments. As market demand and supply are adjusted via prices and rational choices themselves are made in reaction to prices, they are mediated and linked via prices. Consequently, NC has drawn on (a) price adjustments in the markets in reaction to demand/supply gaps and on (b) choices over goods/services and factors

of production on the part of economic agents in response to price changes. Thus proper operation of market mechanism requires both price flexibility in the markets and price elasticity on the part of economic agents.

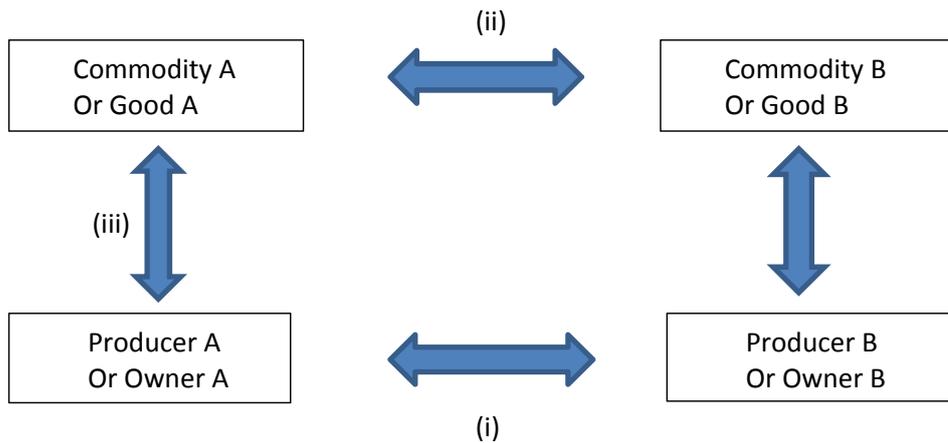
From the foregoing it follows that NC draws on two major principles, that is, rational choices on the part of individual agents and price mechanism in the market. This coheres with NC's advocacy of freedom to choose and of the price system in common parlance (Friedman, 1962). Moreover, rational choice seems to be more fundamental to NC than price adjustment. 'Economics imperialism' which stands for the expansion of economics into other disciplines lends credence to the primacy of individual's optimization over market clearing (Lazear, 2000; Fine, 1999; Mäki, 2009).

Rational choices and operation of price mechanism, together with marginal analysis, seem to make **the postulate of independence** indispensable for NC. NC seems to think of independence as the default, not to mention one of its building blocks. In order to show that **independence** is one of its rockbottom features, it is useful to contrast NC with Marx. Since exchange is presumed to be common starting-point for economists, NC is to be compared with Marx as regards their ways of abstraction about exchange, with the aid of insights from the Austrian economics and behavioral economics (BE).¹

For the present purpose, it may be harmless to leave aside differences: between objective and subjective theories of value; between commodity and goods; between producer and consumer. The existence of money can also be set aside. Put in a neutral perspective, exchange is composed of three relations or ratios: (i) relations between agents; (ii) ratios between things; (iii) relations between agents and things. While Marx's approach is holistic, social and relational, NC's is analytical, individual and *rational* (with the emphasis on ratios).

Marx conceptualizes exchange as relations on the basis of the all-embracing concept of value. Moreover, on his view, exchange relations are composed of three interlinked relations: (i) relations between producers or capitalists; (ii) relations between commodities; (iii) relations between producers and commodities. His stress on materialization of social relations there is a hierarchy between these relations, that is (ii)→(iii)→(i). Moreover, he takes prices as objective facts explainable in terms of relations and labor value. Notably criticizing mainstream economics for its preoccupation with quantitative aspects of prices, he gives priority to its qualitative aspects.

¹ Other assumptions as regards subjects of choice which fall under the rubric of rationality are: that a consumer knows well about his own preference and his constraint and know better than others do; that he is capable of calculating his cost and benefit and their probabilities for the purpose of maximization or minimization; that he makes the most of information and incessantly updates information; that he is able to discriminate between content and wrapping or between substance and appearance; that he can distinguish the real from the fake and the real from the nominal...Moreover, goods are allegedly perfectly substitutable into each other and money is perfectly fungible. As regards choice situation, procedural invariance that means that cognition and choices remain invariant to changes in procedure is assumed, as BE points out.



By contrast, NC conceives of exchange as choices. Assumptions which are introduced to construct rational choice or rational decision making on solid grounds can be classified according to whether they relate to: subjects of choice (agents), objects of choice (goods or assets) or choice situation in general. Choice is defined by an individual agent and goods and resources. An agent is specified by her preference as specified in indifference curve and her constraint as determined by her endowment or income. Her preference and her endowment combine to determine her choice.

On this basis NC dissolves relations between agents and posits individuals as units of analysis. Moreover, it individuates goods and resources not merely by their uses but also by space and time. Furthermore, it composes choice situation out of such elements as agents, goods, preference, constraint, and choice procedure. NC's conceptualization abstracts from interdependence, (constant) interactions or relations among constituents at various levels. Moreover, NC is alien to context, emergence or supervenience. Furthermore, as prices are specified as parameters for choices and quantities are subject to marginal adjustment, quantitative aspects of prices in particular and ratios/proportions in general are focused on.

Therefore, in aligned opposition to Marx, NC's **postulate of independence** can be specified as: (i) independence **among individuals as agents**; (ii) quasi-independence **among goods (and resources)**; (iii) independence **between an individual and goods**. It is to be noted that (ii) concerns goods within the choice set of an individual agent. These notions of independence may be placed in the order of importance as (i)→(iii)→(ii). These can be concretized as follows:

- ◀ An agent is an independent individual who has stable and consistent preference at a specific point of time and over time. She is consistent both statically and dynamically.
- ◀ Goods are thought to exist, and to be evaluated, independently of each other to the greatest possible extent.
- ◀ Goods are always alienable. Endowment or income constraint and preference are independent of each other.

The postulate of independence is interlinked with a variety of theoretical positions: ontological or methodological individualism, logical atomism, marginal analysis. Even though these are interrelated with each other, methodological individualism and rational choice relate more to (i), whereas logical atomism and marginal analysis have more to do with (ii) and (iii). In particular, rational choice requires (i) but it does not necessarily entail marginal analysis. Marginal analysis is needed only if

rational choice is made in reaction to price changes in the market system. Marginal analysis is concerned with (ii) and (iii) as it focuses on choices at the margin over quantities in goods and factors of production for the purpose of optimization. In this regard, marginal analysis is peculiar to economics in contrast with rational choice theory in general.²

It is obvious that, due to its reliance on prices and rational choices, NC would claim that (the extent of) independence or interdependence, especially among goods and resources, alters in accordance with changes in prices and differs from one individual to another. For instance, two goods A and B may be interdependent at one price vector for a consumer, but may be independent for the same consumer at another price vector or for another consumer at the same price vector.

At first glance this seems to imply that there is a priori little ground for ascribing independence to NC. But NC leans towards independence precisely because it draws on price changes and differences in agents. If adaptability and flexibility are to be maintained in the face of price changes and across heterogeneous agents, goods and resources are to remain independent (or only temporarily interdependent). The reason seems to be that a switch from the mode of independence to the mode of interdependence, if need be, is easier than a reverse switch from the latter to the former (e.g. labor market flexibility).

However, a number of studies in diverse fields, in refutation of methodological individualism and logical atomism, have advocated: (i) social relations between persons; (ii) complementarity between goods/resources and interdependence between things; (iii) entailment between persons and goods or things. To anticipate, some of these studies attempt either to go **above, or below, the level of an individual, whereas others attempt to go above, and below, the level of an individual good.**³ On this basis we can make steps towards reconstituting what was ‘decomposed’ by NC, that is, towards conceptualizing people, goods, choices as being relational, social and ‘structural’ in a new way. In addition, qualitative aspects of prices seem to be rediscovered.

2. Independence among Agents versus Interdependence among Agents

Many existing studies suggest that an individual is not an atomic unit of analysis in two senses. First, compounds and organizations which lie above individuals are not reducible to individuals and are more than mere aggregations of individuals. Second, there are agents which lie below the level of an individual and are not simply aggregated into an individual. These sub-individual agents may be formed by biological, social and cultural factors. Emergence (or, at least, supervenience) accounts not only for relationships between an organization and individuals but also for relationships between an individual and subpersonal agents (Kim, 1978). Of crucial significance, most of the arguments from diverse viewpoints seem to converge on **social relations**.

2.1 Methodological Individualism: Strong or Weak

² Furthermore, marginal analysis goes together with market ideology. Market ideology upholds the market system which depends on price mechanism and on competition. Price mechanism presupposes price flexibility and price elasticity. Given these, independence is alleged to be a reflection of market economy which finds its dynamics in competition rather than in cooperation. Competition necessitates constant mobility which calls for flexibility and substitution. This is compatible with its basic postulates of mobility, marginality, substitution, efficiency and flexibility.

³ The meaning which is expressed by the pair of ‘above’ and ‘below’ can be equally conveyed by the pair of ‘inside’ and ‘outside’, with little risk of altering its meaning (Alos-Ferrer & Strack, 2014, p. 4).

Robinson Crusoe has been well known as the symbolic figure of mainstream economics even to Marx (Marx, 1867, p. 76). But NC is more consistent in adopting independent individuals as the unit of analysis. This view **can be defined as** methodological individualism (MI). MI stems from empiricism, as it rests on the view that only individuals are observable (Archer, 1995, p. 34). More specifically, NC adheres to a strong version of MI which stands for the view that ‘socioeconomic phenomena can be explained in terms of individuals alone’ (Udehn, 2002, p. 502).⁴ On this view market demand and market supply are thought to be no more than sums of individual demands and individual supplies. The notion of representative agent homogenizes all the agents and thus makes impossible interactions or social relations between agents (Kirman, 1992).

These models carried with them a view of people as social objects tagged with a variety of individual attributes. This methodological individualism, though it would appear odd in many cultures, seems so natural to Western-especially American-researchers that they often find it difficult to perceive the objective reality of relationships (Fiske & Haslam, 1996, p.144).

However, recent methodological discussions tend to endorse **the weak version of MI**. The weak version endorses the view that ‘socioeconomic phenomena should be explained in terms of individuals **plus interactions between them**’ (Udehn 2002; Hodgson, 2007, p. 220). The weak version is defined by the addition of ‘interactions’ to the strong version. Interactions may encompass social relations, rules and institutions.⁵ Unexpectedly, even the master of general equilibrium theory which used to draw on the strong version came to admit the importance of **social relations** (despite his particular accent on social knowledge) (Arrow, 1994).

More generally, individual behavior is always mediated by social relations. These are as much a part of the description of reality as is individual behavior (Arrow, 1994, p. 5).

2.2 Dual System and Dual Self

Studies in the fields of BE and cognitive science argue that individual agents deviate systematically from full rationality due to their bounded rationality. On this basis BE holds that rationality as assumed by NC is not descriptive but normative. According to **dual system theory or dual process theory** which BE endorses, cognition is based on interactions between two systems (Stanovich & West, 2000; Kahneman, 2003, p. 1451, 2011). System I is fast and is activated by habits, intuition, impulses and contexts, while System II is slow and activated by calculative rationality. On this view NC merely allows for System II.

System I Intuition	System II Reasoning
Fast Parallel Automatic Effortless Emotional	Slow Serial Controlled Effortful Neutral

Table 1 Two System Theory

According to **neuroscience and neuroeconomics**, multiple self are based on neurons and modules within the brain of an individual. The self is based on interactions between four subsystems which are

⁴ Udehn lays stress on the distinction between ontology (being), epistemology (knowledge) and methodology (approach to knowledge), which may be left aside for the present purpose of the paper.

⁵ Interactions here are meant to be constant and regular. Chance or random interactions are not necessarily incompatible with the strong version. Samuelson and Friedman may represent its strong version, whereas Hayek seems closer to its weak version. Since social interactions entail rules and institution, the weak version could equally be called ‘methodological institutionalism’.

made out of (1) the distinction between automatic and controlled processes and (2) the distinction between cognitive and affective processes (Camerer et al., 2005, p. 16-18). It could be an enlarged version of dual system theory, as it takes affect into account. Still. The subsystem I is equivalent to System II which represents standard theory of NC.

Neurons	Cognitive	Affective
Controlled	I financing purchase of a house	II getting angry at your employee
Automatic	III stopping a car at the red light	IV crying at the deathbed of your mother

Table 2 A Multi-Self Model

Other studies cast more serious doubt about the selfhood of economic man by showing that human beings demonstrate such anomalies as: hyperbolic discounting; preference reversal; time inconsistency; delays and procrastination in making decisions; conflict between planning and execution (Laibson, 1997; Fudenberg & Levine, 2006). Furthermore, people engage in: self-expression; self-control; self-signaling; self-serving; rationalization; self-manipulation; self-deception (Kim & Drolet, 2003; Camerer et al., 2005, p. 38). Overall these considerations call for economics of identity (Akerlof & Kranton, 2000).

To illustrate, self-interest and altruism do not oppose each other but coexist with each other. Moreover, a person may want to appear other-regarding, while s/he is, in actuality, entirely self-regarding inside. His inside and his outside do not correspond with each other.⁶ Furthermore, humans in the real world, unlike *homo economicus*, have both individual preference and social preference. A firm tries to look ethical and green in the eyes of the community by means of, e.g., giving charity or building parks for its neighbors, while all it pursues in substance is making profits.

These studies gave rise to a model of **dual self** or **multiple self**, which aims to reformulate the economic man. Interactions between subsystems give rise to specialization, coordination, competition, collaboration or conflicts within the self. A person with multiple selves may be likened to a community or a marketplace of agents with their own interests which compete with, or cooperate with, each other. Moreover, short-range, medium-range and long-run interests may come into a conflict within an individual, which lays the groundwork for ‘picoeconomics’ (Ainslie, 1986, 2009).⁷ This is compatible with the fact that, due to brain modularity, an individual is **not ‘a single coherent entity’, but an organization of domain-specific subsystems** which interact to carry out different functions (Cosmides & Tooby, 1992; Brocas & Carrillo, 2014, p. 45, 47).

2.3 Interdependent Self

Researches in the fields of anthropology, social psychology, sociology and organization science advocate the view that **a self or an ego is interdependent as well as independent (Markus & Kitayama 1991; Brewer & Gardner, 1996)**. And an interdependent self may be composed of relational self and collective self. One may belong to a group on the basis of its shared value or goal without relating oneself to its other members. Three layers of selves stand for internalization of three

⁷ This line of thought may ultimately lead to revival of Freud (Ainslie, 1986, 2009). Moreover, conflict or contradiction between its appearance and its substance may have some affinity with Marx’s thought.

levels of entity, i.e. individuals, social relations and collectives or organizations, respectively. It is conceivable that independent self and interdependent self (relational and collective) can coexist and interact in diverse social contexts. They may sometimes crowd out each other but, at other times, they may reinforce each other. In broad outline, **this may lay the groundwork for reformulation of people as being relational and social.**

Entities	Self	Formal
individuals	personal	consumer, citizen
social relations	relational	supervisor and worker
organization	collective	government agency or firm

Table 3 Independent Self and Interdependent Self

NC and the market system rely heavily on incentives or extrinsic motivation. However, people can be motivated not only extrinsically by results or incentives for the results but also intrinsically by activity itself. This is represented by the distinction between **extrinsic and intrinsic motivations** (Frey, 1994; Frey & Stutzer, 2005; Ryan & Deci, 2000; Iyengar & Lepper, 1999; Bénabou & Tirole, 2003). The point to be made here is that (relational and) collective self, unlike personal self, can be channels through which intrinsic (or at least, identified) motivation can be created.

To concretize, belonging to a collective very often motivates people to work or study harder and more seriously, because, according to Durkheim, solidarity springs from shared sentiments, morals or meanings (Knorr Cetina, 1997, pp. 25-26). Although goals of export, income or grade per se constitute extrinsic stimuli to an individual, they are transformed into intrinsic or identified motivation for her), as long as she is a member of a collective.

While NC treated a firm as if it were an individual, Coase and Williamson have apparently established it as a unit (Coase, 1937). But, on closer scrutiny, neo-institutionalism contributed to the view that a firm is decomposable into a number of individuals or individual contracts. In like manner, Becker's explication of household seems to focus on discovering individuals and rationality in it (Becker, 1981). In light of the above framework of selves **a firm and a household** are to be reconsidered as possible units of analysis on their own.

Of special significance, the hypothesis of 'industrious revolution' shed new light on the power of **household as a unit** which has been exerted over individuals in coordinating consumption, production and labor supply (de Vries, 2008). This encourages us more strongly to reexamine the preconception that households have disintegrated automatically with the onset of the market system. This hypothesis may be more relevant for the process of East Asian economic development (Sugihara, 2013; Saito, 2013).

In fact, the model of three-layered self seems more relevant in East Asian capitalism and in East Asian firms (Hofstede, & Crae, 2004; Triandis & Suh, 2002; Nonaka & Konno, 1998). **In East Asia social relations and human relationships stem mostly from the family system** (Fung, 1958, pp. 21-22). Since relational self and collective self are relatively more important in East Asia, social

comparison, social preference and ranking by positional goods are expected to be more prevalent than in the West (Frank, 1985).⁸

In case of Korea, formal educational system seems to have the consequence of having built up both human capital and social capital. The fact that independent and interdependent selves have to do with human capital and social capital, respectively has the implication that Korean educational system contributes to fostering both independent self and interdependent self (Becker, 1975; Bourdieu, 1986).

BE offers possible ways of socializing agents through its researches on fairness, social preference and social comparison (Frank, 1985; Fehr & Gächter, 2000). However, as these ideas may retain the notion of utility-maximizing economic man, they do not address social relations on their own terms, especially with respect to morality (Hodgson, 2014, p. 86, pp. 95-96). It is the foregoing framework of selves that can accommodate social comparison and social preference and explain morality at the same time.

Morality is more than an individual attribute. ... Morality depends on social relations. ... It cannot be encompassed adequately by the “social” or “other-regarding” preferences of an individual, or by an “multiple self” with plural preference functions (Hodgson, 2014, pp. 95-96).

Social relationships are very often accompanied with **reciprocity**.⁹ Especially BE advanced this concept as an alternative to NC’s notion of utility or profit maximization (Fehr & Gächter, 2002; Bowles & Gintis, 2002). Transactions on the basis of reciprocity would be gift exchange, while transactions on the basis of maximization would be market exchange. And reciprocity is interlinked with trust building and with varieties of capitalism.

To illustrate, with respect to wage and productivity, employers and employees are very likely to reciprocate in the long run instead of maximizing their interests at each point of time of business cycle (Fehr & Gächter, 2000). Analogously, as regards prices and quantities of products, customer relationship would be established by avoiding optimization which reflects short-run changes in market circumstances.

However, BE’s application of reciprocity apparently does not consistently retain the primacy of social relations over utility of an individual. Moreover, although its value function is different from utility function, there is no definition of value as clearly distinct from utility.

3. Social Relations and Social Structure

⁸ The concept of social preference may be generalized to stand for the fact that preferences and tastes are determined and reproduced, partly, by social, cultural and historical factors in line with the traditions of Marx, Veblen and Bourdieu than with NE. Moreover, positions or rankings as discrete entities are more often utilized in East Asia, whereas monetary reward as continuous entity is more prevalent in the West. A step further, rankings among things and persons, and categorization of things and persons seem to be more frequently encountered in East Asia. Things here include goods, commodities and resources, while persons encompass students as well as employees.

⁹ Reciprocity which was originally advocated by anthropologists such as Mauss and Polanyi now became a common language in social sciences and biology.

The foregoing exploration shows that most of the arguments from diverse viewpoints converge on **social relations (SR)**. In fact, SR has been regarded as fundamental to human existence and as enabling as well as constraining. Deci and Ryan claim, in their theory of self-determination, that relatedness is one of the few elements of human existence, which goes far beyond its contribution to utility (Deci & Ryan, 2000). Similarly, an increasing number of economists advance the view that social relationships are indispensable for human existence and happiness (Sacco et al., 2006; Stiglitz et al, 2009). Moreover, SR constitutes the basic unit of social capital in modern capitalism. Especially, in East Asia, SR has been predominant from time immemorial in the form of human relationships. These considerations call for a more sustainable concept of SR which goes beyond the weak version of MI, not to mention its strong version.

People constantly use Metarelational models (MeRMs) that specify how to combine relationships. ... MeRMs are not reducible to the physical properties of objects, the mental qualities of animal beings, the traits of individuals, or the features of social relationships (Fiske, 2011, p. 3).

SR was most explicitly conceptualized by Marx.¹⁰ Marx conceptualizes human beings as social and relational in the sense that they are ensembles of SR (*die gesellschaftliche Verhältnisse, Beziehungen*) (Marx, 1867, p. 73). More specifically, he views laborers and capitalists as capitalistically social in the sense that they are combinations of exchange relations and production relations. Moreover, social structure is a combination of a variety of SR's. Along the lines of Marx, SR can be classified, depending on whether or not it is: mediated or unmediated; internal or external; combined or not; horizontal or vertical/hierarchical; personal or impersonal. To anticipate, **mediated or internal relations have affinity with multiple self and interdependent self**.

First, relation between A and B can be **either socialized or mediated** by an all-encompassing factor. Value permeates every person and everything in Marx's capitalist society. Then relationship between A and B or A-B would develop into its socialized version A_s-B_s . Since A_s-B_s , unlike A-B, is embedded in S, A_s-B_s cannot be broken off as easily as A-B. Friendship (or its absence) between colleagues at the workplace or between devotees to a religious group may be under the influence of their common belonging to the same organization.

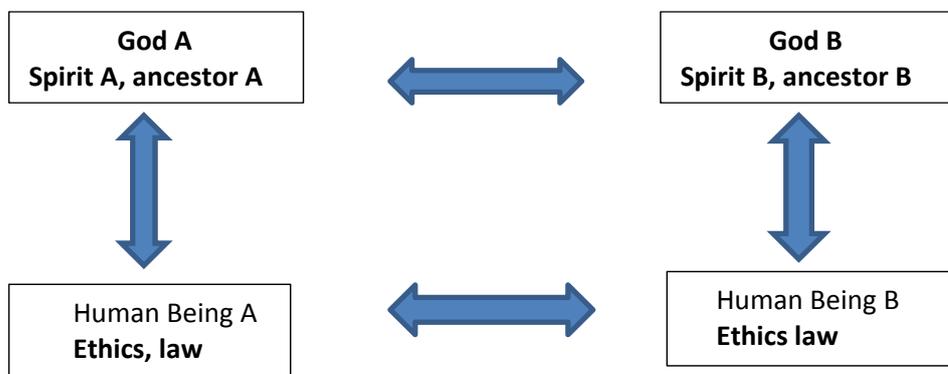
The parts of dialectical wholes are not chosen to be as independent as possible of the whole but rather points where properties of the whole are concentrated. Their relation is not mere "interconnection" or "interaction" but a deeper interpenetration that transforms them so that the "same" variable may have a very different significance in different contexts and the behavior of the system can alter its structure. ... His initial objects of investigation in volume 1, commodities, are not autonomous building blocks or atoms of economic life that are then inserted into capitalism, but rather they are "cells" of capitalism chosen for study precisely because they reveal the workings of the whole (Lewontin & Levins, 2007, p. 209, 210).

¹⁰ But awareness of SR is traced back to Aristotle who viewed human beings as social. Aristotle thought citizens of a polis to be dependent on SR (Aristotle, 1952). Among others, he conceived of relationships between the ruler and the ruled as a dialectical combination of equality and inequality. Later, Kant argued that two citizens of a city are already related with each other via ethics or law whether or not they are in any particular dyadic relationship (Kant, 1790). In this sense a citizen is not a Robinson Crusoe even when she has no contract with any other citizen. She is already social as well as individual.

The mediator or the third party who intervenes into every relation could be wide-ranging.¹¹ Adoration of a common god or ancestors, respect for ethics, obedience to laws, permeation of value or prevalence of kinship, taking the forms of beliefs and dispositions on the part of agents, would transform a given relationship (Marx, 1867; Fiske, 2011; Rossano, 2007; Elder-Vass, 2008, pp. 293-294). Agents who internalized social norm or market norm are social in themselves.

However it is envisioned, the ancestors' role is unambiguously *social*. They are ever watchful, active players in the social world with interests, concerns, and goals that must be considered in everyday affairs of human life. ... This is consistent with cross-cultural studies showing that the God-relationship more often resembles that of parent-child (or teacher-child in Japan) than that of romantic partners (Rossano, 2007, p. 280).

It is the commitment to mutual *interaction* between the members in support of the practice, and the knowledge that they can rely on the support of others in such action, that makes the norm group more effective in enforcing the norm than the same member of individuals would be if they did not share the commitment (Elder-Vass, 2008, p. 291).



Second, SR exists not merely externally **but also internally** (Hong, 2000, 2002). For Marx, economic agents are thought to be social on account of the fact that they have social relations internalized and structured in them. More broadly, A and B may enrich each other or **internalize** each other into itself to develop into A_b or B_a. A and B are externally related, whereas A_b and B_a are internally related (Lewis, 2000, pp. 258-259). While neither A nor B is relational by itself, A_b or B_a is relational by itself.

To elucidate, on Marx's view, use value (U) and exchange value (E) are internalized into each other and transformed into commodity and money. Thus commodity and money turn into compounds of use value and exchange value (U_e and E_v). For the same reason, commodity and money are inseparably intertwined with each other like two poles of a magnet.¹² A commodity is actually a commodity but potentially money, whereas money is actually money but potentially a commodity.

¹¹ Its examples include: God, ancestors or spirits (Zeus or Hella in the Trojan war); social contract (Rousseau); ethics or law (Kant); government (Hegel); value (Marx); sociality or rule (sociology); market or price (NC); kinship and community (Fiske); organization (theory of firm).

¹² Vygotsky, the Marxian psychologist, discovers similar relationships in the developmental process of children's language and thought (Vygotsky, 1961). At the age of three years, language and thought are internalized into each other and are combined dialectically. Thereby they come to be intrinsically related with each other and to be placed in constant interaction.

While a use value may not be relational by itself, a commodity in itself is relational. Moreover, barter between two use values is an external relation, whereas exchange between a commodity and money is an internal relation. The same would go for persons including the owners of commodity and money. Close friends from childhood on may resemble each other and become alter egos.

Relations as external powers create ‘weak ties’ or loose social relationships, whereas relations as internalized powers give rise to strong ties or dense social relationships. Dense relationships are neither easily established nor easily broken off. Moreover they need to be maintained and reproduced with time and resources. By comparison, the strong version of MI, as it takes individuals as atoms ontologically or methodologically, excludes not only internal social relations but also external social relations. The weak version of MI seems to accept external relations but not necessarily internal relations.

External and internal relations may well correspond to ‘*relations-as-connections*’ and ‘*relations-as-wholes*’, respectively (Elder-Vass, 2007, p. 464). Moreover, internal relations are similar to ‘constitutive entanglement’ in that it is distinguishable from mere interaction or ‘mutual reciprocation’ (Orlikowski, 2007). However, the former, unlike the latter, rules out complete fusion between A and B (Elder-Vass, 2007c, 2008, p. 294).

Moreover, **internal relations can be connected with multi selves and interdependent selves** (discussed in the previous section). In this regard an interpretation of the physicist Bohr is illuminating (Barad, 2003, p. 815).

phenomena are the ontological inseparability of agentially intra-acting “components”. That is, phenomena are ontologically primitive relations-relations without preexisting relata. The notion of intra-action (in contrast to the usual “interaction”, which presumes prior existence of independent entities/relata) represents a profound conceptual shift. ... More specifically, *agential separability* is a matter of *exteriority (material/discursive) within phenomena* (Barad, 2003, p. 815., 825).

Third, becoming internally related does not mean that two related persons or things lose **their identities**. Not only A_s or A_b and A_s or B_a are different from A and B but also A_b and B_a are different from each other. Their identities often find expressions in asymmetry or in hierarchy. According to and critical realism, most social relations are hierarchical in that they are based on uneven distribution of positions and resources (Lewis, 2000, p. 258). Moreover, some relations are asymmetric.

Commodity as relative value form is active in that it expresses its value in money, while money as equivalent form is passive in that value is expressed in it. For this reason, the position of commodity (producer) is different from that of money (owner). In this regard, their relationship is asymmetric. It is analogous to the distinction between loving and being loved (Aristotle, 1966, 1168a; Smith, 1776, p. 407). Since commodity and money are equally permeated with value, exchange relation or value relation between commodity and money is a dialectical combination of equality and inequality or asymmetry.¹³

¹³ Tversky found such an asymmetry in similarity relation (Tversky, 1977). To elaborate, suppose that there are three agents A, B, C. Among them there may arise three dyadic relationships (3C2). That is, A-B, B-C, A-C. However, if there may be an order or a hierarchy in pairing, there may well be six dyadic relationships (3P2). That is, A-B, B-A, B-C, C-A, A-C, C-A. Or A-B may contain a pair of asymmetric relationships $A \rightarrow B$ and

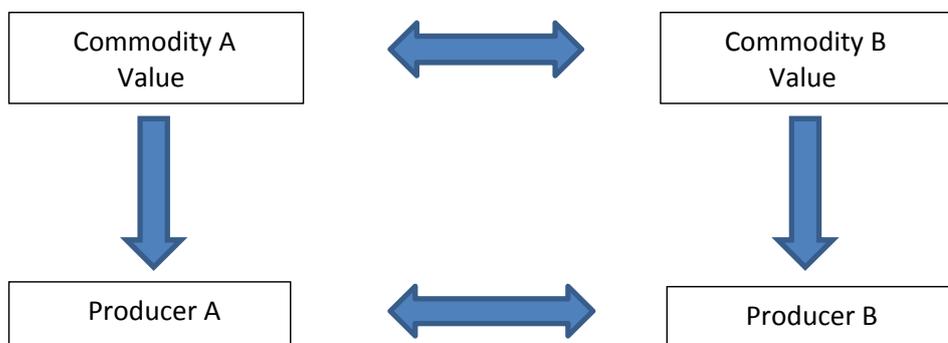
Fourth, relationships such as A-B, B-C and A-C can become connected with each other, for instance, through transitivity. Moreover they may **combine** to create a compound relation or a subsystem which is irreducible to its constituent relations. Class relations and exchange relations combine to create a capitalist system. SR would encompass both weak ties or dense relationships and strong ties or loose relationships. Dense relationships, unlike loose relationships, **are either intertwined with, or combined with, other relationships or embedded in, or mediated by, a collective.**

Fifth, SR is taken to be not personal but impersonal, which accounts for the fact that it is represented by social positions (Faulkner & Runde, 2013, p. 804). Specifically for Marx, it is objectified and materialized, as they are mediated by commodities and money. In particular, exchange relations are primarily relations between things and, only secondarily, relations between persons. Commodity fetishism is understood as the extreme form of materialization of persons (*Verdinglichung*).

To the latter, therefore, the relations connecting the labour of one individual with that of the rest appear, not as direct social relations between individuals at work, but as what they really are, material relations between persons and social relations between things (Marx, 1867, p. 73).¹⁴

But, as we have seen, relations alone cannot cause anything; we need a combination of both the relations and the things related in order to produce a causal effect. And when a combination of relations and the things have an emergent causal power- a power that the things related would not have without the relation- then that combination is an entity in its own right (Elder-Vass, 2008, p. 293).

In a sense, Marx objectified or materialized Kant's sociality by means of his concept of value. A person becomes a citizen by means of his commodity becoming a citizen of a capitalist city of commodities. By being validated a commodity becomes a citizen which, in its turn, qualifies its owner as a citizen. On this ground a particular commodity and therefore a particular person as its owner are individual and at the same time social, and capitalistically social in a capitalist society.



However, we must allow for **personal or informal** relations as well as impersonal or formal relations. Formal relations and informal relations not only coexist and become intertwined but also interact in

B→A. A→B and B→A could be A-B as is looked at from the viewpoint of A and from the viewpoint of B, respectively.

¹⁴ Den letzteren daher erscheinen daher die gesellschaftlichen Beziehungen ihrer Privatarbeiten als das, was sie sind, d.h. nicht als unmittelbar gesellschaftliche Verhältnisse der Personen in ihren Arbeiten selbst, sondern vielmehr als sachliche Verhältnisse der Personen und gesellschaftliche Verhältnisse der Sachen (Marx, MEW 23, S. 87).

many cases. More seriously the former and the latter can generate each other. Most formal organizations or systems are not self-sufficient but dependent on informal associations or personal relationships which come into being spontaneously within themselves (Selznick, 1947, pp. 26-27). For instance, in a firm, employees will be assigned formal positions and roles as defined by its bureaucracy. However, these formal positions very often require personal relations and informal teamwork for their proper enactment and reproduction.¹⁵

Some scholars go so far as to advocate community which is based on informal organizations as a third organizational mode in addition to market and hierarchy. Admittedly, community enhances trust and enables bureaucracy in the forms of relational contracting, high-trust hybrids (M-form, keiretsu-type) or clan (Adler, 2001, pp. 217-219; Diefenbach & Sillince, 2011. p. 1517). Informal relationships are more prevalent in East Asia (Herrman-Pillath, 2010).

Modern theories about SR include critical realism, relational models theory, theories about reciprocity, social capital, network theory. **The primary task is how to conceptualize SR without reifying them. This seems to call for resolving three issues: (a) whether or not SR is reducible to individuals; (b) whether or not social structure is reducible to SR; (c) how to accommodate choices over relationships on the part of agents.**

As to (a) a more constructive accommodation of supervenience may lead one to accept ontological individualism and at the same to reject methodological individualism. The net result would be ‘nonreducible individualism’ (Sawyer, 2002, 2004). On this view sociality which supervenes on individuals exerts its own causal power as shown in the following diagram (Sawyer, 2003, p. 208). ‘Social properties’ mentioned here can be translated into social relations or collectives.

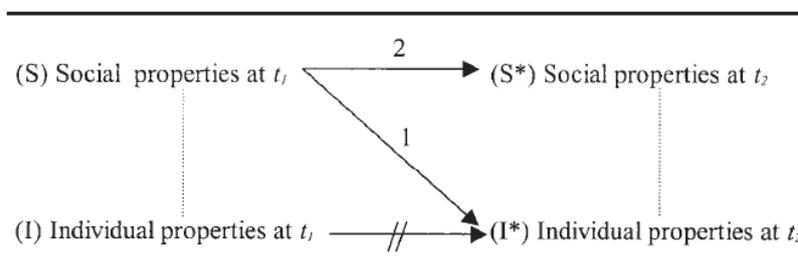


Figure 1: Social and Individual Causal Relations
NOTE: t = time.

As to (b), according to Transformational Model of Social Action of critical realism, socioeconomic agents not only reproduce, but also transform, the given SR into which they are born (Lawson, 2006; Mäki 2011). One may subscribe to the argument that social actors constitute efficient causes, whereas social structure constitutes material causes is to be considered (Lewis, 2000, p. 264). Among several versions of critical realism, the emergentist perspective as advocated by morphogenesis/morphostasis approach seems to be more promising (Archer, 1995).

¹⁵ Especially, family ties (in family-owned or family-managed firms), regional ties, school ties or religious ties are informal and personal. Alumni associations and relationships formed on the basis of school ties are informal and personal and they have been interacting with formal organization and impersonal relations.

Retaining stratified social reality, this approach suggests three phases: structural conditioning; social interactions; social elaboration. Structural conditioning is governed by social structure which has been established by past generations of people and thus preexist present agents. Social interactions between present agents reproduce social structure. Social elaboration which corresponds to transformation takes place due to unintended consequences of their social interactions. This approach may need to encompass diverse aspects of structure such as empirical regularities, properties, relations and embodiment in order to attribute ontological status to social structure (Elder-Vas, 2007a, 2007b, 2008).

This is the principle that *if* we explain a causal power in terms of (i) the parts of an entity *H*; plus (ii) the relations between those parts that pertain only when they are organized into the form of an *H*; *then* because we have explained the power in term of a combination- the parts and relations-that exists only when an *H* exists, we have not eliminated *H* from our explanation (Elder-Vas, 2007a, p. 30).

if we want to explain the causal effectiveness of a particular emergent property or a power, we need to identify a number of different structural elements: *the whole* to which it belongs, the kinds of *parts and relations* that make up this kind of whole, and the *mechanism* by which these parts and relations combine to produce this *property* (Elder-Vass, 2008, p. 285).

As to (c) it may be necessary to offer mechanism by which SR is transformed as it is reproduced (Pratten, 2007). For this purpose it seems desirable to take into account the role of agents' choices. We can define social relationships as particular cases of SR and conceive of them as objects of choices. It is true that employment relation exists independently of an individual's will or interests, but she has some freedom to choose with which firm he will have employment relationship. Moreover, the alleged resurgence of East Asia encourages us to encompass both informal and cultural aspects of social relationships.

Allowance for choice over relationships does not preclude emergence of a new social relation out of an accumulation of chosen relationships. Additions or substitutions of new relationships to the given system, if accumulated, may transform social relations and social structure. Moreover **it is necessary to discriminate between choices over relationships and choice over goods and resources**. At least there is no reason why choices over relationships follow the dictates of rational choice and NC's equilibrium. In view of these considerations, **Allan Fiske's relational models theory (RMT)** could be relevant (Fiske, 2011).

RMT offers the typology of four elementary social relationships: communal sharing, authority ranking, equality matching and market pricing. They are governed, respectively, by the principles of: unity (what people have in common), hierarchy (ordered differences), equality (additive imbalances) and proportionality (ratios) (Fiske, 1992, Fiske 2004, Rai & Fiske, 2011). RMT argues that people maintain a set of interdependent long-term relationships with others, as is exemplified by kinship. Complementarity among relationships within system would be enabling as well as constraining.

Clearly spouses', friends' and lovers' relationships are interdependent; parents' relationships with their various children are interdependent; and sellers' and buyers' relationships are interdependent. ... people have ... *models* of how social relationships must, may, or must not be *combined*. ... the joyful, permissive grandfather-grandchildren relationship is actually constituted by the combination of two interlinked parental relationships (Fiske, 2011, p. 2).

Due to endogenous changes or by exogenous shocks, people may break off an old relationship and enter into a new one. But crucial for RMT is that they do it subject to the condition that it is **compatible with their systems of established relationships**. Addition or substitution of a new relationship should not damage the identity of the given system of relationships and it is more enabling. Thus choices over relationships are **constraint (and enabled) by the established system of relationships more ultimately than** by one's resources. In contrast, since, for NC, choices over relationships (as well as over goods) are made for the short-term goal of obtaining maximum utility (or profits), they are primarily constraint by one's resources (and price). Moreover, RMT highlights interdependence or complementarity between relationships and, as an extension, on complementarity between goods and resources. To the contrary, NC emphasizes substitutability between goods and between resources and, as an extension, on substitutability or independence between relationships.

4. Independence among Goods versus Interdependence among Goods

NC attributes **independence** not only to human beings but also to goods and factors of production. It endorses the view that a given economic entity or phenomenon is decomposable into its constituent parts or its "atoms" for scientific analysis. Thus it divides and subdivides human desires or needs into its smallest unit as long as it is compatible with price mechanism and rational choices.¹⁶ On this view, classifications of goods into food, clothing and shelter (common sense), into wage basket (classical economists) or into social primary goods (Rawls) are too broad to be appropriate.

This is due to the fact that NC is embedded in logical atomism. Logical atomism is reductionism which states that a system can be regarded as an aggregate decomposable into parts and their properties by 'meeting four conditions: inter-substitution, size scaling, decomposition/reaggregation and linearity' (Wimsatt, 2000, 2006). As contrasted with emergentism it excludes '*a system property which is dependent upon the mode of the organization of the system's parts*' (Wimsatt, 1997, S373).

Logical atomism can be traced back to Democritus (Barad, 2003, pp. 812-813). Moreover, in capitalism individualism and individuation are intertwined with 'abstraction involved in technological production' and with instrumental rationality which brings about 'an understanding of reality in terms of decomposable and separately controllable components' (Knorr Cetina, 1997, p. 3).

The postulation of individually determinate entities with inherent properties is the hallmark of metaphysical atomism. Atomism hails from Democritus. According to Democritus the properties of all things derive from the properties of the smallest units-atoms- (the "uncuttable or "inseparable"). Liberal social theories and scientific theories alike owe much to the idea that the world is composed of individuals with separately attributable properties (Barad, 2003, pp. 812-813).

Due to this stance NC seems to minimize interdependence between goods objects of choice in utility theory and expected utility theory. First, utility theory allows for interdependence among goods (pizza and cola) comprising a consumption bundle and apparently explains utility in terms of individual goods **plus interdependence between them**. This seems to suggest that utility theory is more sympathetic to the weak MI (as defined above) than to the strong MI.

¹⁶ Individuation and subdivision to the greatest degree may be consistent with NC's other postulates of private property, competition, mobility, marginality, substitution, efficiency and flexibility. This also accounts for the seriousness with which NC addresses the issue of indivisibility of public goods.

On close examination, however, NC leans towards substitutability due to its predisposition in favor of independence in contradistinction to classical political economy. This is evidenced by such notions as marginal rate of substitution or gross substitution (Hicks, 1939, pp. 47-48; Samuelson, 1947, p. 184). For the same reason, the possibility of an *increasing* marginal rate of substitution due to the intervention of a **complementary good** has been downplayed with little justification (Ross, 2005, pp. 98-99).

The time is ripe for a fresh, modern look at the concept of complementarity. ... The simplest things are often the most complicated to understand fully (Samuelson, 1974, p. 1255).

While the usual consumer theory allows for some degree of interdependence among goods of a consumption bundle, expected utility theory assumes independence among components of a prospect from the start. Components of a prospect (a bond and a lottery) correspond to goods of a consumption bundle (a pizza and a bottle of cola). It is Allais paradox that demonstrates that the independence axiom as advocated by Savage and Samuelson is untenable due to complementarity involved in a prospect (Allais, 1953; Kahneman & Tversky, 1979, pp. 256-266). Allais argues that components of a prospect are interdependent upon each other as much as are goods comprising a consumption bundle.¹⁷

Problem 1: Choose between			
A: 2,500 with probability	.33	B: 2,400 with certainty	
2,400 with probability	.66		
0 with probability	.01		[82]*
Problem 2: Choose between			
C: 2,500 with probability	.33	D: 2,400 with probability	.34
0 with probability	.67	0 with probability	.66
			[17]
	[18]		

Consumption independence and utility independence are often violated in riskless choices. In the following experiment each option is made up of five meals as its components. NC would assume that components are independent from each other. However, people violated independence in order to spread nice meals in a sequence over the time period (Frederick et al., 2002, p. 357, 364).

¹⁷ This lack of coherence may be justified by the difference between a consumption bundle and a prospect. Goods of a chosen consumption bundle will be consumed almost with certainty, which makes it difficult to rule out interdependence between goods. By comparison, only one of the probable components of a chosen prospect will be actually realized. This may encourage one to presume no interdependence at least ex post. However, Allais did not agree on this.

first weekend	second weekend	third weekend	fourth weekend	fifth weekend	
<i>Option A</i>					
Fancy French	Eat at home	Eat at home	Eat at home	Eat at home	[11%]
<i>Option B</i>					
Eat at home	Eat at home	Fancy French	Eat at home	Eat at home	[89%]
<i>Option C</i>					
Fancy French	Eat at home	Eat at home	Eat at home	Fancy Lobster	[49%]
<i>Option D</i>					
Eat at home	Eat at home	Fancy French	Eat at home	Fancy Lobster	[51%]

Samuelson conceded later, in his paper entitled ‘Complementarity’, that he initially overlooked the importance of complementarity on little ground and that the concept of complementarity is not as simple as it originally appeared to be (Samuelson, 1974). Notably he quoted from Wittgenstein and borrowed from Marx (Samuelson, 1974. p. 1255, 1261).¹⁸

This encourages us to reexamine **NC’s notions of substitutability and complementarity** in broad terms. Basically, as mentioned, NC tends to connect the level and the extent of individuation to price changes **and individuals’ rational choices, and**, in some cases, **to private ownership**. Owing to this tendency, NC’s notions may be too broad in some cases and too narrow in other cases.

First, due to its preoccupation with market process, NC is accustomed to defining the unit of an object without much concern about production process and ecology. However, as it turns out, concerns about the ways how products are made and about the impact that they have on environment, unlike commercial concerns, require analyses into their components and ingredients below the conventional unit of a good.

Relatedly BE attributes imperfections in cognition to **multidimensionality and incommensurability of goods** (Tversky, 1972). BE argues that the dimensions or aspects of an object cannot be homogenized into a quantity called utility. A car can be properly specified by its various dimensions such as: price, size, design, color, space, air-conditioner, energy efficiency, resale value. Advertisements focus on impacting cognition and evaluation on the part of consumers by means of highlighting specific dimensions of a product. Therefore defining goods as carriers of utility does not help examine the effects of advertisements.¹⁹

¹⁸ His procedure of coming up with money metric utility function was misleading in the sense that in spite of his quotation of Marx’s money fetish he went in the diametrically opposite direction to that in which Marx had gone. Although, in general, NC reduces money to goods and services, and then it reduces goods to utility, it does not reduce money immediately to utility, as Samuelson did. But it was not only in contrast with Marx but also in consonance with NC that he was consistent in stripping concepts of their meanings and distinctions. This seem to explain why it was introduced in Varian (1978, pp. 108-110).

¹⁹ It is to be added that specifying a good/resource in terms of its dimensions does not entail its decomposability into its dimensions, although a neoclassical hedonic model does presuppose it. In an analogous way, a resource may have to be specified in terms of its dimensions as well as in terms of profits it

Second, while some products are subject to the process of decomposition or subdivision, other products are, conversely, undergoing **the process of being packaged or combined into** new products. For example, computers and mobile phones have been transformed into multifunctional compounds by means of getting combined with other independent products. Overall evolutionary process of innovation brings about substitution, subtraction and subdivision, on the one hand, and complementation, addition and combination, on the other.

Third, the dichotomy between private goods and public goods may mislead us to overlook a range of indivisible goods and resources which fall between the two extremes. The dichotomy stems from NC's adherence to markets and individuals as counterpoised to the government. Relaxation of this adherence would allow us to take into account nonmarket mechanisms and interdependent self (as was discussed in the previous sections). This introduces relational goods and social/collective goods as well as common resources and club goods or toll goods (Bourdieu, 1986; Ostrom, 2010, pp. 644-645). **Relational goods and collective goods can be defined as goods which serve to maintain or to facilitate human relationships or associations.** Food and tables are defined as relational goods as they serve to maintain *quanxi* or family ties.²⁰ Therefore these goods are neither divisible nor individual.

In similar vein, Uber and Airbnb could stand for the advent of the sharing economy despite NC's expected allegation that they reflect subdivision (cf. Schor, 2016). The reason is that, once ownership and usufruct are distinguished, the extent of **divisibility** of a good/resource in terms of its physical properties or in terms of ownership does not correlate with the extent to which it is **shareable** in use.

This suggests that divisibility, independence and substitutability of goods are not entirely determined by their technical nature or by their prices and income level, but also determined by the sociocultural identity of humans. To illustrate, the same dishes of food are conceived as private or relational or social, depending on whether they serve as meals for a solitary man or for two colleagues of a firm or for a group of church goers. Moreover, they are designed in different forms for different purposes.

BE offers more ground to argue for complimentary between goods and resources. BE makes it explicit that **NC's rational choice presupposes not only (perfect) substitutability among goods but also (perfect) fungibility of money.** Fungibility stands for versatility of money among diverse uses. Substitutability and fungibility are related to goods and money that constitute the two poles of the same exchange which bring movements of goods and money into operation.

On the one hand, endowment effect which BE advocates as the divergence between willingness to pay and willingness to accept places restraints on substitutability between goods as well as on mobility and competition among agents, and ultimately on transactions (Kahneman et al., 1990). On the other,

may create. This idea harks back to linear consumption model à la Lancaster and has some affinity with classical economists and Marx. Moreover, it seems in line with Polanyi's emphasis on substantive economies in distinction from formal economies (Polanyi, 1977).

²⁰ These goods can be defined in two different ways. The existing literature tends to conceptualize relationships and associations themselves as goods. This definition seems to treat relationships as if they were usual goods. It assumes that human relationships produce utility on an equal footing as refrigerators do for the individual in question. This definition does not view relationships as being fundamental to humans. Adopting the opposite view, this paper defines relational goods as actual goods (food and gift) which serve to reproduce human relationships. This second definition places relationships on a higher plane as ends than usual goods as means.

mental accounting reduces fungibility by making consumers more rigid about switching money from one category (children's education) into another (wine) (Thaler, 1999).²¹ In this way mental accounting places limits on utility/profit maximization and freedom of choice and increase complementarity among goods, even when perfect substitutability is assumed to hold true.

NC tends to construe **substitutability and complementarity** as being opposed to each other. But substitution and complementarity seem amenable to dialectical combination if they incorporate historical, social and technological aspects of goods besides income constraint. To illustrate, an apartment house and a mid-sized car are symbolic of a typical urban family. A house and a car are complements to each other, as they combine to assign the status of middle class to their owners. At the same time economic agents can substitute a larger house for a smaller car (or vice versa) for the purpose of maximizing their utility. In this regard, the two goods are substitutes for each other.

It is to be reminded that they make their choices not only within their usual price/income constraints but also within the range imposed by their middle class norms. **In broad terms, a system of needs and a system of use values go together.** Thus a house and a car are equally qualified to be complements as well as substitutes. It involves qualitative aspects as well as quantitative aspects.²² Moreover, a new product becomes part of the system of needs after it goes through the dynamic process comprising innovation, competition, imitation and emulation on the part of consumers as well as on the part of producers (Veblen, 1899; de Vries, 2008, pp. 48-50). This process is not amenable to the distinction between complements and substitutes. Moreover, this goes beyond the domain of parametrized optimization and rational choice.

BE's argument that choices and decisions are specific to contexts levels a more serious critique at logical atomism which is formulated as a variety of axioms of independence in NC. In concrete terms, value of an option is not independent of alternative options that are arranged to be compared with it. It is evidenced by such phenomena as asymmetric dominance, extremeness aversion, contrast effect (Tversky & Simonson, 1993).

Let us illustrate **asymmetric dominance** in the situation where consumers are asked to choose one out of two computers A and B. If neither of them is dominant over the other in terms of two dimensions of price and capacity, the consumers will be evenly attracted to the two. Proportions of choices over A and B may turn out to be, say, [0.5, 0.5]. Now they are asked to consider C in addition to A and B. If C is dominated by B but not by A, then they will be more attracted to B than to A. As a result proportions of choices over A, B, C are very likely to change into, say, [0.35, 0.6, 0.05].

²¹ While perfect fungibility coheres with NC's definition of money as numéraire, mental accounting apparently rediscovers the entity of money as distinct from goods.

²² For a historical example, in the Japanese history of consumption, the Japanese rice has competed with other crops and other types of rice in terms of price and income. But it has also defined 'modern' life styles of consumers, as it has been combined with other Western side dishes and has gone hand in hand with home appliances (Franks, 2007).

Problem 1: Choose between
 x[150k, 1,500\$], y[100k, 1000\$]
 Problem 2: Choose between
 x[150k, 1,500\$], y[100k, 1,000\$], z[130k, 1,600\$]
 z is dominated by x, but not by y

As this anomaly arises even if they are not interested in C, it deviates from the independence of irrelevant alternatives. Moreover, it violates the postulates of **proportionality and regularity** which represent rationality in value maximization. Overall this anomaly endorses the view that alternatives are very often evaluated **contextually and relationally** even in the situations in which complementarity between alternatives is ruled out (McGraw et al., 2003). This calls for reexamining NC's practice of decomposition. Commonsensical and classical classifications such as food/clothing/shelter, wage basket, basic goods, social primary goods, a package of goods can be useful for some purposes and they draw more on complementarity than on substitutability.

At this point it is tempting to draw links between discussions about (i) and those about (ii). Actually, **independence or interdependence of goods** may arise from, or go hand in hand with, **independence or interdependence of human beings**. In concrete words, independent goods are designed to produce (more) utility if they are consumed independently of other agents or independently of other goods. In like manner, interdependent goods produce (more) utility if they are consumed together with other people (a menu for two people) or they are consumed in combination with other goods (a prefixed course of foods, a package or a combination of usual tourist items). It comes as no surprise that the **more reliant are the economies (e.g., as in East Asia) on interdependent selves and social relationships, the more prevalent are relational or social goods**.

Ontological and methodological individualism are often construed as being typical of rationality that the Westerners have conceptualized and acted on (Gigerenzer, 2000, p. 201). Moreover, logical atomism underlying NC is representative of **the Western way of analytical** thinking which proceeds on the basis of formal logic. In contradistinction, **the East Asian way** of thinking is contextual and holistic on the basis of dialectical logic. Hegel and Marx who advocate dialectics make exceptions to the Western way (Nisbett et al., 2001; Tao & Brennan, 2003). The concepts of ego (discussed in the previous sections) can be connected with the distinction between the Eastern and the Western ways of thinking via dual system theory (Markus & Kitayama, 1991; [Varnum et al, 2010](#); Chang et al., 2011). Consequently they can broaden the basis for comparison between East and West

5. Independence between Agents and Goods versus Extended Self

NC takes it for granted that choice situation is a simple aggregate of elements such as agent, goods, preference, constraint and price. This implies that NC rules out interdependence among these elements. Especially, NC has no reason to allow for possible interdependence or long-term relationships between an individual (as subject of choices) and goods (as objects of choices). As a corollary, it presumes independence between preference and constraint. Seen from NC's viewpoint, it

would be absurd to conceive of emergence out of relationships between agents and goods or between persons and things.

5.1 Extended Self

This assumption that **preferences and constraints** are independent of each other has rarely been explicitly stated, presumably because it has been taken for granted.²³ Preferences capture consumers' tastes and beliefs, whereas constraints are determined by their endowments or incomes and prices. In common parlance, this independence means that rich people may like to eat instant hamburger, even though they have rarely tried it before. In parallel, poor people may like caviar, although they have never been able to afford it.

However, purchase of a copy brand could be construed as a violation of this independence. **At first blush this choice** can be defended as rational because the copy brand lies within one's income constraint. Moreover, NC would claim that utility can spring not only from its practical use but also from social status which is associated with the copy brand, and that there is little point in distinguishing the first type of utility from the second.

However, this may be the case where income constraint distorts preference. Even though the consumer did not go beyond his income constraint, the purchase is irrational in that he favored the copy brand over the more useful product under the influence of the expensive brand which lies beyond his income constraint. In this regard, he is thought to have chosen outside his income constraint as well as within it. Therefore this brand fetish can be interpreted as a dialectical combination of rationality (A) and irrationality (non-A) and as a violation of the formal logic and the law of excluded middle in particular.

One may go so far as to claim that the consumer unconsciously defies irrationality of the economic system which gives rise to inequality in income and social status. This case is consonant with the argument that people very often hide or forget either their constraints or their preferences in order to avoid cognitive dissonance (Elster, 2016).

What is missing in NC seems to be midfare which lies between taste and income constraint. It may be function and capability à la Sen and Nussbaum (Sen, 1987; Nussbaum, 2003). In order to obtain capability you have to invest time and money. In the process of training capability you very often come to like exercising the capability. For instance, education which requires a certain level of income and effort/time on the part of its beneficiaries fosters not only their capability for reading but also their taste for reading. In this case, taste and capability are not one thing and another. The same may go for hobbies, participation or citizenship.

This has the implication that income constraint and preference are not independent from each other, but linked through efforts and capability. It also follows that income constraint and preference (with the mediation of prices) are necessary but insufficient to explain rational choices. This also surfaces NC's lack of awareness that time is involved in the formation of tastes. Given the time-consuming process of formation of tastes, tastes and constraints are likely to be socially and culturally determined

²³ As revealed preference theory tells us, preference as an economic jargon, is more closely associated with choices than is taste as a common sense term.

and thus to be made interdependent upon each other, along the lines of Marx, Veblen, Baudrillard and Bourdieu.

Interdependent self may encourage not only relationships with other humans but also relationships with goods and things. More specifically, attachment to specific things may entail involvement of **extended self** (Belk, 1988). The concept of extended self can be interpreted as personification of things or of relationships between humans and things. At first glance this seems to contradict Marx's fetishism but materialization of persons and personification of things may coexist dialectically as two poles of the same process in the capitalist society.

Extended self sits comfortably with a number of BE's concepts. Reference dependence, loss aversion, status quo bias, and endowment effect all seem to point towards attachment to a specific product (a house or a car). These concepts result in violation of reversibility, another assumption underlying NC. That is to say, judged from the position of A, marginal rate of substitution between two goods is 2:1, whereas, examined from the position of B, it is, say, 1:1 (Tversky & Simonson, 1993; Drolet et al., 2000). It can be interpreted as attachment an agent comes to have to a thing, once she possesses it, and thus as a reduced form of extended self. In general, **culture** can be read into these concepts (Herrman-Pillath, 2010).²⁴

5.2 Sociomateriality

An object is defined by its functions and its physical aspects or its form in a way that use values were understood by classical economists and Marx. A step further an agent not only interacts with her goods but also internalizes the functions or physical aspects. In broad terms such concepts as '**sociomateriality**', 'object-centered sociality' or 'objet-relations' denote the possibility of close relationships between agents in particular and goods and between persons and things in general (Knorr Cetina, 1997; Faulkner & Runde, 2013; Mutch, 2002).

Part of the epic character of the changes now in the making may have something to do with what I have called "objectualization," an increased orientation towards objects as sources of the self, of relational intimacy, of shared subjectivity and social integration. ... Perhaps some of the relational demands computers and computer programs make on their users, and some of their relational possibilities they offer... can be interpreted this way (Knorr Cetina, 1997, pp. 32-33).

These phenomena which these concepts intend to comprehend transform traditional boundaries among production, consumption or possession. As a result they bring into being a new type of economic agent like 'prosumer. and require a new definition of types of goods. According to these concepts, humans and goods (bicycles) and technological artefacts (Internet or mobile phone) do not exist separately but are in constant interaction. Moreover, new properties emerge out of relationships between agents and goods or between persons and things. Their relationships may be built upon 'constitutive entailment' (Orlikowski, 2007; Barad, 2003).

Scholars here have been working within a *relational ontology*, which rejects the notion that the world is composed of individuals and objects with separately attributable properties that 'exist in and of themselves' (Orlikowski, 2010, p. 134).

²⁴ We can also detect cultural traces in lay agents' understandings and misunderstandings of NC's tenets which arise in the process of diffusion into other regions including East Asia (Hong, 2017).

Phenomena- the smallest material units (relational atoms)-come to matter through this process of intra-activity. That is, matter refers to the materiality/materialization of phenomena, not to an inherent fixed property of abstract independently existing objects of Newtonian physics (the modernist realization of the Democritean dream of the atoms and the void) (Barad, 2003, p. 822).

6. Independence between Prices and Social relations versus Social Norms

6.1 Use Value and Exchange Value

Use value and exchange value are qualitative categories which classical political economy utilized. While NC thinks of both use value and exchange value or money as being reducible to utility, recent studies of BE seem to provide some grounds for the revival of these categories. BE may be construed as advocating use value and exchange value as dimensions of a good, lending partial support to Smith, Marx and Menger.²⁵

The hypothesis relevant in the regard is that agents place a different vector of weights on dimensions of a good, depending on which capacity they take over. That is, dimensions which consumers place more weight in the capacity of buyers differ from those on which they do in the capacity of sellers (Amir et al, 2008). When people intend to buy a good, they focus more on its expected utility. When they intend to sell a good, by contrast, they are more likely to take into account prices of similar products.

Given this background use value and exchange value can be reinterpreted as two incommensurable dimensions of a good or as two heterogeneous sets of dimensions of a good. In case of a car, exchange value is estimated by the set of dimensions: [price, prices of similar products, resale value], whereas use value is represented by the different set of dimensions: [size, color, design, air-conditioner]. The two sets of dimensions can be connected to **market norm and social norm**, respectively, which motivate agents in different ways.

NC views **money** as being reducible to goods and services. This view underlies Samuelson's money metric utility function in particular and NC's notion of money as numéraire or as a medium of transaction in general. However, a few lines of BE's research refute this view and rediscover the significance of money.

Mental accounting and pains of payment can be interpreted as grounds for people's attachment to money. Flat rates, package commodities or preset menus (including the Japanese style *omakase*) which are designed to reduce pains of payment offer concrete evidence (Thaler & Sunstein, 2008). Moreover agents are found to obtain not merely indirect utility, but also **direct utility, from money** (Camerer et al., 2005, pp. 35-37). They react to stock returns themselves rather than to utility expected from goods and services that can be purchased with them. Furthermore they are sensitive to nominal dimension of money in confirmation of money illusion, not to say, money fetish (Shafir et al., 1997). This seems to imply that people think money to be categorically different from goods. These points

²⁵ While Jevons dissolved the concepts of exchange value and exchange into utility, Menger retained the concepts of use value and exchange value but reformulated them into two forms of value (with no contradiction between them) by means of his subjective theory of value (Hong, 2000).

serve to reconsider NC's view of money and to conceptualize the entity of money as being irreducible to goods and services.

6.2 Market Norm and Social Norm

NC tends to highlight magnitudes, ratios and proportions including prices in disregard of relations (Marx, 1967; Fiske, 1992). However, relationships between humans and between things impose limits on ratios and prices which may come into being among them. Moreover, these relationships channel agents' behaviors and decisions into specific directions and create discontinuity in their reactions to changes in prices. Thus they exert power over transactions and market prices.

Individual agents and independent selves react more **to market norm**, whereas interdependent or relational selves are more sensitive to **social norm**. The two norms can be distinguished by **commodification or commensuration** (of babies, kidneys, mountains, negligence or friendship). According to BE, market norm and social norm can be detected in people's reactions to prices. Furthermore, social norm as distinct form market norm is thought to be activated by qualitative aspects of prices as distinct from quantitative aspects of prices. These findings corroborate the significance of prices as quality or category.

For example, imposition of a new fine on late pickups of kids at a kindergarten is tantamount to a switch from social norm to market norm. This switch should be differentiated from a rise in the existing fine (Gneezy & Rustichini, 2000). From the viewpoint of an advocate of social norm, breach of a code of conduct requires a prohibitive price. Another example is putting a price on a nearly free good (a candy or a pencil). This also signals a movement from social norm to market norm (Shampanier et al., 2007).

	Self	Norm	Price
Neoclassical	Independent	Market Norm	Quantitative
Behavioral	Interdependent	Social Norm	Qualitative

Table 4 Self, Norm and Price

This calls for modification of NC, **as it tends to lay one-sided emphasis on independent self, market norm and quantitative aspects of prices**. To elaborate, NC focuses on price level of a good or a thing and changes in its price. This standard quantitative issue is not to be identified with the qualitative issue whether or not a thing has a (zero) price. While the former falls within the domain of market norm, the latter has to do with crossing the borderline between market norm and social norm. Conflation of price changes with changes in norms results from the mistaken identification of the economy or the entire socioeconomic system with the market itself or from lack of distinction between social norm and market norm.

It should be added that even in the situations where market norm prevails economic agents have the tendency to transform quantities into qualities or into categories. They often misinterpret continuous price changes as discontinuous or categorical. A price change from 90 dollars (a two-digit number) to

100 dollars (a three-digit number) could be felt to be discontinuous in distinction from a price change from 80 dollars to 90 dollars (Kahneman & Tversky, 1979).²⁶

6.3 Externality

NC tends to explain external economies (innovation) and diseconomies (pollution) with no mention of internal economies or diseconomies (Varian, 1978, chapter 24). But it is obvious that the internal and the external with respect to economic or noneconomic entities and phenomena cannot stand without each other. The reason why NC does not mention internality is that NC takes internality for granted and natural, while it takes externality as unusual. This means that the distinction between **internal and external is not neutrally specified but** depends upon the way how socioeconomic systems are conceptualized.

For NC, it is **price mechanism and rational choices which draw the line** between internal and external. In concrete terms, an economic activity or an economic effect is judged to be internal if it is taken into account both (a) in market prices and (b) in choices and decision-making on the part of economic agents. If price mechanism and rationality are not upheld as seriously as by NC, social, legal, ecological, cultural, psychological factors should be treated neither as residual nor as external to the market system but as unavoidably internal to a socioeconomic system. Pollution, education, innovation may be external to market system and to instrumental rationality but it has to be endogenized into a larger socioeconomic system.

Moreover, NC seems to view (a) and (b) as being equivalent in the sense that a factor being reflected in the price of a good amounts to its being considered in decision-making by agents. Analogously but in the opposite direction, a factor is treated as external if it is neither included in prices nor considered in decisions. Put simply, its internality or externality depends entirely on whether it is internal, or external, to the market system. On NC's view, judgment about internality or externality on the basis of (a) is assumed to correspond one-to-one with judgment about it on the basis of (b).

However, once NC's identification of (a) and (b) with each other is disavowed, there arise cases where externality in terms of (a) is compatible with internality in terms of (b) such as home cooking. As BE points out, externality in terms of (b) goes together with internality in terms of (a) on NC's own ground. Although prices are flexible enough to contain basic information necessary for choices, humans may be not rational enough to utilize all the information which is contained in prices. As a result, some information remains external to the decision making of agents.

The coexistence of three types of self must alter NC's boundary between market domain and social domain. An activity which is external to an independent self could be internal to a relational self or to a collective self. More specifically, suppose that households, firms and other organizations coexist as autonomous units in the market system. Then an activity or cost/benefit accompanied with it which is external to individuals may be internal not only to these organizations but also to the market system and to the economy. Thus the activity will be reflected in a price even if it is external to an individual.

²⁶ This problem of cognition can be generalized to cover not only changes in prices but also changes in quantities such as probability, temperature, time, grades. People are prone to be sensitive to a change from nonexistence or zero to existence or plus and to a change from less than full to full. In particular, people exaggerate the same degree of change in probability either if it is a change from zero (possibility effect) or if it is a change to one (certainty effect).

Furthermore, an activity may be **both internal and external to a multi-self or to a structured whole**. A devoted employee of a firm may identify a fall in sales of the firm more as a loss to the firm than as a loss for herself. In general, what may be external to the Anglo-Saxon model of capitalism could be taken as internal to other models of capitalism.

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