The Metaphysics of Economic Exchanges

[penultimate draft, shorter version to appear in *the Journal of Social Ontology*]

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"what is really exchanged, whether a commodity intervene or not, are mutual services."
A. L. Perry, *Elements of Political Economy*, 86.

Abstract What are economic exchanges? The received view has it that exchanges are mutual transfers of goods motivated by inverse valuations thereof. As a corollary, the standard approach treats exchanges of services as a subspecies of exchanges of goods. We raise two objections against this standard approach. First, it is *incomplete*, as it fails to take into account, among other things, the offers and acceptances that lie at the core of even the simplest cases of exchanges. Second, it ultimately fails to generalize to exchanges of services, in which neither inverse preferences nor mutual transfers hold true.

We propose an alternative theory of exchanges which inverts this order of explanation. That is, it treats exchanges of goods as a special case of exchanges of services. Further, it builds in offers and acceptances. According to this theory: (i) The valuations motivating exchanges are *propositional* and *convergent* rather than *objectual* and *inverse*; (ii) All exchanges of goods involve exchanges of services/actions, but not the reverse; (iii) Offers (i.e. conditional promises) and acceptances, together with the obligations and claims they bring about, lie at the heart of all cases of exchange.

Economic exchanges are fundamental economic phenomena, so much so that economics, standardly defined as the study of the allocation of scarce resources (Menger 1976, p. 77-113; Robbins 1984, p. 12-15), is sometimes alternatively defined as the science of exchanges, also called "cattalactics" (Bastiat 1996, p. 59; Buchanan 1964, p. 213-222;

Buchanan 2001, p. 27-32[1]). Given the centrality of the concept of exchange in economics, it is surprising how little attention has been paid to the nature of exchanges. Economists have extensively studied the conditions in which exchanges occur and the role that exchanges play in the determination of prices and equilibria. In collaboration with philosophers, they have assessed various normative issues pertaining to exchanges, such as the positive and negative externalities they bring forth, the irrationality of some exchanges, or the potential ethical issues raised by certain species or conditions of exchanges, such as asymmetries in bargaining power.

Surprisingly, however, historical and contemporary economics literature rarely addresses what exchanges are. The main exceptions are the early Austrian marginalists, who, insightfully if rather briskly, explicitly stated the account of exchanges that economists appear to implicitly rely on. However, in most textbooks the nature of exchanges is just assumed to be intuitively clear, and accounts of exchange-value, prices, efficiency, partial equibrium, etc.[2] are then developed on the basis of a pre-theoretical grasp of exchanges. For economic purposes, a pre-theoretical understanding of exchanges has proven amply sufficient. Our goal in this paper is nevertheless to develop a precise theory of what exchanges are. We want to highlight that, although we shall argue that the conception of exchange tacitly assumed in economics is misguided, we do not think that the various economic advances made on its basis are thereby flawed. As far as we can see, although standard microeconomics relies on a flawed conception of exchanges, it can easily be rephrased in terms of the theory we propose. The reason is that most economic theorizing does not in fact depend on a fine-grained and complete theory of exchange, and different accounts of exchanges can be plugged in.

Why then bother about the real nature of exchanges, if a clear and complete understanding of the nature of exchanges is supererogatory from the economic viewpoint? Here are two answers. First, getting clear on exchanges is important in itself, irrespective of the consequences this may have for economic theorizing. Exchanges are pervasive social phenomena, and scientists interested in the social world should be eager to get a proper understanding of them. In other words, rather than using exchanges as *explanantia* used to shed light on other phenomena (such as, typically, exchange value, prices), we believe that taking exchanges as *explananda* is an epistemically valuable inquiry.

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[1] Kirzner provides an illuminating historical overview of this proposal in Kirzner 1960, chap. 4.

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[2] It could be objected that standard microeconomics in fact does the reverse: rather than explaining exchange-value and prices in terms of exchanges, it explains exchanges in terms of exchange-value and prices. We submit that this tension disappears as soon as we distinguish the project of explaining *what exchanges are* from the project of explaining *what causes exchanges occur*. One cannot explain what exchanges are by appealing to exchange-value, on pain of vicious circularity (we need to grasp what exchanges are to understand the concept of exchange-value). But one surely can explain why such and such exchanges occur by appealing to exchanged-value of the exchanged items for the exchangers.

Second, as we shall suggest, our proposal, rather than threatening widespread economic theories, may in fact help refine and strengthen some of them. For instance, our proposed theory may help refine the way rational choice theory is applied to economic issues by introducing the distinction between objectual and propositional preferences and spelling out the way they relate in the case of exchanges. Additionally, our theory may help connect price theory with other research fields, in particular legal studies of contract.

To arrive at a proper theory of exchanges, we shall first make explicit the recurring tacit assumptions made about the nature of exchanges across economic textbooks. This will allow us to formulate the standard theory of exchanges. This standard theory, we shall argue, is unsatisfying. We shall then propose an alternative theory of exchanges which, without threatening the important economic advances that have relied on the standard approach, handles exchanges of services more straightforwardly.

In section 1 we present the standard theory of exchanges and raise two worries against it. Section 2 stresses that the standard theory *fails to give a complete description of exchanges*; section 3 argues that the standard theory, being focused on goods, also *fails to give necessary conditions for exchanges*: it cannot account for exchanges of services, which are neither transferred, nor valued inversely. In section 4 we introduce the theory of exchanges we favour, which we call the *action theory*. Section 5 explains how the action theory, modelled on exchange of services, accounts for exchanges of goods. Section 6 compares the action theory of exchanges to the standard theory, and concludes that the action theory fares better in all respects. The appendix assesses one of the few alternative theory of exchanges proposed so far, which we call the *ownership theory of exchanges*.

Outline:

§1 Standard Theory of Exchange (STE)

§2 The Incompleteness of the STE

§3. The Restrictedness of the STE

§4 The Action Theory of Exchanges (ATE)

§5 Exchanges of goods with the ATE

§6 Wrapping up: the ATE vs. the STE

Appendix: the Ownership Theory of Exchange (OTE)

1. The Standard Theory of Exchanges

1.1. The Standard Theory introduced

For simplicity, we shall here focus on exchanges between *two* agents, involving only *two* entities exchanged. For example, what is it for Julie to sell her bike to Paul?

One intuitive answer (which, although rarely explicitly spelled out, is widely shared among economists, as we shall argue below) goes as follows: for Julie to sell her bike to Paul, it has to be the case that (i) Julie prefers Paul's money to her bike, (ii) Paul prefers Julie's bike to his money, and that, in virtue of these inverse preferences, (iii) Julie voluntarily transfers her bike to Paul and (iv) Paul voluntarily transfers his money to her. More generally, exchanges consist in mutual transfers of goods, motivated by the exchangers' inverse valuations of these goods —where by "inverse valuations" we simply mean that each exchanger values the good of the other more than his own.

> ***Standard theory of voluntary economic exchange (STE)***: if A and B exchange their goods x and y, then:
>
> (1) *Inverse preferences*:
>
> (1.1.) A prefers y to x
>
> (1.2.) B prefers x to y
>
> (2) *Mutual transfers*:
>
> (2.1.) A voluntarily transfers x to B
>
> (2.2.) B voluntarily transfers y to A
>
> (3) (2.1.) partly because of (1.1); (2.2.) partly because of (1.2).

The "because" in the last condition is the because of subjective reason: each exchanger's preference *motivates* him to transfer his good. Note that the STE only spells out a necessary condition for exchanges. It is not intended to give the complete story about them.

The STE is meant to be widely encompassing, being true of barters ("direct exchanges") as well as monetary exchanges ("indirect exchanges"). Hence the preferences at stake might be final or instrumental. Presumably, Julie's preference for money is instrumental, that is, she wants money because of its bargaining power; Paul's preference for the bike is, one would assume, not instrumental in this way. Presumably, Paul does not value the bike as a means of exchange.

Most importantly, the notion of "good" (or "commodity") employed in the STE is meant to be very generic: goods include *immaterial* or *intangible* goods as well as *tangible* goods. This distinction between tangible and intangible goods is crucial to the STE because it is meant to account for exchanges of services. To apply the STE to exchanges of services, one just needs to *identify services as a sub-species of intangible goods*. Therefore, a fundamental presupposition of the STE is that goods and services belong to the same ontological category, namely the category of objects (an assumption we shall challenge below).

That exchangeables are material or immaterial goods (the latter of which includes services) is arguably the overarching feature of the STE. For once it is admitted that what is exchanged are the goods of the exchangers, the idea that exchanges essentially involve transfers of good becomes almost irresistible: how could an exchange take place without goods changing hands? And why would such a swapping of goods ever take place if the exchangers were not to value the exchanged goods in inverse fashion? How else are we to account for the motivation to exchange goods if not by these inverse valuations?

This is precisely how the appeal to inverse preferences is justified. The idea is simply that exchanges would not take place in their absence. If potential exchangers were to value goods in exactly the same way, they would never bother exchanging. What is the point of exchanging a one-dollar coin against another, or a bottle of Château Margaux 1982 against an exactly identical bottle? Exchangers are willing to exchange because each exchanger values, *ex ante*, the other's good(s) more than his own. Each exchanger thus expects to be better off after the exchange. Such *ex ante* valuations might prove wrong. Exchangers might regret the exchange: they can be disappointed by the good they received, or the good they have given up might retrospectively appear more valuable to them. Still, agents engage in exchanges because they expect, correctly or not, that their satisfaction will increase as a result.

Although, following the standard contemporary microeconomics, we have equated the states motivating mutual transfers with *preferences*, the core idea need not be expressed in terms of preferences. The STE might be spelled out in terms of "*A* wants/desires/needs/values/likes… *x* more than *A* wants/desires/needs/values/likes… *y*" rather than "*A* prefers *x* to *y*". A preference is a single attitude with a comparative content: *Prefers(x,y)*. On the other hand, *Liking more* and its cognates are pairs of attitudes, each with a typically non-comparative content: *Likes(x) more than Likes(y)*. One might think that preferences are internal relations supervening on monadic attitudes of different degrees, but the STE is not committed to such a reduction (Mulligan 2015). Since the following discussion of the STE and its rivals is meant to hold true whether these views are framed in terms of preferences or of liking more, we shall henceforth ignore this distinction, and use the terms "preferring", "liking more", "valuing more" interchangeably. In the present context, the three essential points about these comparative attitudes are:

(i) that such attitudes be objectual rather than propositional. They target *goods* (*x*'s and *y*'s) rather than propositions or states of affairs (*p*'s and *q*'s)

(ii) that some comparison takes places between these goods (either within the content of such objectual attitudes –*preferences*; or between such attitudes – *liking more*);

(iii) that the valuations of the two exchangers be the inverse of each other, that is, that the good that one exchangers values more, or prefers, is the one that the other exchanges values less, or disprefers.

Thanks to the introduction of inverse preferences, upholders of the STE are in a position to reject two simplistic views of exchanges, which together are often thought to form a dilemma:

- Either exchanges are "exchanges of equivalent", in the sense that the goods exchanged are of equal values (Aristotle, *Nic. Ethic*, V, 5, 1133a, 24), and nobody gains from exchanging.
- Or the goods exchanged are of unequal values, and the profit of one exchanger is the loss of the other (a view often attributed to Montaigne, albeit mistakenly so, see Long, 2008).

One reason why both horns of the dilemma are unattractive is that, if exchanges are necessarily either pointless or detrimental to one exchanger, it becomes unclear why exchanges are so ubiquitous. Once inverse valuations are taken into account, the dilemma turns out to be a false one. Because exchangers value goods in reverse ways, both gain from exchanging. No contradiction is involved since the values motivating exchanges are subjective: in Julie's eyes, Paul's money has more value than her bike; in Paul's eyes, Julie's bike is more valuable than his money. (To anticipate: we shall agree that the dilemma above needs to be escaped, and we shall also agree that goods exchanges are in the end motivated by inverse preferences. But we shall argue in §6 that the fundamental sense in which *all* exchanges —of goods as well as of services— are mutually beneficial is that they satisfy *convergent* rather than inverse preferences of the exchangers.)

The STE is therefore committed to a *subjectivist understanding of the values motivating exchanges*. What prompts exchanges are not the objective values of the goods that are exchanged (for instance, the quantity of labour they incorporate) but rather the exchanger's subjective valuations of the goods at stake. More precisely, it is the subjective value of *an additional unit* of that good to the subject, given what he already possesses —the marginal utility of that good— that lies behind the subject's preferences. Thus the STE is naturally combined with a marginalist approach to economic value.

Additionally, the STE as it stands is compatible with (but does not entail) *methodological individualism*, the view that only individuals think and act. The valuations at stake in an exchange are the individual mental states of each exchanger. Likewise, the two transfers are two *individual* actions. No "we", no sense of "common interest", no "collective intentionality" or "joint action", is required for exchanges to take place.

1.2. How Standard is the Standard Theory?

Few economists, we take it, would readily recognize in the STE the standard economic view of exchanges. A first reason for this may simply be terminological. Instead of "goods" one often finds "commodities", "resources" or even "values"; instead of "transferring" one often finds "ceding", "giving up", "delivering", "selling", etc.; instead of "*S* prefers *x* to *y*" one often finds "*S* values *x* more than *y*", "*x* has a higher (marginal, expected) utility for *S* than *y*", "*x* is better for *S* than *y*", "*S* is willing to give up *x* for *y*", etc.[3].

But the main reason why the STE may not look like a standard piece of economic theorizing is that it is in fact virtually never *explicitly* spelled out in the economics literature. The main exceptions are Austrian economists, who, perhaps because they share philosophers' taste for a priori truths, definitions and metaphysical questions (Smith 1990), have paid explicit attention to the nature of exchanges. To our knowledge the most detailed version of the STE is the one advanced by Menger in his *Principles of Economics*:

> The most general form of the relationship responsible for human trade is therefore as follows; an economizing individual A, has a certain quantity of a good at his disposal which has a smaller value to him than a given quantity of another good in the possession of another economizing individual, B, who estimate the values of the same quantities of goods in reverse fashion, the given quantity of the second good having a smaller value to him than the given quantity of the first good which is at the disposal of A. [...] If, in addition, the two economizing individuals (a) recognize the situation and (b) have the power actually to perform the transfer of the goods, a relationship exists that makes it possible for them, by a mere agreement, to provide better or more completely, for the satisfaction of their needs than would be the case if the relashionship were not exploited. (Menger 1976, p. 179-180).

But, Austrian economists aside, economists generally take the phenomenon of exchange to be obvious enough to constitute an unanalysed *explanans*. In doing so, they nevertheless make a certain number of tacit assumptions about exchanges. The STE, we contend, captures these assumptions.

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[3] Note that our point is only that these expressions are often used interchangeably, not that they should be so used. Mulligan (2015) argues that preferring and liking more are distinct comparative attitudes; Broome (1991, p. 1-12) urges that *having higher utility* and *being better* have different meanings (although it is a substantive question whether they have the same extension).

As we saw, the three core assumptions of the STE are (i) that exchangeables are goods (material or immaterial); (ii) that exchanges involve mutual transfers of these goods; and (iii) that exchanges are motivated by inverse valuations of these goods. We shall now argue that, terminological variations aside, these three assumptions are standardly admitted across economic textbooks.

(i) Consider first the view that exchangeables are *goods* (or bundles, baskets thereof). This assumption is shared not only by Austrians, but by nearly all early neoclassical economists. Walras (1874, p. 70) refers to "commodities" ("*marchandises*"). He insists that exchangeables are commodities, and that these belong to the category of *things*. Following him, microeconomics assumes that trade bears on goods, commodities, or bundles thereof. One clear symptom of this is that the variables of economic formalizations are individual variables (*x, y, z*...), not propositional ones (*p, q, r*...). The preferences appealed to in economic theorizing are objectual preferences (preferring *x* to *y*) rather than propositional ones (*x* prefers to *F* rather than to *G; x* prefers that *p* rather than that *q).* Indifference curves, for instance, are held to represent the possible combinations of two (bundles of) goods between which consumers are indifferent.

Is this objectual approach still true of contemporary microeconomics? This may appear doubtful at first. The theory of markets, as presented in today's advanced textbooks of microeconomics (e.g. Kreps 1990; Mas-Colell, Whinston, Green 1995), is an application of expected utility theory and game theory, which do not presuppose that people's preferences are about commodities. In rational choice theory, preferences bear on choice alternatives, and in so far as microeconomics is now based on it, it is no more object-driven. Or so one might think. But it turns out that, when rational choice theory is put to use to understand markets, economics textbooks revert back to the traditional assumption that commodities are "the objects of choice for the consumer" (Mas-Colell, Whinston, Green, p. 17; see also Kreps, 1990, p. 18-19, Arnold 2015, p. 26). That being said, the fact that contemporary microeconomics relies on rational choice theory, whose preferences are action-directed, is the reason why the action-theory of exchange we shall propose as a replacement for the STE can easily be plugged in standard economic theorizing. Hence our critique of the STE is quite innocuous from the point of view of standard microeconomics: although microeconomics widely assumes a flawed theory of exchanges, it need not do so, given its commitment to rational choice, which is why its key proposals continue to hold, mutatis mutandis, under a better conception of exchanges.

Further, given that services can be exchanged, one direct consequence of the common view that exchangeables are goods is that *services belong themselves to the category of goods or commodities*, albeit of an intangible sort. As amply document by Hill (1999), the view that services are intangible goods is an orthodox position within the history of economics, and it is standardly accepted in contemporary economic textbooks (Varian 1992; Mas-Colell, Whinston, Green 1995, p. 17).

Microeconomics, we granted, does not *need* to rely on the STE. But as a matter of fact it does. Why is that so? More generally, why does economics tend to give priority to goods over services by subsuming the later under the former? One chief reason for this, noticed by Hill, is that economics is often conceived as bearing on *wealth* (itself conceived in terms of possession of goods) and, relatedly, as studying the allocation of scarce resources. Under this conception of economics, the only way for services to be included in its field of inquiry is for them to make a difference in the wealth of individuals (or nations). For this, services need to be seen as *allocatable ressources*, that is, as goods. If, on the other hand, being rendered a service does not consist in being allocated a good, then it does not necessarily make one richer, which led Smith to call service rendering "unproductive labour" (Smith, 1904, Book II, Ch. III). In other words, if wealth and allocation of scarce resources are the focus of economics, then either services have to be equated with allocatable objects —i.e., goods— or they are not of immediate interest to economics. The first option is by now widely accepted, and as a consequence exchanges of services are seen as sub-cases of exchanges of goods.

(ii) Consider, second, the assumption that exchanges involve *transfers* of goods. We noted that this is a very natural view to hold once exchangeables have been equated with goods, and it is unsurprisingly widely accepted. Menger speaks of "mutual transfers" (Menger 1976, p. 177-178); Fischer writes that "An *exchange* consists of two mutual and voluntary transfers, each in consideration of the other" (Fisher 1912, chap 1, §1: 3); more recently, Arnold writes that "Exchange, or trade, is the process of giving up one thing for something else" (Arnold 2015, p. 26); and Rutherford defines exchanges in terms of "The mutual transfer of goods, money or something of value between two or more parties" (Rutherford 2002, entry "Exchanges").

(iii) Consider, finally, the view that exchanges are motivated by inverse valuations of goods. This way of putting it is admittedly quite Austrian. For instance, Wieser writes "Each of the two parties entering into a natural exchange desires to secure for himself superior value. Each surrenders something to which he attaches less utility-value than he does to the good or service which he obtains in exchange. [...] it must happen that the two parties estimate the two objects of exchange in a directly opposite manner so that both may be able simultaneously to receive better value by the same transaction." (Wieser, 1927, p. 167 —similar Austrian descriptions are to be found in Menger 1976, p. 179-180, Bohm-Bawerk 1881, p. 179-180; von Mises 1949, p. 204-205; Rothbard 2009, p. 880-881; Kirzner 1960, p. 76; to which Wicksteed 1910, p. 126-157, may be added).

But even though the phraseology of "inverse valuation", "reverse preference", or "valuing goods in reverse fashion" is typically Austrian, the idea behind it—that, in any exchange, one prefers what one gets to what one cedes— is shared far beyond the Austrian heterodoxy. The idea is usually expressed in terms of mutual advantages: the reason why exchanges are mutually beneficial (*ex ante*, but no necessarily *ex post*[4]), it is claimed, is precisely that each exchanger values the good of the other more than his own. Hence the exchangers expect to be better off by swapping goods.

The idea is already to be found in Aquinas: "buying and selling seem to be established for the common advantage of both parties, one of whom requires that which belongs to the other, and vice versa." (Aquinas 1920, question 77, chap.1). But the first complete formulation should be credited to Condillac: "Indeed, if one always exchanged equal value for equal value, there would be no gain to be made for either of the contracting parties. Now, both of them make a gain, or ought to make one. Why? The fact is that with things only having value in relation to our needs, what is greater for one person is less for another, and vice versa." (Condillac 1776, chap. 6, p. 120). Following him, the French philosopher and economist Destutt de Tracy writes even more explicitly in 1823: "Whenever I make an exchange freely, and without constraint, it is because I desire the thing I receive more than that I give; and, on the contrary, he with whom I bargain desires what I offer more than that which he renders me." (Destutt de Tracy 1817, chap. 1, 61-62). Such claims were still relatively rare and controversial at the time. Thus Say (1855, book I, chap. 2, p. 61) and Bastiat (1850, p. 66-72) strongly criticize Condillac's view of the mutual benefits of exchange. But they became commonplace in the wake of marginalist theories. Here is Jevons:

> Imagine that there is one trading body possessing only corn, and another possessing only beef. It is certain that, under these circumstances, a portion of the corn may be given in exchange for a portion of the beef with a considerable increase of utility. How are we to determine at what point the exchange will cease to be beneficial? [...] *if, to the trading body which possesses corn, ten pounds of corn are less useful than one of beef, that body will desire to carry the exchange further. Should the other body possessing beef find one pound less useful than ten pounds of corn, this body will also be desirous to continue the exchange.* Exchange will thus go on until each party has obtained all the benefit that is possible, and loss of utility would result if more were exchanged. (Jevons 1888, p. 95-96, our italics).

This by now standard way of explaining not only why exchanges are mutually beneficial, but also at which point they will cease to be, by appealing to differences in the marginal utility of the exchangers is nothing less than a strongly refined version of the inverse preferences idea. Exchanges of two kinds of goods between two individuals will carry on as long as an additional unit of the other's goods has, for each exchanger more utility for him than the last unit of his own goods. Jevons' proposal was reformulated ten years later by Edgeworth through the introduction of indifference curves. His famous "box", which vividly illustrates Jevon's marginalist story above, is one

[4] Rothbard (2004, p. 885) is especially clear on the *ex ante*/*ex post* distinction.

place where the inverse preference story surfaces in textbooks of microeconomics. Although the idea that two individuals will gain from exchange as long as each continues to prefer something the other has to something he himself has is now typically couched in mathematical and technical terms —Edgeworth box, marginal rate of substitution— colloquial formulations of the idea have not disappeared. For instance, Marshall writes: "If each gives up that which has for him the lower utility and receives that which has the higher, each will gain by the exchange." (Marshall 1920, chap. 5, §1). In their recent textbooks, Pindyck and Rubinfeld explain that "There is thus room for mutually advantageous trade because James values clothing more highly than Karen does, whereas Karen values food more highly than James does." (Pindyck, Rubinfeld 2005, p. 603). Finally, note that outside economics the same basic idea spontaneously surfaces in some philosophical writings. For instance, Reinach writes: "Where two persons each have an object in their possession and each of the persons wants what the other has and is willing to give up his own thing for the sake of getting it, the immediate exchange of the things is the indicated way of satisfying the desire of both." (Reinach 1983, p. 3).

The three central features of the STE are therefore assumptions widely shared, not only by Austrian economists, but in most of the historical and contemporary economics literature. We conclude that the view that exchanges are mutual transfers of goods motivated by inverse valuations thereof correctly captures the economists' implicit, pre-theoretical conception of exchanges. We shall now raise two sets of objections against this theory.

2. The Incompleteness of the Standard Theory

2.1. What the STE leaves unexplained

Our first set of worries is that the STE leaves several intuitively important features of exchange unaccounted for. We only get a partial insight into the nature of exchanges. To reach a more complete account of exchanges, at least four points will need to be explained:

1. *Bridging the gap*. The explanatory step from inverse preferences (1) to mutual transfers (2) is incomplete as it stands. The preferences are held to motivate the transfers, but are clearly not sufficient to do so. Why should Julie's preferring Paul's money to her bike lead her to transfer her bike to Paul? Absent further explanation, such behaviour seems plainly irrational: systematically transferring what we own and disprefer to those who own what we prefer is in general a very ineffective method to get us what we want. Paul is quite likely to take the bike and keep his money. So something must happen between (1) and (2) which makes it rational for Julie to transfer her bike to Paul so as to get his money.

2. *The quid pro quo*. A related worry is that the STE as it stands does not account for the *quid pro quo* of exchanges, the idea that things are exchanged *against* other things (Perry 1878, p. 76; Kirzner 1960, p. 76; Brennan, Pettit 2000, p. 82). What is missing in the STE is an understanding of the explanatory connection between the two transfers: Julie transfers her bike to Paul *against* Paul's money. And likewise, Paul gives her money *for* Julie's bike.

3. *Claims and obligations*. Another connected worry is that claims and obligations arise at some point in any exchange, and the STE leaves them unexplained. Suppose Julie transfers her bike to Paul, and that Paul goes away with the bike, without transferring his money to her. Surely, something has gone wrong: if they were indeed in the process of exchanging, Paul had at that point an obligation to transfer his money to Julie, and Julie had, conversely, a claim to Paul's money since she already transferred her bike to him. It is only when the exchange is completed —when Paul has transferred his money— that such claims and obligation disappear. The STE *per se* does not explain the arising and vanishing of such transitory claims and obligations.

4. *The buying/selling distinction*. Any exchange, intuitively, involves something being bought and something being sold. But the STE as it stands is mute with respect to this buying/selling distinction. How should we account for it?

These three last points, we submit, are necessary features of our ordinary concept of economic exchange. If two individuals enter into some social interaction that fails to involve buying and selling, they cannot properly be said to be exchanging. The same holds if their interaction fails to display any quid pro quo, or any correlative claims and obligations. Clearly, as long as exchange is used as an *explanans* for other economic phenomena, a complete theory of exchange is unneeded. If, for instance, our focus is on explaining market prices, then accounting for the transitory claims and obligations that arise and vanish through exchanges is likely to be of little importance. But if one is to explain exchanges per se, they clearly do matter.

2.2 Completing the STE?

Can the STE be completed so as to account for these four *explananda*? Some hints about how to account for the first three are to be found in Menger's quote above. Menger adds that the individuals must "recognize" that they "value the goods in reverse fashion" (1976, p. 179-180). That is, the content of the other's preferences needs to be *common knowledge*. Further, he adds that, once these inverse valuations of goods are mutually known, an exchange may occur "by mere agreement" of the parties (1976, p. 179). Common knowledge and agreement may be thought to readily account for our three first points. (1) The reason why Julie transfers her bike to Paul is that Paul has agreed to reciprocate by transferring his money to Julie. And both reach these agreements in virtue of knowing the preferences of each other. (2) The *quid pro quo* of exchange is also explained. Julie transfers her bike against Paul's money because this is what she and Paul mutually agreed to be bound to. (3) Finally, the claims and obligations that arise and vanish through an exchange are simply the claims and obligations that would have remained unresolved had the agreement not been respected by one party.

However, supplementing the STE with *common knowledge* and *agreement* in this way is problematic for four reasons.

First, common knowledge of each other's valuations of the goods at stake is quite demanding: for exchanges to take place, each party would have to have knowledge of the private, subjective preferences of the other. By contrast, on the more parsimonious theory we shall advance in the next section, the motivational gap is filled without requiring any exchanger to be aware of the other's preferences.

Second, as we stressed above, and as agreed by Menger, the STE is meant to be compatible with methodological individualism. But it is unclear that agreements are compatible. While agreements are typically construed as exchanges of promises —which are individual acts—, Margaret Gilbert (1993) has raised persuasive objections against this account of agreement. No exchange of promises, she argues, can give rise to the sort of simultaneous and interdependent obligations that characterize agreements. As a result, she suggests that joint commitment lie at the heart of agreements, thereby undermining any individualist attempt to analyse exchanges in terms of agreements. The action theory of exchanges we shall propose below avoids mention of agreements, and to this extent its compatibility with methodological individualism is more secure.

Third, as Gilbert rightly urges, an agreement between two individuals amounts to an exchange of promises which generates two obligations, one for each individual. But, in most exchanges, only one individual incurs an obligation—as we shall see, the offeror. The offeree, on his side, incurs usually none (more on acceptance below). Intending to pay the amount indicated in the price tag (which is an offer) does not commit one to anything. Hence appealing to agreement in an account of exchanges not only threatens methodological individualism, it generates too many obligations and correlative claims.

Fourth, if agreements are to account for the *quid pro quo* of exchanges, they have to be agreements *to exchange*. Suppose that Julie and Paul agree on 'Paul transfers some money to Julie and Julie transfers her bike to Paul'. This would not guarantee that Paul and Julie have exchanged a bike *against* some money. (It is not sufficient that two persons agree to do something, even knowing their respective preferences, for each of this things having been made against or in exchange of the other.) But if agreements are agreements *to exchange* a good against another, the STE, thus supplemented with agreements, becomes viciously circular, defining exchanges in terms of exchanges.

Finally, what about our fourth *explanandum*, the buying/selling distinction? Two main strategies have been proposed by upholders of the STE to treat this asymmetry, neither of which we find totally convincing.

The first strategy, advocated by Walras, is to equate *selling a thing* to *giving it* in the context of an exchange; and to equate *buying a thing* to *receiving it* in the context of an exchange (Walras 1874, lesson 5, § 41). In the terminology we retain here, selling a good amounts to *transferring* it, and buying a good amounts to *this good being transferred to one*, again in the context of an exchange. However, since each exchange involves *two* transfers, this proposal entails that each exchange contains two sales (and conversely, two purchases). This is a consequence that Walras happily accepts. According to him, any exchange involves a *double purchasing* and a *double sale*. Not only does Julie sell her bike to Paul and Paul buy it; Paul sells his money to Julie and Julie buys this money with her bike.

Although this makes complete sense in the context of Walras' theory, we wish to point out that, as far as our *ordinary* concepts of selling and buying are concerned, such descriptions are far-fetched. These are quite unnatural things to say. This suggests that Walras' concepts of purchase and sale are revisionary. Although we sometimes have to accept such a scientific revision of our ordinary concepts, we take it that *ceteris paribus* a theory of exchanges that does not entail a revision of our ordinary concepts of selling and buying would be preferable. (To be clear, this is not to say that Walras is not after an important distinction here —he clearly is. We only question his equating of the distinction between giving and receiving goods with the distinction between buying and selling them).

The second strategy, proposed by Mill (1874, §69-71)[5], Menger (1892, p. 252)[6] and Fisher (1906, p. 11), is to reject the view that all exchanges involve a double sale and a double purchase, thereby maintaining that to buy is to give up *money* against some *non-monetary good*, and that to sell is to give up *non-monetary goods* in exchange for some *money*. We agree that, *in general*, the exchanger who gives up money is called the buyer, and the one who gives up non-monetary goods is called the seller. However, this is not always so. First, the selling/purchasing asymmetry also arises within non-monetary, direct, exchanges. It is possible to sell apples against massages. Second, it is perfectly fine to buy some money, as we do when we buy some foreign currency in an exchange office. Despite appearances, the buying/selling asymmetry is therefore independent from the use of money or other means of exchange (it might still be true that for reasons pertaining to the pragmatic of language we often use "selling" for "transferring against money").

[5] Mill anticipates Walras' proposal and maintains that it only holds true of barter. In case of monetary exchanges, in contrast, there is a single sale and a single purchase.
[6] See Bastiat (1850, p. 74) for a similar proposal (although, as noted above, Bastiat rejects the STE).

In sum, the STE stands in need of completion in at least four respects and the main extant proposal for completing it proves unsatisfying.

3 The Restrictedness of the Standard Theory

Our second objection against the STE is more damaging: it fails to provide necessary conditions for exchanges. Many exchanges, we shall now argue, involve neither mutual transfers, nor inverse preferences. So the STE is at best true of only some exchanges. One of the main problems for the STE, we shall now argue, are exchanges of services.

The STE focuses on exchanges of goods. As we saw, to explain exchanges of service its upholders stress that "goods", or "commodities", encompasses more than material goods: "goods" also encompasses *non-tangible or immaterial goods.* To apply the STE to exchanges of services, proponents of the STE then identify services as a sub-species of non-tangible goods.

We agree that there are non-tangible goods and that non-tangible goods can be exchanged: pieces of music, theories, the blueprint for a new car, computer programs, etc. are instances thereof [7]. We submit that rights (rights to use a good, financial claims ensuing from debts…) are another central case of non-tangible goods which can be exchanged. Julie can rent her bike to Paul for an hour, that is, exchange her right to use her bike during that hour against some money. Money is perhaps itself a non-tangible good (Smith 2003, p. 285-309). We disagree, however, with the idea that services are non-tangible goods. That "services are not intangibles" has been forcefully argued by Hill in a series of important papers (1976, 1999). In what follows we shall argue that this is especially true in the case of exchanges of services: services cannot be transferred, and their exchanges are not motivated by inverse object-preferences.

3.1. Exchanges without transfers

Consider first transfers. The act of transferring something is an episode involving three participants: the transferer, the transferee, and the thing transferred. A transfer unfolds in such a way that at the beginning the transferer has the thing and the transferee does not have it, whereas at the end the transferee has the thing and the transferer doesn't:

Transfer: x is transferred from y to z between t_0 and t_1 iff at t_0 x exclusively belongs to y and at t_1 x exclusively belongs to z.

An electron can thus be transferred from one atom to another. In the case of economic exchanges, the transfers at stake must be voluntary, and the "belonging" must

[7] These examples are taken from Hill (1999).

be of the economically relevant kind, which we will assume here is *ownership*[8]. This definition of transfers puts two constraints on the kinds of entities that can be transferred:

(i) transferable entities must be liable to enter into exclusive belonging relations with some other entities (the exchangers);

(ii) transferable entities must endure over time, at least during the transfer: the same *x* that was *y*'s is now *z*'s.[9]

As a consequence, if exchanges are defined in terms of transfers, as the STE has it, three kinds of goods cannot be exchanged:

(1) *episodic* goods (services)

(2) *non-depletable* goods (e.g. knowledge)

(3) *un-owned* goods (granted rights).

Let us explain.

(1) *Episodic goods*. Appealing to transfers in the definition of exchanges forbids exchanges of *services*. The reason is this: only *endurants,* that is, entities that persist over time without having temporal parts, can be transferred. Services, typically, either do not persist over time (the prescription of a remedy, the delivery of letter, the opening of a bank account are instantaneous—which is not to say that it does not take time to achieve them, or that they lack long-standing effects) or persist by having temporal parts (a violin lesson, a massage, a lawyer's plea, visiting a cathedral). In both cases, services cannot be transferred because they do not keep their numerical identity over time, they do not endure[10].

Furthermore, services might be *provided* or *rendered*, but they cannot be *had* or *owned,* as goods can. If Julie sells a biking lesson to Paul, it is not the case that there was a biking lesson that she had in the first place and that now belongs to Paul.

(2) *Non-depletable goods*. The second restriction imposed by the appeal to transfers in the definition of exchanges concerns *non-depletable* goods, which we understand as goods such that their being owned by some agent do not decrease the amount of them available to other agents. Consequently, such goods might be transmitted to others

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[8] For simplicity's sake we ignore the important distinction between *possession or command*, understood as the capacity to *use* one thing, and *ownership*, understood as the source of property rights on a thing (the robber of Julie's bike possesses it, but does not own it). What follows is fully compatible with the distinction, and could in fact be refined thanks to it, distinguishing between transferring the mere possession of a good (which happens for instance on the black market), the mere ownership of a good, or both.

[9] The reasons why perdurant entities —entities such as lives, weddings or soccer games— cannot be transferred partly overlap with the reason why they can't move: see Dretske (1967).

[10] For similar remarks about the non-transferability of services, see Say (1855, book I, chap. XIII) and Hill (1976, 1999).

without losing them. If Julie shares some of her knowledge to Paul in exchange for some money, she hasn't lost any of her knowledge once the exchange has taken place. Julie and Paul now both have this piece of knowledge in its entirety[11]. Likewise, if the young Julie gives her chickenpox to Paul against a doll, she still has her chickenpox after the exchange. The same is often true of transmission of digital data. Non-depletable goods can be transmitted without being lost. But since transfers are defined in terms of *exclusive* belonging, our definition cannot account for such exchanges. If we want to account for the exchange of non-depletable goods, we need a different relation to transferring in the third stage. Transmitting is a good candidate. Transmission is also a three-places relation. But, while something that is transferred is lost by the transferrer, something might be transmitted without being lost by the transmitter. Compare transmitting some piece of knowledge to transferring a bike.

(3) *Un-owned goods*. Finally, the STE cannot accommodate cases of exchanges of *un-owned* goods. To the extent that *rights* are owned and endure over time, rights can be transferred. For instance, Julie can transfer to Paul —either forever or for some limited time— the right to use her bike. But, as urged by Reinach, transferring a right is not the only way to confer a right on another person: one might also *grant* that right to a person (Reinach 1983, §6, p. 68). Suppose Julie made a promise to Paul, and that, for whatever reason, she asks Paul for the right to *revoke* her promise. Paul might *grant* that right to Julie. But that granting, Reinach urges correctly, is not a transfer, for Paul never *had* the right to revoke Julie's promise in the first place (only the promisor might have such a right). Thus, this right to revoke is a right the promisee can grant, although he never had it. Besides, such un-owned rights clearly can be exchanged. Paul might grant to Julie the right to revoke her promise in exchange for Julie's bike. Here again, we have an exchange without any mutual transfers.

Summing up: the STE only accounts for exchanges of *enduring* entities that can be *owned*. To expand the definition of exchanges to other kinds of exchangeables, in particular to services, non-depletable goods or un-owned goods, *transfers* would have to be supplemented with *provisions* (for services, e.g. playing the piano[12]), *transmissions* (for non-depletable goods, e.g. knowledge), and *grantings* (for un-owned goods, e.g. right to waive a promise).

[11] What economists call non-depletable goods display some analogies with universals, i.e. repeatable entities: non-depletable goods (e.g. a piece of knowledge, a broadcast, a software) can be *wholly had* by several individuals all at once. Non-depletable goods are also non-rival goods, i.e. they can be *used* by more than one person at a time. However, they are not equivalent to non-excludable goods (goods that it is not possible to exclude people from using): streets and sidewalks are non-excludable but depletable goods.

[12] We here conform, for the sake of the argument, to the economic jargon, which has it that services are *provided*. In fact, we have doubts that the term is adequate. To provide something to someone is to make it available to him, but when one repairs someone's bike, it is unclear that one makes a reparation available to him. Instead of being provided, services are rather simply *done*.

It could be replied that we have been attributing too strict a notion of transfer to the STE. Perhaps the STE can rely on a broader concept of transfer, which would subsume transfers in the strict sense above, but also transmissions (of non-depletable goods), provisions (of services) and grantings (of rights). Clearly, if such a broad category of transfer, compatible with the STE, can be defined, our objection collapses. But, first, at this point it is up to the upholder of the STE to tell us more about this broader concept of transfer. For it is *prima facie* far from obvious that there exists a natural, non-disjunctive kind which subsumes transfers in the strict sense, transmissions, provisions, grantings, and plausibly other cases. The most obvious candidate is the kind *action*, but this is too generic.[13] And, second, even if such a sufficiently informative kind could be defined, one would still need to show that it fits the others general features of the STE. For suppose that transmitting knowledge is now considered as a kind of transfer. Is it at all plausible to say that, when Julie shares her knowledge of deontic logic with Paul against some money, she values her knowledge less than she values Paul's money? Or suppose that rendering a service is considered as a kind of transfer. Is it at all plausible to say that when Julie sells a biking lesson to Paul she prefers Paul's money to her biking lesson? Widening the concept of transfer beyond the clear cases of material and immaterial goods changing hands not only leads to a gerrymandered concept of transfers; it also violates the point and the spirit of the STE, which is driven by the idea that economics is about allocating goods, conceived of as scarce resources.

3.2 Exchanges without inverse object-valuations

In the same way that there are exchanges that do not involve mutual transfers, there are exchanges which do not involve any inverse preferences.

Exchanges made simply for the pleasure of exchanging constitute a first kind of counterexample. Such exchanges are often dismissed out of hand by upholders of the STE, who consider them rare borderline cases not worth spending too much time on (Menger 1976, p. 176, Böhm-Bawerk 1891, p. 190-194). Upholders of the STE are right that *most* exchanges are "not made simply for amusement", in Böhm-Bawerk's terms (1891, book 4, chap. 1). But as long as some exchanges are pleasurable, however rare they may be, a good theory of exchange should accommodate them. The STE fails to account for such exchange for two reasons. First, the preferences involved in exchanges made for amusement are not directed at goods, but at the action of mutual exchange. Second, when two children exchange two toys back and forth, their preferences are not opposite but convergent: both prefer exchanging over not exchanging.

[13] This category of action is too generic for the purpose of explaining exchanges in the context of the STE: replacing "*A* voluntarily transfers *x* to *B*; *B* voluntarily transfers *y* to *A*" by "A does something; and B does something" would render the incompleteness worry raised above even more pressing. For why should we say of two individuals who do something as a result of their inverse valuation of some goods that they are exchanging, rather than, say, praising or stealing each other's good?

But the most important class of counterexamples to the claim that exchanges are motivated by inverse preferences about the exchangeables are, again, exchanges of services. Suppose Julie explains modal logic to Paul in exchange for Paul's playing the violin to her. Should we say, as entailed by the STE, that Julie values Paul's playing the violin to her more than she values explaining modal logic to him? And that, on the other hand, Paul prefers Julie's explaining modal logic to him to playing the violin to Julie? That sounds very weird. If anything, Paul and Julie have converging preferences: both of them prefer a situation where Julie explains modal logic to Paul *and* Paul plays the violin to Julie to a situation where none of these two events happens. Such preferences or valuations are clearly not opposite but convergent.

The point is perhaps even more obvious in the case of mixed exchanges, where a good is exchanged against a service. Suppose Julie transfers her bike to Paul in exchange for Paul's playing the violin to her. One might, perhaps, make sense of the idea that Julie prefers Paul's playing the violin to her bike. But it would be quite contrived to say that Paul prefers Julie's bike to his playing the violin for her.

The intuition of opposite valuations works well for goods, but vanishes once services are taken into consideration. This is not to say, nor to imply, that no preference is at stake here, nor that the idea of exchanges being mutually beneficial is misguided. On the contrary, we shall argue that all exchanges involve valuations, preferences –albeit convergent ones– in virtue of which they are mutually beneficial (not only *ex ante*, but also *ex post*). Our point has only been that neither mutual transfers nor inverse preferences hold true in the case of exchanges of services[14].

This confirms that, as forcefully argued by Hill, it is a bad mistake to equate services with intangible goods. The STE has no problem dealing with exchanges of such intangible goods (suppose Julie exchanges her right to use her bike against Paul's right to attend a concert: we've got mutual transfers of rights and inverse preferences about these rights). But the STE cannot deal with exchanges of services. The more it treats services as goods —that is, as objects which one refers to, which can be owned, transferred, and towards which we entertain objectual attitudes —the more it is led to absurd conclusions of the above kind. While there are clearly intangible goods (tranferrable rights, for instance), the distinction between tangible and intangible goods does not dichotomize exchangeables. This is the reason why, in order to capture exchanges of services, the theory of exchange needs to accept exchangeables which are not goods. Services do not belong to the category of objects, but to the category of actions. Bracketing vexing issues, actions are not primarily referred to: they are

[14] Note that although we have been relying on very simple examples, the problems we raised generalize to more complex cases of services, such as financial services (investment management, processing of credit cards transactions, reinsurance, etc.) or legal services. In all cases where a service is bought, some money is transferred to its provider in exchange for him doing something (managing a portfolio, processing transactions, etc.).

expressed through verbs and propositions, not names. Correspondingly, our attitudes towards actions are typically propositional. Not: preferring *x* to *y*; but: preferring to ϕ rather than to ψ. Not: liking *x* more than one likes y; but: liking to ϕ better than liking to ψ. Actions cannot be owned in the strict sense, they do not endure over time, and therefore cannot be transferred. Yet they can be exchanged. They are even, as we shall now argue, the most fundamental exchangeables.

4. The Action Theory of Exchanges

In order to avoid the problems faced by the STE, we proceed as follows. To get a *complete* theory of exchange, we introduce *offer* and *acceptance*. To get an *unrestricted* theory of exchange, able to account for exchanges of services, we argue that even in the case where goods are exchanged, *what is immediately exchanged are actions*. One consequence of focussing on actions rather than goods is that the motivating preferences are convergent rather than inverse.

The view that actions are the target of exchanges is not unprecedented. It was endorsed by Frederic Bastiat, who insisted that all exchanges (which are for him the fundamental social phenomena) are fundamentally exchanges of services: "every transaction can be reduced to a bartering of services" (1851, p. 106, see also, p. 31-33, 63, 74-75, 115). Unfortunately, perhaps because Bastiat combined his approach to exchanges with a disputable theory of economic value[15], his proposal has remained widely neglected. One exception is his American disciple Arthur Latham Perry, who builds upon Bastiat's proposal to develop a plausible threefold classification of exchangeable entities (commodity, claims and services), arguing that the later are the most basic (Perry, 1978, p. 84-87).

The action theory of exchange we shall now propose takes up Bastiat's central proposal: what we basically exchange are not goods (which fall under the category of objects) but services (which fall under the category of actions). This is the first respect in which our theory departs from the STE. The second respect is that the action theory introduces *social acts*, namely offers and acceptances, at the heart of exchanges.

Let us introduce this action theory by looking at how it deals with our earlier example of exchange of services: *Julie explains modal logic to Paul in exchange for Paul's playing the violin to her iff:*

(1) Julie *prefers* [to explain modal logic to Paul and that Paul plays the violin to her] rather than that none of these actions take place. Paul has a preference with basically

[15] Although he sometimes denies it, Bastiat's theory of value is a version of the labour theory of value. Bastiat defines services as *efforts* made to satisfy the wants of others (Bastiat 1850, p. 32), and argues that the value of a service resides in the amount of effort spared to the person to which it is rendered rather than the amount of effort the service requires (p. 111).

the same content: he *prefers* that [the two actions be performed] rather than none of them.

Furthermore, Julie *believes* that making an offer to Paul is a way for her to get Paul to play the violin to her.

(2) Because of her preference and her belief, Julie makes the following *offer* to Paul: "I promise you that if you play the violin to me, I will explain modal logic to you."

(3) Because of his preference, Paul accepts Julie's offer and plays the violin to her. Julie now incurs, in virtue of her promise, the unconditional obligation to explain modal logic to Paul, which she does, thereby settling the exchange.

The action theory of exchange is a generalisation of this story:

Action theory of exchanges (ATE): Individuals *A* and *B* ϕ and ψ *in exchange* $=_{df}$

(1) *Preferences and belief*:

(1.1) *A* prefers [to ϕ and that *B* ψ-s] rather than [not to ϕ and that *B* does not ψ]

(1.2) *B* prefers [to ψ and that *A* ϕ-s] rather than [not to ψ and that *A* does not ϕ][16]

(1.3) *A* believes that [promising to ϕ to *B* on the condition that *B* ψ-s] is a way for him to make *B* ψ.

(2) *Offer & acceptance*:

(2.1) *The offer*: Because of (1.1) & (1.3), *A* promises to *B* that he will ϕ, if *B* ψ-s.

(2.2) *The acceptance*: Because of (1.2), *B* accepts the offer.

(3) *Provisions*:

(3.1) *First provision*. Because of (2.2), *B* ψ-s. As a result, *A* incurs the obligation to ϕ.

(3.2) *Second provision*. Because of (2.1.) and (3.1.), *A* ϕ-s.

Or the reverse: (1.3'): *B* believes that promising to ψ to *A* on the condition that *A* ϕ-s is a way for him to make *A* ϕ; hence: (2.1') *B* promises to *A* that he will ψ, if *A* ϕ –s; (2.2') A accepts B's offer; (3.1'): *A* ϕ –s; (3.2') *B* ψ-s.

Let us comment on and motivate these conditions in turn.

4.1 *Preferences and beliefs*.

The first stage only involves each party's private mental states: each has a preference of a given sort, and at least one of them has a belief.

[16] This does not reflect the whole ordering of A and B's preferences. A's complete order of preferences in this respect will typically be: [A does not ϕ and *B* ψ-s] $\succ$ [A ϕ-s and *B* ψ-s] $\succ$ [A does not ϕ and *B* does not ψ] $\succ$ [A ϕ-s and *B* does not ψ] (and conversely for B).

(1.1) & (1.2.) *The preferences*. First, under the ATE, the preferences essential to exchanges are directed at the *actions*[17] of the exchangers (transferring the bike/the money), rather than at their *goods* (the bike, the money). The first reason in favour of this move, as we saw, is that it paves the way for a unified account of the exchanges of tangible goods *and services*. A second reason in favour of this focus on actions is that it connects preferences more tightly with the content of offers and acceptances, and that of provisions: *the very same actions that are preferred are promised in the second step and performed in the third*. In the STE, there was a motivational gap between preferences and transfers. No such gap impairs the ATE.

Second, the preferences at stake in the ATE are convergent rather than inverse. It is initially tempting to interpret this convergence as consisting in the fact that these preferences have exactly the same content, namely:

- *A* prefers (that *A* ϕ-s and that *B* ψ-s) rather than (that *A* does not ϕ and that *B* does not ψ)
- *B* prefers (that *B* ψ-s and that *A* ϕ-s) to [(that *B* does not ψ and that *A* does not ϕ)

There are however two quibbles here. First, one of the actions that each party prefers is an action that he identifies as an action *of himself*, which is not guaranteed by the just given formulation. Applying J. Perry's problem of essential indexicals to preferences (Perry 1979), *A* might prefer that *A* ϕ-s, without realising that he is *A*. If true, although both preferences converge, they don't have *exactly* the same content: the indexical anchorage of the action differs in the content of both preferences.

The second reason why the converging preferences might have different contents is due to the fact that, in many (perhaps most) cases of exchange, the content of the preferences, as well as the content of the offers, should be expressed by general instead of singular propositions. The preferences will often be of the form:

- *A* prefers (that he does ϕ and that *someone* does ψ) rather than (that he does not ϕ and that *nobody* does ψ)
- *B* prefers (that he does ψ and that *someone* does ϕ) to (that he does not ψ and that *nobody* does ϕ)

How to handle these general preferences in more detail is a question we shall leave open. The point is that, when at least one preference is general, the two preferences motivating an exchange have distinct contents.

In spite of these two reasons to reject the same-content view of the preferences motivating exchanges, these preferences are clearly convergent. Indexical anchorage of

[17] What is exchanged may not be an action, strictly speaking, but its forbearance. A case in point, described by Nozick (1974, p. 84-85), is the offer to pay a neighbour for not going on with his plan to erect an ugly building in his garden,

action and generality aside, the exchangers value the same course of action against the same alternative course of action.

(1.3) *The belief*. We now have two agents with converging preferences: there is a course of action which both prefer to alternative ones. In our example, both Julie and Paul prefer the course of action in which Julie explains modal logic to Paul and Paul plays the violin to Julie. How do we move from these converging preferences towards the exchange? Although the preferences of the parties are private, their expression or disclosure is not required in order for Julie and Paul to move on to the next stage. All that is needed to go further, we submit, is an *offer* from one of them to the other. In order to make such an offer, one party must have, on top of his preference, a belief. In order to make an offer to Paul, Julie must believe that making such an offer is likely to bring her the money transfer she wants. If, on top of her preference, Julie believes that offering to explain modal logic to Paul if he plays the violin to her is a way to get Paul to play the violin, she may well proceed with making this offer (Paul might not have any belief of the sort).

Although Julie's instrumental belief *might* stem from some beliefs or guesses regarding the other party's own preferences, they do not *have* to. Julie's belief that Paul might accept her offer is often justified by her attributing to Paul some preference for her explaining modal logic to him. But there is no necessity to speculate about the other agent's preferences in order to rationally make an offer to him. Surely, Julie needs to believe that her offer has a chance of being accepted by Paul in order to make it to him. But she does not need to believe that he prefers her explaining modal logic to him in order to offer to explain modal logic to him in exchange for him playing the violin to her. This is because she does not need to know what might prompt him to accept her offer in order to make such an offer. An economic agent conditioned purely behaviourally, lacking any theory of mind, could still rationally proceed to make an offer. "Making some kind of offers happens to get me what I want. I have no clue about why this is so, but this works".

Besides, even when Julie's offer is motivated by her ascribing some preferences to Paul, Paul's acceptance will often remain blind to Julie's own preferences: typically, only the offer will matter to him, regardless of its underlying motivation[18]. So neither exchanger needs to inquire about the other's preferences in order for the exchange to take place.

4.2 *Offer & acceptance.*

[18] As Anderson rightly observes, "Commodities are exchanged without regard for the reasons people have for wanting them" (Anderson 1993, p. 146).

(2.1) Following Kent Bach (1995)[19], we assume that *offers* are promises with conditional content. There is a distinction between *unconditional promises with conditional content* (I promise that if p, I ϕ), and *conditional promises* (If p, I promise that I ϕ)[20]. Offers are of the former kind: *promises with a conditional content*. Julie promises to Paul to transfer the ownership of her bike to him if he transfers to her the ownership of some amount of money. Because of this offer, Julie incurs an obligation to transfer her bike to Paul *if he pays her*. Julie's offer may be that she promises to transfer her bike to Paul if he pays her *now*. But she may alternatively offer Paul the possibility to pay later. In such a case, Julie promises to transfer the bike to Paul now, *if Paul promises now to pay her later*. In that case, the action that is exchanged against Julie's transfer of her bike is Paul's promise to pay rather than Paul's payment itself.

Following Reinach's pioneering work (1983), we here assume that promises have at least the two following essential features:

1) Promises are *social acts* in the sense that they are uttered by a promisor, and have to be heard and understood by the promisee.
2) Promises generate, in virtue of their nature, *pro tanto* obligations on the promisor to realize their content, and correlative claims for the promisee.[21]

That is, necessarily, in virtue of the nature of promises, if A promises to ϕ to B, then (1) B heard and understood A's utterance (ii) as an immediate result of this promise, A incurs the obligation to ϕ and B incurs the correlative (same content) claim to A's ϕ-ing. In the case of promises with conditional content, the obligation of the offeror and the related claim of the offeree also arise at the very moment the offer is made, but both are conditional: the offeror has an obligation to ϕ *if some condition is met*; and the offeree has the correlative conditional claim to the offeree's ϕ-ing. Both the obligation and the claim are actual, but unactivated, as it were, waiting for the fulfilment of the condition in order to become unconditional.

[19] Offers are sometimes alternatively defined in contract law in terms of expression of intention (Guenter, Treitel 2003, p. 8). We believe that this theory of offers should be rejected on the very same ground as the theory according to which promises are expressions of intentions, namely, that expressions of intentions are not binding: they do not generate claims and obligations (Reinach 1983, p. 27). Promises and offers, on the other hand, are binding.

[20] The distinction is drawn independently by Reinach (1983) and Gilbert (1993) whose accounts match very closely on this point. Conditional promises (externally conditional promises in Gilbert's terms) raise difficult issues about the time at which the corresponding obligations arise. Additionally, one might suspect that conditional promises are either not promises, but expressions of intentions to promise if some conditions are met, or that they are second-order promises with conditional content: "If p, I promise (to ϕ)" would then amount to "I promise that (If p, I will promise to ϕ)".

[21] These two features of promises are widely accepted, and, since Hume at least, most philosophical debates about promises have focussed on how to explain the second feature: how do promises generate promissory obligations? Reinach thought of these two features as being primitive and nonconventional; on the other hand, various reductionist or conventionalist accounts of promises have been given –see for instance Fried 1981; Gilbert 1993, 2011; Darwall 2011. In so far as such approaches explain the two features above, any one of these can be plugged into the ATE.

One might object that many exchanges occur without any offers having been made. This however neglects the fact that many offers remain implicit or tacit. Price tags, for instance, constitute one ubiquitous form of offer (no to be conflate with prices, which, contrary to price tags, are determined by the exchanges actually taking place).

Another possible objection is that the preference of the offeree is often not fixed before the offer. Offers might prompt new preferences or change the preferences of offerees. We entirely agree: it could be that Paul did not have a preference for buying Julie's bike before receiving Julie's offer. Although the linear presentation we have adopted might suggest the contrary, the ATE, we wish to stress, is not committed to the offeree's preferences being fixed before the offer. All what it requires is that the offeree accepts the offer *because of* his preference. This does not rule out the possibility that the offer elicited the offeree's preference.

(2.2) *Acceptance*: once Julie makes her offer, the ball is in Paul's court. It's up to him to decide to accept the offer or not. In the present context, accepting an offer is not simply uptaking it (that is, hearing it, grasping it), nor is it simply expressing one's intention to realize the condition. There are two possibilities:

a) To accept an offer may consist in performing another social act, such as *the unconditional promise to fulfil the condition of the offer*, as argued by Bach (1995). To accept Julie's offer to provide him with the bike if he pays her, would be for Paul *to promise to pay her*.
b) To accept an offer may be simply voluntarily *fulfilling the condition* specified in its content. Accepting an offer conditional on a payment might just *be* putting the money on the table. In this case, the act of transferring counts as both an acceptance of the offer and as the fulfilment of the condition, thus activating A's obligation to actually transfer the good. The acceptance (2.2) and the first provision (3.2.) are one and the same.

We suspect that the last answer is the correct one, and that the intuition in favour of the first answer stems from a confusion between offers conditioned on payment and offers conditioned on promises of payment. These two kinds of offers give rise to two very distinct sorts of exchanges. Suppose Julie promises Paul to explain modal logic to him if Paul *pays* her a certain amount of money. The ensuing exchange will be an exchange of a lesson of modal logic against *a certain amount of money*. Suppose, on the other hand, that Julie promises to Paul to explain modal logic to him if Paul *promises* to pay a certain amount of money to her. Such an exchange will (likely) be an exchange of a lesson of modal logic *against a claim to a certain amount of money* (by contrast to an exchange against a certain amount of money). What Julie has earned after the second exchange is a financial claim (i.e. the right to receive money latter) rather than some money. Such a claim does not need to be met for the exchange to have taken place. Debts are exchanged in financial markets, whether or not these debts will be repaid.

Offers conditioned on transfers of goods are distinct from offers conditioned on promises of transfer of goods.

With this distinction in hand, our proposal is that promises constitute acceptances only in the latter case, that is, the case of offers conditioned on promises. Not all acceptances are promises; only acceptance of offers conditioned on promises are. In any case, accepting an offer is just fulfilling its condition.

But why should we accept this? Isn't it perfectly fine for Paul to accept Julie's offer to explain modal logic to him against a payment just by *promising* to pay her? Admittedly, on the face of it, it is quite common to accept offers whose conditions cannot be fulfilled immediately (such as important payments) by *promising* to fulfil these conditions later. But such cases, we submit, should not be taken at face value. The reason for this is that, when Paul replies to Julie's offer by saying "I accept, I will pay you by tomorrow", it is perfectly correct for Julie to retort, without violating any of her promissory obligations, "*No credit given*, I want a payment, not a promise thereof". Were Paul's promise to count as an acceptance, Julie would be refusing Paul's acceptance of her offer, which she is not entitled to do (the best she can do is to revoke her promise—to retract her offer—but for this, as we saw in §3.1. Paul has to grant her the right to revoke).

What then, really happens in cases where offers conditioned on *payments* are seemingly accepted through *promises* of payment? At least two readings are possible.

First, it might be that the offer was *implicitly* conditioned on *a promise* of payment, so that the promise is indeed an acceptance of that implicit offer. How an offer explicitly conditioned on a payment may actually count as an offer conditioned on a *promise* of payment is, we surmise, easily explained through conversational implicatures. For instance, in cases where a large amount of money is in play it usually goes without saying that the money cannot be transferred right away.

Second, if the initial offer was fully explicit and not implicitly conditioned on any *promises* to pay, the offeree's promise to pay might constitute a *counter offer* instead of an acceptance. Julie's offer was to explain modal logic to Paul against a payment. Paul does not accept that offer, but instead makes the following counter offer: he promises Julie that, if she explains modal logic to him, he will pay her. It is now up to Julie whether to accept that offer or not. In such a case, some other intermediary steps would have taken place between the first offer (2.1) and the acceptance of the final offer (2.2), namely, a negotiation. Admittedly, while exchanges may involve such turnarounds, these are not essential components of them.

4.3 *Provisions.*

(3.1) Before the condition specified in Julie's offer has been fulfilled, Julie's claims and Paul's related obligation remain conditional, until they are activated. But, once Paul has played the violin to Julie, his claim to Julie's logic lesson, together with Julie's obligation to provide such a lesson, become fully actual and unconditional.

(3.2) These two correlative claims and obligations are met and disappear once Julie explains modal logic to Paul. The exchangers are then finished: once an exchange has been completed, all the obligations and claims which arose during it are resolved. The claims and obligations generated within exchanges are transient.

We shall now argue that the ATE fares better than the STE.

5. Exchange of goods with the ATE

The STE, because it is tailor-made for exchanges of goods, cannot account for exchanges of services. Now our own ATE faces a symmetrical objection: since it is modelled on exchanges of services, one should worry that it cannot account for exchanges of goods. Given the central role that good exchanges play in economics, the sheer denial of their possibility would clearly be a *reductio* of the ATE.

A natural way to do fit exchanges of goods into the ATE would be *to equate exchanges of goods with exchanges of transfers of goods*. To go back to our opening example, Julie sells her bike to Paul iff:

(1) Julie *prefers* [to transfer the ownership of her bike to Paul and that Paul transfers the ownership of his money to her] rather than that none of these transfers happen. Paul has a preference with basically the same content: he *prefers* that [the two transfers take place] rather than not.

Furthermore, Julie *believes* that making an offer to Paul is a way to get Paul transfer the ownership of his money to her.

(2) Because of her preference and of her belief, Julie makes the following *offer* to Paul: "I promise you that, if you transfer the ownership of your money to me, I will transfer the ownership of my bike to you."

(3) Because of his preference, Paul accepts Julie's offer and transfers the ownership of his money to Julie. Julie now incurs, in virtue of her promise, the unconditional obligation to transfer the ownership of her bike to Paul, which she does, thereby settling the exchange.

There are however strong reasons to reject this proposal. Exchanging transfers of goods is necessary but not sufficient to exchange goods. To see this, consider the case of exchanges made simply for amusement. Such exchanges, we argued (§3.2.), are motivated by preferences bearing on the actions of transferring, rather than by preferences bearing on the goods exchanged. What the exchangers really exchange (and enjoy) are not goods, but actions of transferring goods. Our point was that the STE, with its inverse object-preferences, couldn't accommodate such exchanges, because the preferences motivating them are convergent.

Now this objection to the STE backfires against our ATE in the present context. If exchanges made for amusement are ultimately just exchanges of actions and not exchanges of goods, then some exchanges of transfers of goods are not exchanges of goods. Unless there is a way to discriminate, within exchanges of transfers of goods, between those that are simply exchanges of transfers and those that are really exchanges of goods, the ATE fails to capture what is specific about goods exchanges.

To answer this important worry, we propose utilising the STE's own arsenal. To distinguish between exchanges of transfers of ownership of goods *simpliciter* and genuine exchanges of goods we suggest appealing to *the preferences that ground the preferences for transfers*. The idea is that what distinguishes mere exchanges of transfers of goods from exchanges of goods is that, in the latter but not the former case, the preferences for transferring the ownership of goods are grounded in the opposite preferences for goods. This is the grain of truth in the STE:

Exchanges of goods (second try): *A* and *B* exchange goods *x* and *y* iff:

(0) Inverse valuations:

(0.1) *A* prefers *y* to *x*

(0.2.) *B* prefers *x* to *y*

(1) *Preferences and belief*:

(1.1) Because (0.1), *A* prefers [to transfer the ownership of *x* to *B* and that *B* transfers the ownership of *y* to him] to [not to transfer the ownership of *x* to *B* and that *B* does not transfers the ownership of *y* to him]

(1.2) Because (0.2), *B* prefers [to transfer the ownership of *y* to *A* and that *A* transfers the ownership of *x* to him] to [not to transfer the ownership of *y* to *A* and that *A* does not transfers the ownership of *x* to him]

(1.3) *A* believes that promising to *B* to transfer the ownership of *x* to *B* on the condition that *B* transfers the ownership of *y* to him is a way for him to get *B* transfer the ownership of *y* to him.

(2) *Offer & acceptance*:

(2.1) *The offer*: Because of (1.1.) & (1.3), *A* promises to *B* to transfer the ownership of *x* to *B* on the condition that *B* transfers the ownership of *y* to him.

(2.2) *The acceptance*: Because of (1.2), *B* accepts the offer. Hence, *B* incurs the obligation to fulfil the condition specified in *A*'s promise: *B* ought to transfer the ownership of *y* to B.

(3) *Provisions*:

(3.1) *First provision*. Because of (2.2), *B* transfers the ownership of *y* to *A*. As a result, *A* incurs the obligation to transfer the ownership of *x* to *B*.

(3.2)*Second provision*. Because of (2.1.) and (3.1.), *A* transfers the ownership of *x* to *B*.

Or the reverse (…)

Thus, in the case of exchanges made for pleasure, exchangers do not care about the goods at stake: what they value is the activity of transferring. Their preferences for transfers are not grounded in inverse preferences for goods. Accordingly, goods are here mere decorations, and all we have is an exchange of actions (namely, of transfers).

If, on the other hand, the exchangers prefer to transfer the ownership of their goods *because* they prefer each other's goods, then we have an exchange of goods. When exchanges of transfers of ownership of goods are ultimately grounded in reverse preferences for these goods, then is it is right to say that these goods are exchanged. Note, incidentally, that this story typically holds for offers conditioned on promises, discussed above. Such offers typically prompt exchanges that are not only exchanges of actions (promises), but more basically exchanges of a special kind of goods: claims. This is because the reason why one usually accepts a promise in return for, say, the transfer of a good, is that one values promises in virtue of the claims they give rise to. When Julie transfers her bike to Paul in exchange for Paul's promise to pay her, what she really is after is not Paul's promising *per se*, but the claim that the promise gives rise to. The two goods exchanged are here the (promise-generated) claim and the bike.

This strategy of identifying the target of exchanges via the preferences that ground the preferences for transfers yields two interesting refinements.

First, building on Commons (see Appendix), there is a distinction between valuing *goods* and valuing *ownership of goods*. These valuations usually go together: we often prefer the good that we prefer to own. But this does not need to be so. Julie might prefer her castle to Paul's house, but nevertheless prefer owning Paul's house to owning her castle (because, say, maintaining the castle it too costly). Paul, on the other hand, might prefer his house to Julie's castle, but nevertheless prefer owning Julie's castle to his house (because, say, his house is in a country in which he has fiscal troubles). In such a case, Paul and Julie might end up exchanging the ownership of their house and castle. However, the targets of their exchange are not the castle and the house, but rather the ownerships of the castle and of the house. More generally, if the exchangers prefer *to transfer* the ownership of their goods because they prefer *to own* each other's good, and they do *not* prefer each other's good, we have an exchange of ownership of goods which is not an exchange of goods owned.

Second, whether an exchange is ultimately an exchange of goods, an exchange of ownership, or just an exchange of transfers, is dependent on *each* exchanger's motivation. Since these intrinsic motivations need not be the same, one and the same exchange can be both an exchange of goods relative to one exchanger and a pure exchange of action relative to the other. Suppose Julie transfers her bike to Paul against some money because she values Paul's money more than her bike, and that Paul transfers her money to Julie against her transferring her bike to him, because he simply loves transacting with Julie. This single exchange proceeds from two very different motivations: for Julie, the exchange is ultimately motivated by intrinsic object preferences; for Paul, it is fundamentally motivated by action preferences. This very same exchange will be an exchange of goods with respect to Julie, and a simple exchange of services with respect to Paul.

In sum, by introducing object preferences (which upholders of the STE appeal to) as possible grounds for the action preferences (on which the ATE relies), the ATE is in a position to distinguish between *exchanges of goods*, *exchanges of ownership of goods*, and *pure exchanges of transfers of ownership of goods*, although all these exchanges essentially require exchanges of transfers of ownership of goods.

6. Wrapping up: STE *vs.* ATE

We raised two kinds worries against the STE.

Incompleteness. First, the STE is incomplete in four respects: (i) there is a motivational gap between inverse object preferences and mutual transfers, (ii) the *quid pro quo* of exchanges–exchanging something *against* something else–is left unexplained, (iii) the claims and obligations that arises within exchanges remain ungrounded, and finally, (iv) the asymmetry between buying and selling is also not accounted for.

The ATE avoids all these flaws[22]: (i) The motivational gap is filled since the preferences motivating exchanges bear on the very actions constitutive of exchanges, which also figure in the content of the offer, (ii) the *quid pro quo* of exchange is accounted for by offers (understood as promises with conditional content), and their acceptance: *A* conditionally promises to ϕ in order to get *B* to ψ, and *B* ψ-s in order to get *A* to ϕ, (iii) the claims and obligations that arise within exchanges are simply the promissory claims and obligations that arise from any promise, and finally, (iv) the

[22] Our argument, as we see it, is not, strictly speaking, based on an idealized market ontology, but relies on ontologically categorialized notions. An idealized view of exchanges would be a view that strips exchanges from all their non-essential, contingent features. However, when we say that all exchanges are essentially exchanges of services, we do not neglect, or leave aside, cases of transfers of goods on the ground that they appear to us as mere contingent cases of exchanges that can be safely left aside for the sake of generalization. Rather our theory integrates exchanges of goods as being ultimately acts of transferr*ing* goods, thus always consisting in the accomplishment of an action —on a par, in this respect, with any kind of service, standardly understood as "doing something to someone".

selling/buying asymmetry is accounted for straightforwardly: *the seller is the offeror* and *the buyer is the offeree* who accepts the offer (thus exchange offices sell currencies, because they offer to transfer currencies if some other currencies are transferred to them).

It might be objected that the ATE too comes with its own gaps. First, one might think that a key ingredient missing from the ATE is *trust*. To accept Julie's offer, Paul needs to trust Julie's description of the bike, and he also needs to trust that she will fulfil her promise and give him her bike after having received the price-tagged amount of money. Trust is indeed often required for an offer to be accepted, and therefore for an exchange to take place. But that does not entail that trust is an ingredient of exchanges. A first reason for this is that interpersonal trust may not always be necessary. Perhaps Paul does not trust Julie, who he considers to be very unreliable, but nevertheless accepts her offer because he counts on the legal institutions to enforce the rights and obligations arising from promises[23]. For this he may need to trust the institutions at stake, but this is a very different kind of trust than trust directed at the promisor. Other cases are imaginable: it is not the task of a general theory of exchange, we submit, to elucidate and spell out the various possible pre-conditions of acceptances.

Likewise, one may worry that the ATE neglects another core aspect of exchanges, namely, their various degrees of voluntariness. Often a preference for exchanging exists only because one party in the exchange feels compelled to carry out the exchange, typically because of asymmetries in bargaining power. Extreme cases are the so-called "offers one can't refuse", such as 'Your money or your life'. Our response here, again, is that, in the same way that a theory of exchange does not need to incorporate the pre-conditions of offers and acceptances, a theory of exchange does not need to elucidate the origin of the agents' preferences[24]. This way, the theory of exchange remains compatible with all the varieties of genetic explanations of agents' preferences, from coercion to autonomous deliberation. Correspondingly, the many normative issues raised by blackmail, coercive offers, unequal or exploitative exchanges, etc., should not be settled by a theory of the nature of exchange. If, for instance, one is to disagree about whether or not there are exploitative exchanges, or about whether or not they should be regulated, one needs first to agree about what exchanges are[25].

Restrictedness. Our second objection to the STE was that it is unable to account for exchanges of services, because both the preferences and the actions (transfers) it appeals

[23] Note that such institutions are not always necessary. Crusoe and Friday may be the parties in an exchange, even in the absence of the aforementioned legal or moral institutions enforcing the rights and obligations they incur. To be sure, such institutions, when they exist, do help with the carrying out of exchanges between strangers. But these institutions may not be necessary to exchanges.

[24] That preferences are fixed and exogeneously given also is a general assumption in rational choice theory. For an attempt to explore the formation of preferences within the rational choice framework, see List, Dietrich (2012).

[25] We thank an anonymous referee for pressing us on the question of trust and power discussed here.

to bear on objects, and because it assumes that such preferences are inverse, which does not hold true of services. No such problem arises within the ATE. When Julie explains modal logic to Paul in exchange for Paul's playing the violin to her, no transfer ever takes place: the ATE takes services for what they are, actions, and does not need to consider them as intangible goods passing from hand to hand. Preferences, being propositional, do not need to be interpreted as bearing on hypostasized actions. Further, because the preferences are convergent, the ATE conforms to our intuitions that, in the case of exchanges of services, it is not the case that one exchanger values more what the other values less.

Finally, while the STE fails to account for exchanges of services, the ATE can use inverse valuation to account for exchanges of goods.

However, one may ask, couldn't the STE fare better than the ATE in other respects?

Methodological individualism. One purported advantage of the STE we noted in §1 is its compatibility with methodological individualism (despite it being threatened by the introduction of agreements, as we saw in section §2.2). One might worry that, by putting social acts (offers) at the heart of exchanges, the ATE, for its part, proves incompatible with methodological individualism: some form of collective intentionality or joint action would be nested within all exchanges.

But this worry is misguided. Social acts indeed require more than one individual — as opposed to solitary actions, such as intending, grieving, or running— but they do not require collective agents or thinkers. Other people are essential to social acts not because they jointly perform them but because they *hear* them. The promise that Julie makes to Paul has to be heard, and understood, by Paul (Reinach 1983, p. 109). But, while its uptake by Paul is essential to Julie's promise being made, Julie is the only agent that makes the promise. Thus, although any social act requires two persons at least, they usually remain the act of one person only. No we-promises are required by the theory (which can however accommodate them): only I-promises and I-uptakes.

Value subjectivism. Another noted feature of the STE is its value-neutrality: exchanges, on the STE, are only motivated by subjective-valuations of individuals, and no commitment to objective values is required to account for exchanges. One might fear that the ATE is, in contrast, too normative. Because each promise generates an obligation on the part of the promisor to keep his promise, and a claim to the same effect on the part of the promisee, objective norms enter the scene. After the offer, the offeror incurs a conditional obligation (*A* has the obligation to transfer *x* if *B* transfers y to *A*), and the offeree has a conditional claim (*B* has a claim to the transfer of *x* if *B* transfers *y* to *A*). After the offeree's acceptance these norms become non-conditional: *A* has the non-conditional obligation to transfer *y* to *B*, and *B* a non-conditional claim to the same effect. All these norms are objective: neither figure within the scope of an attitude. It is not that Julie thinks she has an obligation; she really has one, whether she recognizes it or not. And the same hold for Paul's claim. So, according to the ATE, exchanges are norms-laden from the second-step on.

We submit that, while this is true, it is harmless. The crucial thing is that no normative assessment *of the preferences of the individuals* is involved in this picture. Nowhere is it claimed that individuals *should* prefer *x* to *y*, or that it would be (rationally, ethically, aesthetically…) *better* to prefer *x* to *y*. To the extent that an assessment of preferences is, according to the principle of value-neutrality, what economic science purports to avoid, the ATE is as value-free as the STE.

Mutual gains. Under the STE, the mutual gains from exchanges are grounded in the exchanges' satisfying the inverse object preferences of the exchangers. Paul values Julie's bike more than his money; Julie values Paul's money more than her bike. Hence, exchanging the bike against the money would satisfy them both. Under the ATE, exchanges are also mutually beneficial, but for a different reason. The preferences at stake are not opposed, but have (nearly, as we saw) the same content: both Paul and Julie prefer that Paul transfers the bike to Julie and that Julie transfers the money to Paul to the situation in which neither of these transfers take place. Under the ATE, the mutual gains from exchanges are grounded in the exchanges' satisfying the convergent propositional preferences of the exchangers. Note that while, on the STE, exchanges are mutually beneficial *ex ante*, this is not the case on the ATE, because the preferences that an exchange satisfies bear on the very actions constitutive of the exchange (there is not motivational gap). It is not because the exchangers expect (correctly or not) to be better off after the exchange that exchanges are mutually beneficial (although this might also be the case); more fundamentally, but also more trivially, it is because the exchangers are willing to exchange that exchanges satisfy them.

Grammaticality. Finally, one might think that, contrary to the STE, the ATE achieves generality at the price of violating the syntax of "exchange". The verb "to exchange" usually takes four referring expressions to make a sentence:

- *Julie* and *Paul* exchange *a bike* for *an amount of money*.

"Exchanging" is an n-place predicate. While the STE got this right, the ATE, appears to entail an ungrammatical construal, where "exchange" functions (partly) as a connective taking sentences:

- **Julie* and *Paul* exchange *that Julie transfers her bike to Paul* for *that Paul transfers his bike to Julie*.

Our reply is that not all uses of the term "exchange" are predicative. The locution "in exchange" takes sentences. We suggest that, with respect to the nature of exchanges, it constitutes the fundamental form:

- *Julie transfers her bike to Paul* and, in exchange, *Paul transfers his money to her*.

On the whole, with respect to *methodological individualism*, *value subjectivism*, *mutual advantages* and *grammaticality*, the ATE fares at least as well as the STE. And it clearly fares better than the STE in providing *sufficient* conditions for exchange and in accounting for exchanges of *services*.

To conclude, the distinction between exchanges of goods and exchanges of services is uncontroversial. The difficulty is to understand how they relate. The STE tackles this issue by treating exchanges of services as a special case of exchanges of goods. We have argued that this strategy is doomed to failure. What should be done is exactly the opposite: consider exchanges of goods as a special case of exchanges of services. In accordance with Bastiat, exchanges of services, not exchanges of goods, constitute the most fundamental kind of economic exchanges[26].

Appendix: the Ownership Theory of Exchange

Here we critically examine a close cousin of the STE, namely the Ownership Theory of Exchange (OTE). We show that, although the OTE fails to go far enough, it is nevertheless on the right track. According to it, what we exchange are not goods, but *ownership of goods*[27]. This view was first explicitly put forward by Commons in a seminal paper:

> The so-called "exchange" of money, materials or services is not an exchange of physical products or material services, as assumed by the classical and hedonistic economists. It is two transfers of two ownerships. The physical delivery occurs after the ownership is transferred (Commons 1931, p. 241, fn 7).
>
> What we buy and sell is not material things and services but ownership of materials and services (p. 242).

This suggests the following account of exchanges (although Commons does not state it explicitly):

> ***Ownership Theory of Exchange (OTE)***: if *A* and *B* exchange their goods *x* and *y*, then:
>
> (1) *Valuations*:
>
> (1.1) *A* prefers [owning *y* to owning *x*]

---

[26] We wish to thank Kent Bach, Nicola Guarino, Robin McKenna, Kevin Mulligan and students who participated to our philosophy of economics seminar, for invaluable criticisms and suggestions. The paper also benefited from insightful comments from audiences in Geneva, Paris (Institut Jean-Nicod), Madrid (ENPOSS2014) and Gothenburg (Social Complexes Parts and Wholes 2), for which we are grateful. Special thanks are due to two anonymous referees of this journal for their detailed and very helpful reports.

[27] Economists indeed often waver between transfer of goods, and transfer of the ownership of good. Menger for instance sometimes describes exchanges in terms of mutual transfers of *commands* of certain goods (Menger 1996, p. 177).

(1.2) *B* prefers [owning *x* to owning *y*]

(2) *Mutual transfers*:

(1.1) *A* voluntarily transfers the ownership of *x* to *B*

(1.2) *B* voluntarily transfers the ownership of *y* to *A*

(3) (2.1.) partly because of (1.1); (2.2.) partly because of (1.2).

The OTE suffers from very similar flaws to the STE. Not only is it incomplete, it is, furthermore, unable to account for exchanges of services. The reason why is that, in the same way that upholders of the STE mistakenly assume that services can be transferred, Commons misleadingly assumes that services can be owned. Julie, however, does not become the owner of the lesson that Paul gives to her. She might own a *right* to Paul's lesson, but not the lesson itself. That she does not become the owner of the lesson she gets from Paul is reflected in the fact that she cannot re-sell it (contrary, again, to a right to this lesson, or to a lesson *she* would give on the basis of what she learnt through Paul's lesson).

Despite these flaws, the OTE constitutes a significant improvement over the STE. It appeals to propositional instead of objectual preferences, and therefore explicitly parts ways with the view that one exchanges goods. It is, so to speak, less goods-minded than the STE. In particular, we submit that Commons is right to insist that goods *simpliciter* are not exchanged. It is clear than in most cases "transferring *x*" is elliptical for "transferring the ownership of *x*". What we own are goods, but what we transfer when exchanging are typically not goods, but ownerships thereof.

A second respect in which we believe the OTE fares better than the STE is that the preferences it must rely on are not inverse. Because ownership is a relation between a person and a thing, the owner has to appear in the content of ownership preferences. Although these owners often remain unarticulated constituents of the propositional contents, once made explicit we get:

(1.1) *A* prefers [that (A owns *y*) rather than that (A owns *x*)]

(1.2) *B* prefers [that (B owns *x*) rather than that (B owns *y*)],

These are not inverse preferences, for they are not instances of: (i) *A* prefers that *p* rather than that *q* and (ii) *B* prefers that *q* rather than that *p*.

Hence, the OTE, although incomplete and unable to account for exchanges of services, is, we submit, on the right track: the track away from goods and inverse preferences. The view of exchange we have proposed goes further: on our view, what is basically exchanged, when tangible goods are at stake, is neither goods (in accordance with Commons), nor ownership of these goods (*pace* Commons), but transfers of ownerships of goods. *What we own are goods. What we transfer are ownerships of goods. What we exchange are transfers of ownerships of goods*.

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