THE INDIVIDUAL AND THE SOCIETY – THE CHARACTERISTICS
OF INDIVIDUAL BEHAVIOUR AND HOW THEY SHOULD BE CONSIDERED ON COLLECTIVE CHOICE

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Abstract

Individual choice is influenced by social interactions, as well as by conventions that govern life on societies. When trying to make sense of their peers, people acquire beliefs and preferences that work as a referential to understand others. As a conclusion, beliefs and preferences are not intrinsic to individuals. The rules that influence interactions among human beings contribute, at the same time, to coordinate agents’ actions on the market by providing a guide to understand relative prices. I will discuss the market process as a solution to the problem of knowledge dispersion described by Hayek. By stimulating competition, the market provides incentives innovation, which is essential to solve the different economic problems that may appear. As a process in which people can freely interact, the market is compatible with human nature. In my heterodox discussion, I have approached some orthodox frameworks, such as the Revealed Preference Theory, from Paul Samuelson, or the General Possibility Theorem, from Arrow. Despite some metaphysical incompatibilities, there are some intuitions in these approaches that are reinforced by my conclusions.

A escolha individual é influenciada por interações sociais, bem como por convenções que determinam a vida em sociedade. Quando tentam perceber os seus pares, as pessoas vão adquirindo crenças e preferências que funcionam como um referencial que lhes permite compreender os outros. Nesse sentido, as crenças e preferências não são intrínsecas dos indivíduos. As regras que influenciam as interações entre seres humanos contribuem, ao mesmo tempo, para coordenar as ações dos agentes no mercado ao providenciarem um guia para compreender os preços relativos. Eu discutirei o processo de mercado como uma solução para o problema da dispersão do conhecimento descrito por Hayek. Ao estimular a competição, o mercado incentiva a inovação, que é essencial para resolver os diferentes problemas económicos que possam surgir. Sendo um processo onde os agentes podem interagir livremente, o mercado é compatível com a natureza humana. Ao longo da minha discussão heterodoxa, abordei alguns estudos ortodoxos, como a Teoria da Preferência Revelada, de Paul Samuelson, ou o Teorema da Possibilidade Geral, de Arrow. Apesar de algumas incompatibilidades metafísicas, há algumas intuições nestas abordagens que são reforçadas com as minhas conclusões.
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1. Introduction

Individual choice is frequently studied through static and rationalist models, based on very rigid assumptions. However, evidence shows that individual choice reveals time-inconsistency and preference-reversal (Ross, 2005). Since this work concerns, firstly, to the study of individual choice, an important question to be answered is why this happens in human behaviour if people are, supposedly, rational. I will, thus, establish a relation between mechanical models of behaviour, such as the Revealed Preference Theory from Paul Samuelson, and actual human beings. Additionally, knowing that human beings are a gregarious animal, as Aristotle admitted (Depew, 1995), the impact of social interactions on individual choice will motivate a deep reflection. My purpose will be, therefore, to understand how human behaviour is moulded by the surrounding social environment.

The social dimension of human species allowed the emergence of collective forms of organization. As individuals integrate socially, the importance of collective choice on their lives increases. Individuals can solve their problems but, collectively, they need to articulate among them. In modern societies, labour division exemplifies how a deeper social integration requires better coordination among individuals. Hayek (1945) addressed the issue of coordination by mentioning that knowledge is dispersed among individuals, being impossible to concentrate and integrate into a single planning entity. He argued for the market as a process that allows people to communicate their unique ‘bits’ of knowledge by acting (Hayek, 1937; p. 73). Through their actions, agents influence relative prices that, together with conventions that give sense to the information they provide, allow others to adapt their plans, increasing coordination (Hayek, 1945). These Hayekian insights will provide a basis for my analysis on how people should articulate to solve their economic problems.

In short, after discussing individual choice, I will analyze the challenge of articulation among individuals. Hayek and other authors, such as Arrow, Kavka and Ross also related, in different ways, human behaviour with social choice. The main line of reasoning for my approach is that people’s decisions are not isolated from their social environment, because they are social animals. Since the existence of societies is a consequence of the nature of individuals, it makes sense to look at the challenge of collective choice with some conclusions from the study of individuals’ behaviour. Intuitively, this paper will be divided into
two main sections. The first one will be dedicated to the analysis of human choice, starting with essential clarifications on the concepts of personhood and agency. As will be discussed, they do not have the same meaning. Nevertheless, for this analysis, it will be simpler to treat individuals as the unitary decision centers.

The intentional stance from Daniel Dennett (1987) will offer a basis to describe how individuals interact and understand others. They do so by adopting a predictive strategy that assumes people to be intentional beings that behave according to beliefs and preferences. While interacting with others, individuals will gradually acquire their own beliefs and preferences with the primary purpose of keeping track of their peers’ behaviour. At the same time, the existence of social rules that are instinctively known by individuals may influence their behaviour and make their interactions easier (Hayek, 1962). Society’s rules and interactions between people are the main drivers for the emergence of selves, described by Dennett and Ross.

After concluding this study on the social features of individual behaviour, it will be important to consider whether human choice is metaphysically possible, meaning that individuals across their actions could have done differently than they did. The motivation for this is that if human choice is not metaphysically possible, its study loses relevance. After this brief reflection, I will compare human choice with the behaviour of other intentional systems to question whether it has a distinct normative interest. Issues as human reasoning or language—which is a unique feature of the human species—will be discussed under this purpose.

Having summarized the investigation on human behaviour, the second section will be introduced through a brief explanation of how human nature promoted the emergence of societies. The problem of knowledge dispersion will be then presented to launch the discussion on social choice (Hayek, 1937 and 1945). According to Hayek (1945 and 1948), this problem can be solved through the free market process. Additionally, Hayek mentioned competition as the way to solve new economic problems faced by communities due to their transformative nature, mainly by stimulating innovation.

The works of Paul Lewis (2012; 2015) about Hayek’s view of the market will allow a discussion on market’s emergent properties and the way it is structured. Based on such analysis, as well on the contributions of Lourenço and Graça Moura (2018) about Hayek’s writings, I will relate some characteristics from individual choice with the market. The purpose is to assess whether intuitions such as the path-dependency of human attitudes or the in-
fluence exerted by the social milieu in people’s behaviour are compatible with the market. The expectation is that they will reinforce the strength of the market as a process that results from the very human nature, being a good solution not due to the results it provides, but by the value it has in itself.

Such Hayekian idea will be used in the introduction to the last part of the second section. Here, the Arrovian General Possibility Theorem will be presented to relate my discussion on collective choice with an orthodox perspective, as I did in the first section when mentioning Revealed Preference Theory. I chose Arrow’s framework because it is one of the most emblematic and pioneer contributions on collective choice (Sen, 2017). By doing so, I expect to demonstrate that, despite metaphysical incompatibilities between both approaches, there are some intuitions in Arrow’s approach that are strengthened by my heterodox discussions.

Essentially, I will propose a way to sidestep his impossibility by taking into account two important contributions from heterodox economists. The first one is to treat human nature differently from the postulated by neo-classical Economics, as the Revealed Preference Theory from Paul Samuelson. The second one is to privilege the fairness of the process instead of focusing on maximizing its result in a rationalistic way. By doing so, it may possible to have a normative social welfare function with Arrovian inspiration that is not condemned by impossibility.
2. Individual choice

2.1. Individual person vs. individual agency

The concepts of individual person and individual agency may seem to coincide, but they have relevant differences. An individual natural person can be defined from alternative perspectives, such as the legal, grammatical, theological or philosophical (Teichman, 1985). Relatively to the philosophical dimension, which is the relevant one for this paper, different definitions exist. For example, P. F. Strawson stated that a person is an individual of a certain type that possesses consciousness and physical characteristics, while Locke describes a person as a thinking being that has reason and that is conscious of itself (Teichman, 1985). From the moral point of view, a person is usually considered as a ‘human being’ (Teichman, 1985, 177), but ‘person’ and ‘human being’ do not have the same exact meaning. A human being is usually considered as a person (Teichman, 1985), having in mind, however, that consciousness is often found essential for personhood (Dennett, 1987; Ross, 2005).

By its side, agency designates the manifestation of agent’s capacity to act (Schlosser, 2015). This definition offers a notion of agency that need not be exclusive to people, insofar as other beings, animals or machines, are also found to be agents (Dennett, 1987). In the case of people, the author of the action can only be considered as an agent if his action can be said to be intentional (Davidson, 1971). This implies the attribution of an intention to the agent, leading to the definition that a person is an agent when her act can be described in a true sentence that expresses that person’s intentionality (Davidson, 1971). Describing human agency in terms of capacity to act intentionally corresponds to the standard definition of agency. There are alternative conceptions that argue that agency does not require intentional action (Schlosser, 2015). Nevertheless, through this analysis, agency will be considered as the capacity for intentional action.

Economists are often worried about what Ross (2005; p. 125) calls “prototypical agents”. In a nutshell, these systems that behave according to the Samuelsonian Revealed Preference Theory. Ross (2005) concluded that human beings are not prototypical agents, as their non-straightforward choices and actions does not allow generalizations that are a purpose of such concept (Ross, 2005). For Ross (2005), prototypical agency may occur at a sub-individual level, there being independent selves that operate and interact at this level. People’s behavioural inconsistencies find in the literature similar explanations without placing
agency at a sub-individual level. Gregory Kavka (1991), for example, considers sub-agents instead of sub-individual agents as the cause of non-straightforward behaviour. Apart from this, Ross (2005) and Kavka (1991) describe strategic interactions at the sub-individual level as the cause for non-straightforward behaviour. In other words, this might result from the joint effect of internal impulses (Hayek, 1967a).

Since the main purpose of this paper is to move from the individual choice problem to the collective choice, the ideas expressed by Kavka (1991) or Hayek (1967a) will find more echo across this paper. Ross (2005) himself also recognised agency at the person level, even if not prototypically. For the purpose of this paper, it will be more intuitive to move from the individual to collective choice, if agency is placed at the person level, that is, if the person is considered as the relevant decision centre.

2.2. The intentional stance and the emergence of the self

The notion that humans are a gregarious, social animal was endorsed, among others, by Aristotle (Depew, 1995). People are constantly interacting with each other. To successfully do so, they must make sense of each other's behaviour (Dennett, 1987). This is achieved thanks to our capacity for forming patterns that catalogue attitudes and actions done by others (Dennett, 1987). Hayek pointed that such capacity may result from the similar structure of individuals' minds, which allows people to interpret their peers' behaviour by analogy to their own (Lourenço, 2016). Understanding how people are able, in most cases, to correctly judge and forecast what those they interact with are or will be doing is the starting point of this discussion.

In making sense of others, people adopt what Daniel Dennett (1987) calls the intentional stance. This stance offers a predictive strategy that can be used to explain behaviour, human or other. As the name suggests, adopting the intentional stance means treating the entity whose behaviour we are trying to understand as an intentional system. The interpreter expects the system to drive its choices towards a goal, and that underlying its behaviour there are appropriate beliefs, desires and other attitudes (Dennett, 1987). In short, the system under observation is expected to act in the way it believes best for achieving what it desires. Beliefs and desires are, thus, the key elements of Dennett's intentional stance. They are identified through behavioural observation, which becomes easier with repeated interaction (Dennett, 1987). This is possible mainly due to the veridical nature of beliefs shared in a
common social space (Dennett, 1987). In addition, people, with obvious caveats, act rationally, meaning that they tend to choose what they believe to be best for them, i.e. what they prefer (Dennett, 1897).

Other authors reinforce the importance of beliefs to explain human behaviour. Rosenberg (1992) notes that preferences and expectations – that are related to beliefs – are the main reason for different choices either among individuals or within the same individual across time, considering an identical set of alternatives. Hollis (1994) expresses that ‘human actions have meaning’ (p. 144), being explained by beliefs about value. Those beliefs, according to Dennett, are facts that can only be analysed from the point of view of an interpreter that adopts a certain predictive strategy (Dennett, 1987). They are not something in the agent's head (Lourenço and Graça Moura, 2018). They are real, not as descriptions of patterns in brains, but as descriptions of patterns of social communication (Lourenço and Graça Moura, 2018). It is, then, the success of an interpretative strategy that allows to conclude that the agent has this belief or that desire. Beliefs and desires are, thus, path-dependent psychological states identified to understand others (Lourenço and Graça Moura, 2018), which indicates that human beings have a social nature.

Regarding the social nature of individual beliefs, it is noteworthy that they are also influenced by values and ‘rules’ that emerge from the construction of society's ties. Following the works of Hayek (1962, 1967a, 1967b, 1969 and 1970), the emergence of community’s rules – in other words, values or habits – and the acquisition of individuals’ beliefs influence each other in a biunivocal way: each individual, through its own behaviour, contributes to shape the community’s rules, while those rules have a critical influence on individuals’ beliefs and actions (Fleetwood, 1995; Lewis, 2012 and 2015). According to him, these rules, or habits, which influence human action, may be related to the process of individual’s and society’s evolution (Hayek, 1967a and 1970; Fleetwood, 1995; Lewis, 2015).

The intentional stance works, thus, through behavioural observation. Using a much narrower evidential basis, so does Samuelson’s Revealed Preference Theory (RPT). Having considerable relevance in economic theory, RPT intends to formalize some intuitions that are shared by the intentional stance (Ross, 2005). Nevertheless, Samuelson’s approach is narrower in the sense that it is based in mere observations of choice in a conspicuous setting, such as the marketplace. By its side the intentional stance is more general, requiring that the interpreter accounts for a wider set of attitudes, considering beliefs and preferences. Ross (2005) summarizes the RPT in three main assertions. Firstly, it is a theory de-
fining preference, secondly, it relates preference with choice and, finally, it defines choice in terms of behavioural revelation (Ross, 2005). Through combining these three assertions, it will be possible to formally define “preference” in terms of “choice” as long as choice observes certain axioms. The Weak Axiom of Revealed Preference, for instance, postulates that when an agent chooses A over B, when both options are affordable, B will not be chosen over A, whenever both are affordable (Ross, 2005).

Another important distinction between RPT and intentional stance is that RPT is more restrictive regarding the consistency of agents’ behaviour to consider them as rational (Ross, 2005). Human beings may behave rationally without necessarily doing so according to RPT (Ross, 2005). Still, Revealed Preference Theory also helps to explain behavioural inconsistencies at the human level (Ross, 2005). Nonetheless, as seen Ross (2005) considers Revealed Preference Theory as a good theory of sub-individual agent’s behaviour. It is from the multiple interactions among those agents with strict preferences that an individual reaches a decision. Ross bases this idea in the Dennettian model of consciousness – the Multiple-Drafts Model of Consciousness (MDM) – in which brains can be compared to massively parallel processors. According to MDM, a human brain can process simultaneously a huge quantity of diverse informational transformations (Ross, 2005). This impacts behavioural consistency since it implies a more complex and less straightforward process of individual choice.

The complexity of the individual choice problem can be illustrated through an analogy with national economies (Kavka, 1991). The collective choice complexity was addressed in Hayek (1945) when he criticized central planning. Hayek (1945) argued that a single central entity cannot control and process a large quantity of parallel information, especially in the presence of a dynamic environment that is, at least, partly independent from a set of external control targets. Ross (2005) claims that the same happens at the individual level, adding that the stability of response in large brains is due to their capacity to coordinate diverse information processing flows, without having to centralize them in a single command entity to reach a decision. To put it briefly, the MDM establishes that brains work a bit like a decentralized information market (Ross, 2005).

Preference-reversal and time-inconsistency are evidence that people are not prototypical economic agents (Ross, 2005). Insects, on the other hand, do behave as prototypical agents, since the relationship between their goals and their behavioural responses is hardwired and sensitive to environmental changes within limited and specifiable dimensions (Ross, 2005).
The computation of an insect’s utility-maximization function is purely a technical matter, after identifying its goals and its mechanisms’ repertoire to achieve them (Ross, 2005). Due to people’s behavioural inconsistencies, prototypical agency does not occur at the person level, since the concept of agency was created to simplify generalizations about causal patterns (Ross, 2005).

Such conclusion does not prevent the behaviour at the person level of being broadly predictable (Ross, 2005). Throughout its development, a typical human being becomes increasingly complex and social and it will rely successively more on external factors – such as social rules, conventions, values – to stabilize its behaviour (Ross, 2005; Hayek, 1962). Rules and social conventions, besides stabilizing individuals’ behaviour, also contribute to make it intelligible to others (Hayek, 1962, 1967a, 1967b; Fleetwood, 1995; Lewis, 2012 and 2015). As Hayek (1962) emphasizes, several rules are ‘known by none, and understood by all’ (p. 235), providing a common guideline to support social interactions. In short, behaviour stabilization and social conventions allow people to keep track of each other and successfully interact among them (Ross, 2005; Fleetwood, 1995; Lewis, 2012 and 2015). Individual preferences and choices may change across repeated interactions, but they do not significantly cycle (Ross, 2005). The fact of humans’ behaviour not being straightforward does not imply the inexistence of a coherent pattern in it (Ross, 2005). Due to these factors, it is possible to use intentional stance as a successful predictive strategy, even though the axioms of prototypical agency are violated (Ross, 2005).

Gregory Kavka (1991) differs from Ross (2005) when he clearly states that people are not constituted by ‘multiple distinct selves’ (p. 148), representing the diverse value-dimensions by ‘distinct rational subagents’ (p. 148). Through an analogy between individual and collective choice, Kavka (1991) explains time-inconsistency of human behaviour, based in some of the properties raised in Arrow (1962). One of Kavka’s key points is that people’s choices do not reflect precisely their values, rather resulting from their structure of internal conflicts (Kavka, 1991). When choosing, an individual has several value-dimensions, or values, according to which it ranks the available alternatives (Kavka, 1991). Rarely an alternative will be the first ranked in all the dimensions (Kavka, 1991). This gives rise to strategic interaction between sub-orderings that will lead to an outcome depending on the relative importance attributed to which alternative within a certain sub-ordering as well as the relative relevance of each dimension to the individual (Kavka, 1991).

One possible result of these sub-individual interactions can be an ‘internal prisoner’s di-
lemma’ in which a sub-optimal equilibrium outcome is chosen instead of the optimal outcome (Kavka, 1991). Another important consideration that relates with Arrow (1962) is that human choices are not transitive (Kavka, 1991). Since individual choice is a complex process, people usually tend to simplify it by using quicker processes and intuitive rules to faster achieve a result (Kavka, 1991). This simplification can be rational because the cost of rationally calculating the outcome of each alternative may be higher than choosing a sub-optimal alternative in a faster process, even though it may lead to intransitive individual choices (Kavka, 1991). The individual decision process would only be compatible with the conditions described by Arrow if brains were not capable of processing decentralized information (Kavka, 1991). However, this is exactly what makes brains effective (Ross, 2005).

The reason for the existence of such apparently sub-optimal individual choices is ‘evolution’ (Kavka, 1991; p. 161) that is related to the complexification of selves (Ross, 2005). This evolution, which may happen with continuous social interactions and acquisition of new beliefs, does not imply that selves radically change over the time. Rosenberg (1992) explained that one belief is a function of all the other individual’s beliefs and the set of beliefs held by a human being cannot be divided into discrete parts. When an individual acquires a new belief, it should either cohere with the individual’s existing set of beliefs or produce an adaptation in individual’s beliefs to cohere with it. Additionally, the self emerges within a social context, which contributes to shape beliefs, preferences and other attitudes (Dennett, 1987). The dynamism of the social context is reflected on the dynamism of the self.

Following Dennettian considerations, Ross (2005) explained that the emergence of the self has an important contribution to stabilize behaviour as a character in a story. That is the reason why Ross (2005) characterized the evolution of the self by establishing a relation between complexity and predictability. When a self becomes more complex and able to define strategic patterns for interact in social games, it reduces its capacity to find different strategies when interacting with completely different selves and contexts (Ross, 2005). A person, as a baby, can be compared to a prototypical agent that becomes progressively more complex as her self emerges, first through interacting with its parents and then when it contacts with other unknown selves (Ross, 2005). It gradually becomes more capable to define patterns of strategic interactions, ever more competent at social games. At this moment, the individual becomes increasingly more predictable to others and, thus, to itself. As Dennett said, selves are like characters built to stabilize the narrative (Ross, 2005). They are
continuously evolving and improving their capacity of interacting socially, allowing other selves to make sense of them, as well as they also make more sense of themselves (Ross, 2005). Since selves are complex systems, they cannot be modelled, thus not fitting in the concept of agency (Ross, 2005). This is the reason why Ross (2005) establishes the difference between agency and personhood. The notion of agency was created to allow generalizations that are not possible to be established at the person level.

Selves are already framed by the social context in which they emerge. Before people face rational thought, their actions are already guided by abstract ‘rules’ (Hayek, 1969), which are usually called as ‘customs’ or ‘habits’ (Hayek, 1962). In fact, most of an individual’s capacities may be learned in early infancy, being already ingrained when it experiences conscious reasoning (Hayek, 1971). Even after people have conscious thoughts, there are several factors, or rules, that influence their actions of which they are not aware (Hayek, 1969). Hayek’s abstract rules offer an important contribution to govern people’s interactions, since they offer an inter-subjective bridge between social actors (Fleetwood, 1995; Lewis, 2012 and 2015). Actions should be understood according to the rules that attribute meaning to it (Hollis, 1994). Additionally, these unconscious factors already exist before selves emerge, shaping their development (Hayek, 1962, 1969, 1971). By doing so, rules provide the base that will help selves to fulfil their purpose: making people more intelligible to the others and to themselves (Hayek, 1962, 1969, 1971; Fleetwood, 1995; Lewis, 2012 and 2015).

In short, it was discussed that human beings are social animals that need to understand others to successfully interact. To do so, they treat others as intentional systems, using the intentional stance as a predictive strategy. Through behavioural observation, human beings start to identify patterns by attributing beliefs and preferences to their peers. When keeping track of them, individuals simultaneously acquire beliefs and knowledge from the social experiences they have. This allows people to have their own referential for understanding others’ and their own actions. By continuously doing so, people become increasingly complex beings, but more stable and predictable. Social rules play an important role by offering a common framework of conventions understood by all – even if unconsciously – that guides social interactions. It is, thus, the social dimension that complexifies and even creates people, as it helps to better understand them.

2.3. Individual choice
For the discussion in this paper, it is important to attest the metaphysical possibility of choice. In other words, it should be asked whether agents could have decided differently. This is not obvious. According to causal deterministic theses, an individual is a negligible part of the Universe, being critically dependent on external circumstances (Hoefer, 2016). Causal theory of action states that people react in complex ways to external stimuli that they do not control, and they cannot avoid (Davidson, 1973). Moreover, it can be argued that people’s reactions are simply a consequence of experience and learnings (Hoefer, 2016). The greater the relevance attributed to deterministic and causal events, the smaller is the space for individual choice. However, many – such as Hume or Fischer (1994, 2012) – believe that human beings do not merely react to external stimuli, proposing a compatibilization between deterministic views and freedom of will (Hoefer, 2016).

In *The Sensory Order*, Hayek (1952) argues that individual’s expectations and choices rely not only in external stimuli, but also on internal impulses from the nervous system that seldom react in the same way to external conditions (Lewis, 2017). For instance, the individual’s mental classification scheme – that generates expectations and decision-making – will successively cause different actions and ‘behave in a self-adaptative and purposeful way’ (Lewis, 2017: p. 14). By its side, Shackle argued that people have multiple projections of the future generated through their creative reasoning, allowing them to choose from diverse courses of action, based on their expectations (Lewis, 2017). If those expectations fail to provide a reasonable account of future events, the way people form expectations and decide may change (Lewis, 2017). Hayek notes that choice implies that the world is an open system, making it possible that, given the same external context, an individual that chose one alternative could have chosen another (Lewis, 2017). These theses help us make sense of the reality of human choice in a materialistic world.

Besides questions about its metaphysical possibility, there are also questions as to the normative interest of real choice. According to Davidson (1973), this normative interest may be related to the fact that people act intentionally. More importantly, the normative relevance of people’s action is not concerned to the mere observation of concrete actions, but rather to understanding whether they were done intentionally (Davidson, 1973). Of course, an intentional action needs beliefs and desires to rationalize it, being impossible to track all the chain of events regarding the acquisition of such beliefs and desires (Davidson, 1973). But the acquisition of beliefs and preferences is exogenous to this discussion. Important here, is that individuals have the capacity to act intentionally, according to their knowledge
and desires, even if their intentional actions do not produce the intended outcomes. Intentional action occurs when people have reasons for doing so (Davidson, 1973). Nonetheless, being free to act and having reasons to do so does not imply that a person will necessarily act on them. As Davidson (1973) puts it, ‘freedom to act is a causal power of the agent’ (p. 81).

Davidson (1973) focused, thus, intentionality and reasons for acting as capturing the normatively relevant aspects of a notion of free action. In this sequence, human reasoning – in which reasons for acting are pondered (Davidson, 1973) – may also provide normative interest for the study of individual choice. According to Hayek (1962), reason appeared as consequence of a Darwinian evolutionary process. Individuals acquire reasoning capacity socially through example and teaching (Hayek, 1962). Firstly, they learn how to identify and recognize patterns, being then able to use imitation, which is an example of pre-reasoning learning (Hayek, 1962). The important conclusion here is that reasoning is not intrinsic to human beings, being acquired after important learnings. In fact, it is in the early infancy that most human skills are obtained, being then consolidated later as reasoning is developed (Hayek, 1971). There is a certain parallelism between this and the process of emergence of selves described by Ross (2005). Babies are born equivalent to prototypical agents and become increasingly complex after involvement in social interactions (Ross, 2005).

Both reasoning and emergence of the self imply previous important learnings and experiences before people face them.

Before moving forward, it urges clarify what reasoning means. Buchanan and Brock (1989) mention the importance of manipulating information, while Friedman (1981) describes reasoning as the skill of achieving conclusions from premises (Charland, 2015). Reasoning can be also described as the capacity to measure risks and benefits, as well as to evaluate eventual consequences (Charland, 2015). Other animals may also be able to consider risks and benefits and measure consequences. For example, a lobster may refuse to engage in a fight against a stronger opponent, even if that implies losing territory and feeding opportunities (Kravitz, 2000). Nevertheless, there is an important remark that Ross (2005) makes about the concept of self that may highlight the normative interest of human reasoning and, consequently, choice. He argued that, like characters in novels, selves are not constructed exclusively by ‘natural selection from chemical materials’ (p. 279), being critically influenced by human intervention. They are constructions, which does not necessarily imply that they are freely built (Ross, 2005).
After arguing for the normative interest of individual choice by mentioning intentionality and reasoning, it is the moment now to distinguish human choice from that of other intentional systems, such as machines or other animals. This can be better explained through an example based on Dennett’s computer that plays chess (Ross, 2005). Both, the machine and the person, have the same intention when they play: to win the game. Let’s suppose now that, at some moment, FIDE – the World Chess Federation – decides to change the rules of the game. The human player could learn this new rule by reading about it, as well as advanced machine learning could allow the chess playing computer to adjust without direct intervention of people. The difference is that the human player can assess the reasonability of this new rule, whether it makes sense to the game. And, more importantly, it is able to have and opinion about what the best set of rules for the game is, as well to judge according to which set of rules it prefers to play. In short, the human player has the capacity to step outside to think about the system instead of taking it as a given fact. Regarding other animals, there are some distinctions that deserve attention. Human beings can plan beyond immediate survival and set long-term objectives, i.e., they have forethought (Russel, 2016). Unlike other animals, people do not merely choose according to biological needs. In addition, their actions also contain normative expectations, being different from animal routines (Hollis, 1994).

Despite the uniqueness of human reasoning, Hayek (1962), following Hume’s considerations, mentioned that reason merely supports people’s values, rather than determining them. Additionally, Hayek (1971) referred that people learn many things unconsciously and passively and that new faculties are learned by imitation because they proved effective in the past. Regarding this, Dennett (1987) argued that, because of natural selection, some skills previously acquired consciously are now so entrenched in people that are unconsciously used. And it is also true that during the existence of humanity there were several disruptive innovations, such as the wheel or the steam machine (Lewis, 2016). Humanity subsists daily due to unconscious and intuitive knowledge, but conscious research boosts its progress (Lewis, 2016). The Hayekian unconscious rules can be, thus, complemented with an emphasis on creative and breakthrough innovation (Lewis, 2016). The rationale is similar to Shackle’s argument about the possibility of individual choice (Lewis, 2016). Creative thinking allows individuals to adapt their decision process when their expectations are not matched by reality, as well as it improves human species’ capacity to find alternative solutions to solve their problems (Lewis, 2016).
An interesting remark about the possibility of people experiencing creative thinking is that it also reinforces the criticism made by Hayek (1945) to central planning. The uniqueness of each person’s knowledge is stronger when considering the conscious search for new facts and beliefs. The greater is this uniqueness, the more difficult it will be to concentrate all the knowledge into a single central planning entity. The decentralized society works because each agent communicates its information bit to the market that is the vehicle for information circulation. This communication occurs by transforming the world through action, reinforcing the idea that beliefs, desires and attitudes are social phenomena. Individuals’ actions result, thus, from a balance between unconscious rules that make social action easier and creative thinking that seeks to improve people’s lives.

As a final note on the normative interest of human action and choice, language should be mentioned as the greatest example of how people’s nature is more complex than other intentional systems (Ross, 2005). Human behaviour is considerably complexified by language. Also, due to the relevance that language has for social communication, it is deeply related to the evolutionary processes discussed by Dennett and Hayek. In fact, language and of human species may have developed in parallel, as language critically supports social integration and interaction among the species. Both language and humanity continue to develop together, since the discovery of new knowledge to form new beliefs, patterns and attitudes implies continuous language extension to describe it. The same happens regarding the emergence of the self. As seen before, selves become more complex after experiencing social interactions, developing language and communications skills (Ross, 2005). Additionally, language also shapes selves and people, since it is the tool they use to think and communicate (Ross, 2005).

Having concluded for the possibility, normative interest and uniqueness of human choice, it is now the moment to do a summary by analysing the concepts of belief, preference and other attitudes from the point of view of language. This is the tool with which the user of intentional stance formulates to itself what she observes on others’ behaviour. The observer need to attribute an intention to the agent that does a certain action, an intention that turns on the beliefs and preferences that give a reason for the action (Davidson, 1973). However, formulating a description of such observations is more complex than it could seem. In fact, actions can be described in so many ways that the action of choosing a cake from a menu cannot merely be described as preferring cake A to cake B. The individual could choose the cake due to its aspect, due to being made from its favourite ingredients or
due to avoiding a certain ingredient that it believes being bad for health. Or even because the individual prefers actually cake B to cake A but decided to change because it ate too many cakes A before. Only a being with language may ask questions of this sort, because linguistic behaviour offers enough behavioural complexity to distinguish among these alternatives.

Through this section, we have seen how the social nature of human beings induces them to understand others by building their own referential composed by beliefs and preferences. This referential may be called as self and emerges to increase stability and predictability at the person level, improving the success of social interactions. Selves and other social constructions are, thus, influenced by the social framework they emerge in, mainly in the form of rules and conventions that are a cause, as well as a consequence, of human action. Besides intentionality and the nature of human reasoning, language was mentioned as the greatest example of people’s behavioural complexity when compared to other intentional systems. Language affects the way social environment influences individuals’ interactions and, therefore, their own beliefs, preferences and attitudes. The meaning of human action (Hollis, 1994) is social as Hayek and Dennett noted on their respective works, showing that people’s beliefs, preferences and other attitudes are linked to the social milieu they live in. Through this link, societies emerge as a way to improve individuals’ wellbeing, having collective choice as one of their greatest challenge.
3. Collective choice

3.1. From the individual to the society

Having discussed the way individuals choose, it is now time to approach how societies may do so, too. In the previous section it was concluded that individuals’ choice was essentially social, in the sense that their reasons for action – beliefs and preferences – were social notions that allow them to keep track of their peers. By its side, selves are also critically influenced by the social milieu they emerge in, mainly by rules and conventions. Their emergence is justified by the non-straightforward nature of human behaviour, as a mean to stabilize the way people interact with others. These conclusions evidence the tendency that human beings have to organize themselves socially and how this impacts their own individuality.

In his *The Use of Knowledge in Society*, Hayek describes the problem faced by societies. The necessary knowledge to allocate resources does not exist in an integrated and concentrated form (Hayek, 1945). Contrarily, it is usually dispersed among individuals that sometimes possess unique ‘bits of incomplete and frequently contradictory knowledge’ (Hayek, 1945; p. 93). In other words, the knowledge necessary to proceed to better collective choices is not provided to anyone in its totality (Hayek, 1945). This offers the main motivation to the Hayekian criticism to central planning entities. Based on this criticism and considering the conclusions from the previous section, this chapter will try to provide a solution for the problem raised by Hayek. The market process will, thus, be analysed as a possible solution to solve the knowledge integration. To validate the market as a solution, it will be analysed from the point of effectiveness on coordination and normative fairness. Firstly, the conclusions from the previous section will be recovered then to assess whether the market process is compatible with free individual choice. In the last part of this section, a normative analysis of the market process will be made based on the Arrovian framework to evaluate its fairness and normative validity.

As pointed before, the natural selection process faced by *Homo Sapiens* resulted in the development of language and communication, which deepened the social dimension of the species. In this context, forms of collective organization started to emerge, becoming increasingly complex as humanity was evolving (Ross, 2005). As Hayek noted, institutions and other organisms emerged to rule life in societies, defining hierarchies and forms of
collective organization (Lewis, 2012; 2015). Exchange was also addressed by the Scottish
philosopher Adam Smith when he argued for the change of human nature when individu-
als start to engage in transactions. He argued that more transactions among individuals
contribute to foster social virtues, even if their main motivation is self-love (Smith, 1976).
Citizens should maintain their honourability and reputation if they wanted to successfully
trade (Smith, 1976). Virtues as punctuality or honesty, when aligned with self-love, were
decisive for repeated successful transactions (Smith, 1976). As Smith wrote on his Theory of
Moral Sentiments: ‘The habits of economy, industry, (…) are generally supposed to be culti-
vated from self-interested motives, and at the same time are apprehended to be very praise-
worthy qualities, which deserve the esteem and approbation of everybody’ (Smith, 1976; p
304).
This finds some parallelism with Hayekian rules. Those virtues may correspond to the ob-
servance of ‘rules’ that resulted from and shaped human action, contributing to improve
communication among citizens (Hayek, 1962; 1967a). As Lewis (2017) noted, the dissemi-
nation of knowledge requires ‘a set of shared social rules’ (p. 3) that give sense to price
signals. The existence of such rules increases confidence on people that other agents will
act accordingly to their expectations, increasing coordination (Lewis, 2017). As a result,
people’s plans are brought into harmony, increasing social order (Hayek, 1967a). This over-
all order is more than the sum of its parts, requiring also that individuals relate in a certain
way (Hayek, 1967a). In other words, individuals, taken alone, do not produce this Hayekian
social order (Lewis, 2017). This relates to a question posed by Hayek in a lesson given in
Tokyo in 1964: is the human civilization the product of human reason or is human reason
the product of a civilization that was not deliberately created by man, but which had grown
by a process of evolution? According to the line of reasoning presented across this paper,
it is the second hypothesis that is correct. Societies are not a human creation, being ‘more
than the totality of regularities observable in the actions of the individuals’ (Hayek, 1967a;
p. 282). Returning to the Hayekian problem of knowledge dispersion, Hayek (1945) argues
that the market process enables to spread knowledge that is tacit and dispersed among all
individuals. By communicating through actions to the market, people are sharing their ‘bits’
of information to the market (Hayek, 1945). As a result, individuals can gather information
from the market process and act according to it, improving their chances of success (Hay-
ek, 1945), if supported by rules that give sense to it (Lewis, 2017). Hayek noted that this
process brings coordination, being more effective than a central planning institution.
3.2. The emergence of collective choice

In the introduction to this section, it was argued for the emergence of societies, meaning that they are not the product of conscious human design. Even companies and other institutions that are created by man’s decision, are governed by and based on ‘rules’ that existed long before its creation and that give sense to them (Hayek, 1967b; 1968; 1969). This idea of emergence also suggests that societies were the result of dynamic interactions between people rather than an instantaneous decision of creating them. It is now the moment to clarify what this concept of emergence means, particularly in the Hayekian account of the market process. According to Lewis (2012 and 2015), emergence designates a circumstance in which a certain combination of elements, ruled by a certain type of relation, generates a whole with some properties that are not held by its elements when separated from that whole. These emergent properties are structural because their presence does not rely exclusively on the lower-level elements of that whole, depending also on the structure in which the lower-level entities are organized (Lewis, 2015). Emergent properties have then a mechanism producing causal powers that describe the capacity of promoting a certain effect, influencing the course of events in the world.

As Lewis (2015) noted, emergent properties should be analysed taking into account some aspects, namely: (1) the elements that belong to the emergent entity, (2) an explanation of how they are structured, (3) a causal explanation of how the organization of the parts can generate causal powers and (4) a description of how the emergent entity comes to existence. The emergent entity is the market process constituted by individuals that interact according to abstract rules of contract, property and others (Lewis, 2012; 2015). Through the combination of market prices with rules that support people’s expectations about other’s plans, coordination among agents emerges as causal power of the market process (Lewis, 2015). Such causal power belongs exclusively to the market as whole and not to its lower-level constituents (Lewis, 2012; 2015).

The last point deserves a deeper reflection. The existence of the market and its abstract rules results from the capacity to understand others’ behaviour. For instance, Hayek argues that behaviour is what people observe to make sense of the others (Lourenço, 2016). After observing it, individuals interpret each other’s attitudes on the analogy to their minds (Lourenço, 2016). In other words, only mere observation does not allow to understand humans’
behaviour, requiring also an interpretation from the observer, mainly regarding the reasons for acting (Lourenço, 2016). According to Hayek, these analogies contribute to connect people’s minds, as well as the common ‘mental structure’ that works for beliefs and preferences (Lourenço, 2016). Such considerations found great correspondence with what was said above about intentional stance. The market exists because people are social beings and usually predict successfully their peers’ actions. Such success is based on a social environment that favours the existence of communication and interactions, being supported by the emergence of rules understood – even if unconsciously – by all (Hayek, 1962; 1967a; 1967b).

In short, Hayek argued for the coordinative capacity of the price system as an emergent property of the free market system, only verified at the whole entity. Before moving on, it is important to provide further explanation on the market process and on the price system that Hayek describes. There are two main types of information that influence people’s actions on the market: the relative prices and people’s own knowledge. Relative prices are available to every individual, providing them relevant information to adapt their plans to the remaining agents (Lewis, 2014). The second is respective to each agent, and it may lead to adjustments on relative prices (Lewis, 2011). It is this second type of information that is dispersed among individuals, being the main reason pointed by Hayek (1945) against a central planning entity.

The main conclusion from this analysis on emergent properties is that ‘ultimately for Hayek social structures and human agency are recursively related’ (Lewis, 2012; p. 376). In one side, there are social wholes that shape individual’s actions, allowing them to attain outcomes that would be impossible if such wholes did not exist (Lewis, 2012). In the other side, people’s interactions reinforce the existence, as well as evolution, of the emergent wholes (Lewis, 2012). Market, thus, emerges within the same social dimension as individual beliefs, preferences and attitudes. They are also part of this process, since people can freely communicate them to the market by acting (Lourenço and Graça Moura, 2018). In addition, the economic roles of things are not intrinsic, being discovered in the same process from which attitudes result (Lourenço and Graça Moura, 2018). Since attitudes are ‘provisional, contextual, and path-dependent’ representations used by human beings to make sense of each other and the economic roles of things depend on attitudes, these roles may be also ‘provisional, contextual, and path-dependent’ (Lourenço and Graça Moura, 2018; pp. 10-11). At the same time, attitudes are also influenced by the economic roles of things,
as they result from social interactions (Lourenço and Graça Moura, 2018). Finally, as Lourenço and Graça Moura (2018) wrote, the economic problem of a community – that influences the economic roles of things – is not independent from its economic organization, as well as individual attitudes are conditioned by the surrounding social milieu.

3.3. The normative requirements of collective choice

So far, the discussion was focused on the market as an emergent and dynamic process, in which problems and solutions are constantly evolving. Does it make sense to discuss collective choice in terms of static and normative fairness and results? For example, in his *The Constitution of Liberty*, Hayek argues that Democracy is merely a process instead of an end in itself or that society’s values are chosen by an ‘impersonal evolutionary process’ (Miller, 2010; p. 75). Hayek argued that the maximum to be done is to preserve freedom in society, so that individuals can compete for achieving the ideals they pursue (Miller, 2010). About the idea of social justice, Hayek wrote in his *Law, Legislation and Liberty* that it does not make sense in a society constituted by free agents (Hayek, 2012). He explained that individuals cannot blame anyone for their misfortune when freedom exists, since no agent has the power to define the position of others (Hayek, 2012). Regarding competition, Hayek also refers to its value as a process, rather than to the value of its result, criticizing the model of perfect competition for being based on assumptions that do not match reality (Hayek, 2012). Nevertheless, some rationalistic literature is very influential, as Arrow (1962) (Sen, 2017). It is worthy, thus, to analyse Arrow’s pioneering work in light of the discussion made above, bringing a different and complementary perspective to this approach.

Economists have long worried with collective choice (Sen, 2017). Arrow (1962) did a pioneer work to define a normative framework for this problem. Arrow’s aim was to build a social welfare function. Firstly, he reflected on how to combine the individual preferences into a social preference. Arrow (1962) based on Bergson’s answer to the hypothesis raised by Bentham, then endorsed by Edgeworth and Marshal, that ordering social states could be done by summing cardinal utilities of individuals. Bergson argued that choosing a mathematical expression to measure and sum individual utilities would imply a value judgement that impacts the final decision (Arrow, 1962). Arrow (1962) decided, thus, to use preference scales without cardinal values to move from individual to collective choice, achieving a social ordering. This ordering should allow any two alternatives to be ranked – one being pre-
ferred to another or both being indifferent – and it should be coherent (Sen, 2017). The latter is also known as ‘transitivity’ meaning that if, for example, \( x \) is preferred or indifferent to \( y \) that is preferred or indifferent to \( z \), then \( x \) should be preferred or indifferent to \( z \). Transitivity condition aimed at achieving a ‘collective rational choice’ (Sen, 2017).

However, as firstly noted by Marquis de Condorcet in 1785, achieving a complete social ordering through the combination of every individual ordering could be problematic (Sen, 2017). Condorcet demonstrated that majority rule may lead to an impasse when every alternative is surpassed by some other alternative in pairwise comparisons (Sen, 2017). This situation is known as ‘the paradox of voting’ and when it occurs, there is no alternative that is clearly preferred to the others (Sen, 2017). The final choice is, thus, dependent on the voting agenda, this means on the order in which pairs of alternatives are compared. To achieve a path independent choice, Arrow established the transitivity condition on social ordering when he formulated his ‘General Possibility Theorem’.

In addition, Arrow (1962) defined four ‘reasonable’ axioms that should be observed in his normative social welfare function (Sen, 2017). As Sen (2017) explained, axioms’ reasonability means that, at a first sight, they are simple requirements relating collective choice to individual choice in a democratic way. Firstly, the Unrestricted Domain, postulating that every profile of individual preferences should be admissible. This axiom is defined to avoid that the set of available alternatives is restricted \( a \ priori \). The Independence of Irrelevant Alternatives imposes that the ranking between a pair of alternatives should be compatible with the overall ordering. This aims at preventing that some agent or group of agents has the capability to influence the result of collective choice through agenda manipulation. Hayek (2012) also argues with this idea, when he mentions that it does not make sense to discuss fairness in a free society since there is no one to blame for its result. According to the Pareto Principle, if all citizens strictly prefer one alternative to another, then the first is also socially strictly preferred. From the static point of view, this axiom is adequate, but in a dynamic analysis it is the process that should be valued, rather than its result (Hayek, 2012). Finally, the Non-Dictatorship clause guarantees that the social welfare function cannot be imposed by any individual. As seen above, Hayek (2012) also argued that individuals should be able to pursue their choices in a free market.

Arrow concluded that when the set of alternatives is composed by three or more, the social welfare function cannot fulfil simultaneously these axioms (Arrow, 1962). From this conclusion, Arrow and other authors tried to solve this impossibility by setting less restrictive
conditions. An intuitive interpretation is that a dictatorial social ordering would solve Arrow’s impossibility (Sen, 2017), but this would not correspond to the best normative solution. Mueller (2003) argued that this axiom should be maintained in a normative analysis. Additionally, the Independence of Irrelevant Alternatives guarantees that the mechanism that rules the voting agenda does not influence the outcome of the social welfare function (Mueller, 2003). By other words, this axiom removes value judgements on the voting ordering, as well as the temptation to implement a voting agenda with a strategic purpose (Mueller, 2003). The Pareto Principle should be analysed carefully since it should not allow one individual to tyrannize the other under the argument that such result is on the Pareto frontier. As Hayek (2012) noted, the process itself may be more relevant than its result. Considering this, it remains the transitivity condition on social ordering or the Unrestricted Domain axiom – introduced by Arrow to preserve freedom of choice (Mueller, 2003) – as possibilities to be relaxed, to look a normative framework for collective choice that is not condemned by impossibility.

The transitivity condition on social ordering aimed at ensuring two conditions: collective choice should be made from any environment and it should be path independent (Mueller, 2003). Sen (1970) presented an argument to relax the transitivity condition, by saying that a social welfare function does not need to establish a complete ordering of all the alternatives, being enough to select the best option (Mueller, 2003). For this purpose, Sen argues that either acyclicity or quasi-transitivity are enough (Mueller, 2003). However, quasi-transitivity and acyclicity can lead to a collective choice process in which a subset of citizens can have considerable influence, either by imposing its preferences or by having veto power (Mueller, 2003). Gibbard (1969) and Brown (1975), respectively, demonstrate these conclusions (Mueller, 2003). Additionally, Sen (1970) argued that either quasi-transitivity or acyclicity imply some restrictions on individual preference orderings (Mueller, 2003).

By its side, Buchanan (1954) criticised the transitivity condition from the point of view of Arrow’s intention to mirror individual rationality axioms in the social welfare function (Mueller, 2003). Although transitivity is present in the Samuelson’s RPT as a characteristic of rational individual choice (Mueller, 2003), Kavka (1991) considered intransitivity as a common characteristic between individual and collective choice. According to him, intransitivity on human behaviour denotes rationality in the sense that people are more efficient by following simple and intuitive rules instead of being constantly calculating their expected utility. Therefore, the intuition of imposing transitivity on social ordering by mirror-
ing individual rationality loses some traction, as transitivity is not a condition for individual rationality. Following a different line of reasoning, Plott (1972) mentions that imposing transitivity would be justified if proved that its absence violated the fairness of the collective choice process (Mueller, 2003). For instance, the random outcomes resulting from cyclic preferences do not necessarily violate elementary ethic norms (Mueller, 2003). Arrow (1962) himself admitted that the process of social choice can have an ethic value in itself, which is not harmed if transitivity does not exist. This idea is reinforced by Kemp, 1954) by arguing that the requirement for path independence on collective choice can be replaced by the existence of a fair process (Mueller, 2003).

After arguing that the relaxation of transitivity condition would not harm the fairness of the process of collective choice, it is now time to discuss an eventual flexibilization of the Unrestricted Domain axiom. As explained above, Arrow decided to introduce this axiom to preserve freedom of choice (Mueller, 2003), so it might seem a ‘delicate’ axiom to be relaxed. After reaching the conclusion of impossibility, Arrow himself admitted the possibility of relaxing this axiom. More precisely, Arrow (1962) referred to single-peaked preferences as a way to ensure a non-dictatorial Social Welfare Function that respects the remaining axioms. He even mentioned Kantian ethics as an example of a set of normative principles that could generate a social consensus. Slutsky (1977) notes that single-peaked preferences imply restrictions on the selection of topics to be decided and on the voters to decide them (Mueller, 2003). Moreover, under single-peaked preferences, the issues should be of the one-dimensional variety (Mueller, 2003). Due to these limitations, single-peaked preferences are not best way to relax this axiom.

Recovering Arrow’s idea of basing collective choice on individual rationality, intentional stance appears as a good contributor to the flexibilization of Unrestricted Domain. This happens because individuals that move inside the same social space base their beliefs and preferences in a common social environment they want to move in and understand (Dennett, 1987; Ross, 2005; Hayek, 1962, 1967a, 1967b). Since those beliefs and preferences – which are through intentionality the main drivers of individual choice – emerge as a mean to make sense of the others that share the same social environment, there is similar phylogenesis of individuals’ beliefs and preferences. This common starting point of individual’s beliefs and preferences as people work to stabilize their selves may lead to a restriction on the overall diversity of society’s beliefs and preferences. This may direct individuals to form beliefs about socially relevant issues, while keeps them away of facts and knowledge that
have no value to understand their surrounding environment.

The profiles of preferences that individuals present in a certain society are, in this way, moulded by the social milieu they live in. Additionally, the economic roles of things depend on preferences and attitudes that, by their side, depend reciprocally on the economic roles of things (Lourenço and Graça Moura, 2018). As a result, individual preferences will be much less heterogeneous than they could, at a first sight, seem to be. The unrestricted domain that Arrow establishes as a condition to preserve individual freedom can, thus, be relaxed not by imposition but due to the structures of the social milieu. And it is the existence of this social environment that allows the emergence of societies and, thus, collective choice. The Hayekian unconscious rules of action that were approached in the first section as important drivers of human action work also in the restriction of heterogeneity of individual preferences. Rules and intentional stance are deeply related since they both result from life on society. Intentional stance is the tool to understand and make sense of the others, while rules of action are acquired through continuous exposure to society as well as they are shaped by it. Those rules are dynamic, evolving with the social context they are in, working as important mechanisms to restrict the profiles of individual preferences (Hayek, 1962, 1967a, 1967b; 2012; Lewis, 2012 and 2015). Given this, relaxing the transitivity condition and the Unrestricted Domain axiom, it may be possible to have a normative acceptable social welfare function that is not condemned to impossibility. Arrow’s intuition of mirroring collective rationality from the individual’s rationality may provide a good approach to solve some of the normative difficulties posed by collective choice, mainly by considering the nature of human interactions, through intentional stance, and the nature of the social milieu, through its rules and conventions.

For the moment, it is important to trace an essential distinction between the Arrovian social welfare function and the market process described in the last paragraphs. While Arrow establishes a static analysis, with specified conditions, alternatives and choice rule, the market is a dynamic process in which preferences, alternatives and ‘rules’ are constantly evolving. Nevertheless, the market is a collective process in which every individual can participate with their own choices, avoiding the existence of dictatorship, which Arrow prevents through his Non-Dictatorship axiom. Additionally, as Hayek (1945) wrote, the decentralized market is the process in which knowledge can be constantly communicated through human action. Although being incoherent with Hayek’s framework to state that Arrow’s Pareto Principle is fulfilled, the market process is more efficient in solving the economic
problem than a central planning entity. In addition, the market poses many difficulties to agenda manipulation, which was the main purpose to include the Independence of Irrelevant Alternatives axiom. In a dynamic framework, transitivity condition on social ordering is difficult to be imposed because the alternatives are always changing, being impossible to define a stable ordering of alternatives. Finally, the Unrestricted Domain axiom is relaxed, since beliefs and preferences are critically influenced by the social environment.

Given this, a central planning entity would not, in principle, be able to achieve as efficient and normatively acceptable collective choices as the market. Not only because it would probably fail to gather all the knowledge that is dispersed among citizens (Hayek, 1945) but also because it would be more rigid than the market, creating entropy to change and constant evolution. This does not prevent the existence of institutions that contribute to the regular working of the market process. For example, judicial institutions protect individuals from being deliberately tricked by others, ensuring confidence on the market. Institutions should contribute to improve interactions among people, rather than imposing people what to do. Extending the analogy from the previous paragraph, collective choice must result from the decentralized action of human beings, as well as individual choice is the outcome of several independent (sub)agents interaction.
4. Conclusion

Individual and collective choice will continue to deserve great attention from economists. Their complexity and normative issues can be analyzed from multiple perspectives and according to several lines of reasoning. Nevertheless, in a dynamic reality, orthodox models that seek to optimize results based on rigid assumptions usually fail to provide satisfactory descriptions about such phenomena. Both individual and collective choice are fundamental and deeply related in human beings’ lives. Therefore, a first conclusion is that joining individual and collective choice in the same discussion helps to provide a holistic and integrated perspective on the domain of choice, either individual or collective.

Individual beliefs and preferences, that are the main drivers of human action, are not intrinsic to people, being acquired from multiple social interactions. This is so because, when trying to make sense of its peers, an individual will develop its own set of beliefs and preferences that works as a referential to classify others’ actions. The conventions and rules that govern societies also exert, even if known unconsciously, influence people’s actions. They offer common frameworks to understand reality, supporting intersubjective communication and comparisons, as well as they also provide useful inputs to act according to the relative prices in the market process, improving coordination among agents.

The market process seems, thus, to be a reasonable solution to solve the problem of knowledge dispersion formulated by Hayek. In the second section, I have related the characteristics of individual choice to assess its compatibility with the market process. The economic problem of a society is not independent of its organization, as human behaviour is not independent of its surrounding social environment. Economic roles of things are path-dependent as attitudes and beliefs are, influencing each other in a biunivocal way. Prices are the tool to compare different goods, similarly to how language allows intersubjective comparisons among individuals. The knowledge that individuals have about themselves and their peers is higher when they freely interact. Similarly, the solutions found for new economic problems on communities will be more effective and faster if individuals can freely embrace the market as a process of discovery.

As a final discussion, I related the pioneering Arrovian General Possibility Theorem with my heterodox analysis on collective choice. Through this discussion, I demonstrated that, even with some metaphysical divergences, my conclusions reinforce some intuitions from his orthodox approach. The influence that the social milieu has on the range of individuals’
beliefs and preferences prevents the necessity to impose a condition as Unrestricted Domain. Taking into account that the economic roles of things change, it is important that collective choice privileges this transformative reality instead of aiming at static maximization. Finally, actual human behaviour is not compatible with conditions as transitivity on choice, since it is not practical to act as the typical rational agent that is constantly calculating its expected utility to maximize it. Having this in mind, we may reach a social welfare function based on Arrow’s work that is not condemned by impossibility.
5. References


Books.
