

Chapter 2

Reflexivity of Social Reality

The previous chapter has underlined the polymorphism of self-reference and its involvement in any form of human understanding, activity and conceptualizing. As neither social reality, nor its observation or description can be abstracted from their self-referential character, reflexivity and its implications are of central concern for social research in general. Accordingly, this chapter focuses on the reflexivity of social reality and phenomena and discusses some of its implications.

In particular, two different orders of reflexivity can affect social reality: a first order of reflexivity involves social reality per se and consists of the social phenomena that are self-referential in that they may affect themselves, as they can for example imply, control, or modify their own dynamic or development. A second order of reflexivity concerns the “discourses” on social reality, such as social sciences and theorizing. The present chapter offers an overview on common reflexive social phenomena, while the Chap. 3 focuses on the second order of reflexivity concerning social sciences and theories.

It can be essentially premised, that the first order of reflexivity, which invests social reality, depends on the autopoietic character of social phenomena that create themselves on the basis of their inescapable systemic character. The second order of reflexivity can be fully appreciated if related to the constructivist observer-observation scheme, as it will be discussed in more detail in the Chap. 3.

One of the first difficulties that the analysis of the reflexivity of social reality posits is represented by the huge range of phenomena which can be subsumed under the label “social reality.” Therefore, the analysis will begin with specifying the notion of “social reality,” which will be conceptualized in opposition to “natural reality.” After that, some notes on the reflexivity of social reality will introduce an overview on some common and widely analysed reflexive social phenomena. This overview does not have the claim of being comprehensive and ranges from anthropology, linguistics, law, politics, sociology, and psychology, and then concludes with examples of reflexivity involving the economic reality, as illustrated by the dynamic of financial markets and of the business cycle.

This overview is conceived as a natural first step for the successive enlargement (in the Chap. 3) to the reflexivity affecting social research and theorizing.

The difference between reflexive social phenomena and social discourses that lead to reflexive social phenomena, which has been condensed in the notions of first- and second-order reflexivity, is not so clear and sharp as one could think at a first glance. Social reality is in the end by human activity, which is coined by human thought and consciousness, so that the separation between action and cognition, between practical and intellectual activity, is something fluent, a continuum rather than a dichotomy. Reflexivity of social reality is due to the fact that the intentional action of the individuals defines the course of the social system the individuals belong to.

2.1 What is Social Reality?

Social reality encompasses the human aspects of the world and it is constituted by tenets, beliefs, principles and opinions which may inspire the behaviour of a community. Social reality can be better defined negatively, i.e. by distinguishing it from everything that does not belong to its realm, though from the natural reality.

In the tradition of realism, objective facts can be divided in two categories: natural and social facts. The first exists and follows its course, independent of human perception, thus independent of what individuals may think about it, while the latter due to its relation to human thought, essentially depends on its perception and conceptualization.¹ Natural facts, which Searle (1995) expressively calls “brute facts,” remain the same whether individuals realise them or not, such as whether mankind exists or not. They have a physical presence that, at least for the supporters of realism, cannot be doubted. The discussion of the eventual ontological priors of natural facts and if the notion of “objective facts” is tenable at all has been and still is vividly debated. However, such a discussion goes beyond the purposes of the present analysis, so that it will simply be omitted. A naïve interpretation of the concept “natural facts” will be adopted, as illustrated by the following example: A piece of paper has a physical presence, so that it can be depicted as a “brute,” natural fact. However, independent of the meaning it might assume for a certain community, it may become a social fact as well. For example, it can be a money bill, if it represents a monetary value, but it can also be a property certificate, thus representing a property right. This points to the relation between social and natural facts: social and physical reality are not completely separated and independent from each other, but they overlap each other.² It can be argued that social facts can exist without natural facts. Social reality is embedded in physical reality although the borders among them are not always univocal. The questions of whether there can be social without natural facts and where the demarcation appears between the “brute” essence of reality and the perception by means of which it can be connoted, are raised. Critical examples in this sense are verbal agreements, ideas, copyright, etc.

¹ Cf. Searle (1995).

² Cf. Searle (1995, p. 35).

This short discussion can be summarized when social facts are considered a human product that are essentially in existence because of human construction. A social fact gets created when a community of individuals determines a function for a physical object or for certain circumstances, a community defined as that group of people who accept the assigned function and conform to it.³

2.2 Recursivity of the Social Reality

Recursive relations play an important role for social phenomena and are almost pervasive both of social reality and of the social sciences.

Reflexivity of social reality is due to the fact that individuals involved in a social system act intentionally, for example, they try to reach a certain end state from a given initial state, and, in the process, define the course of it. So, the individual mental representations and expectations play a decisive role in shaping the social reality. Examples of recursive phenomena can affect the different aspects of social reality and have always attracted the attention of social analysts.

A central notion for appreciating the essential reflexive character of social reality and recursive phenomena is that of “autopoiesis,” the process whereby a system or organism produces itself, its own components and by means of which can distinguish itself from its environment. Autoiesis indicates in other words self-creation, i.e. a self-creative act or process and can be applied to the description of a social system. Social systems are essentially autopoietic, as they define their own identity and steadily reproduce it in their interaction with the external environment, in order to maintain the system’s survival. The notion of “autopoiesis” was first introduced by Maturana and Varela (1973) as an attribute to describe the nature of living systems, e.g. the biological cell, that are able to produce all the components needed for the maintenance of the living system out of an external flow of resources.⁴ The application of the concept of “autopoiesis” to social reality can be then traced back to Luhmann’s work on systemic theory,⁵ according to which social systems are autopoietically closed, because they rely on a flow of resources from their environment in order to continue maintaining their specific identity and to differentiate from the environment. The self-referring nature of any social system can be related to its autopoiesis, as the survival and maintenance of social facts relies on the infinitum regressum of filtering and processing information from the environment.

³ Cf. Searle (1995).

⁴ An autopoietic machine is defined as “a machine organized (defined as a unity) as a network of processes of production (transformation and destruction) of components which: (i) through their interactions and transformations continuously regenerate and realize the network of processes (relations) that produced them; and (ii) constitute it (the machine) as a concrete unity in space in which they (the components) exist by specifying the topological domain of its realization as such a network.” Cf. Maturana and Varela (1980, p. 78).

⁵ Cf. e.g. Luhmann (1984).

Some elements which corroborate this thesis will be provided by the overview of reflexive social phenomena which follows.

2.2.1 Reflexivity in Anthropology

The thesis which sustains that language coins and anchors thought is known as Sapir-Whorf hypothesis, from the name of the researchers who provided it with robust scientific fundamentals.⁶ In its core argument the Sapir-Whorf hypothesis refuses the view that language merely mirrors culture and habits and argues that the relationship between language and thought is one of mutual influence. In other words, the characteristics and grammatical structures of a certain language influence and shape the understanding and behaving of its speaking community. This implies in particular that the mother tongue of an individual has a decisive impact on her way of thinking and processing information.

Speculations on the reflexive relation between language and thought can be traced back to vivid debates among Indian linguists up to the sixth century AD. In Europe, one of the first research studies that contributes to the reciprocity of relation between language and thought can be ascribed to Humboldt.⁷ Boas, commonly recognised as the founder of anthropology in the United States, studied some of the languages of Native Americans and found that they often belong to different linguistic families. Sapir carried on Boas' researches and observed how different languages could give life to different habits and behaviour. Stating that human beings "*are very much at the mercy of the particular language which has become the medium of expression for their society*"⁸ Sapir stressed the importance of social constructs, in general, and of linguistic structures, in particular, in shaping the reality in which humans act and interact. Language conventions and habits filter and orient the interpretation of external reality and therefore influence individual perception and experience of it. This goes so far, that "*the 'real world' is to a large extent unconsciously built upon the language habits of a group. No two languages are ever sufficiently similar to be considered as representing the same social reality. The worlds in which different societies live are distinct worlds, not merely the same world with different labels attached.*"⁹

Whorf structured those ideas further, arguing that: "*We dissect nature along lines laid down by our native languages. The categories and types that we isolate from the world of phenomena we do not find there because they stare every observer in the face; on the contrary, the world is presented in a kaleidoscopic flux of impressions which has to be organized by our minds - and this means largely by the linguistic systems in our minds. We cut nature up, organize it into concepts, and*

⁶ Cf. Sapir and Mandelbaum (1986) and Whorf and Carroll (1964).

⁷ It is here referred to von Humboldt's essay "Über das vergleichende Sprachstudium in Beziehung auf die verschiedenen Epochen der Sprachentwicklung." (Von Humboldt, 1945).

⁸ Cf. Sapir (1929, p. 69).

⁹ Cf. Sapir (1929, p. 69).

ascribe significances as we do, largely because we are parties to an agreement to organize it in this way - an agreement that holds throughout our speech community and is codified in the patterns of our language ... all observers are not led by the same physical evidence to the same picture of the universe, unless their linguistic backgrounds are similar, or can in some way be calibrated.”¹⁰

Whorf’s principle of linguistic relativity criticizes the interpretation of thought as unilaterally influencing language, that reduces language to a means of expression of what is already coherently formulated as thought. In spite of that, Whorf’s analysis points at the repercussions that the different grammatical structures of different languages may have on the mental constructs of a speaking community.

For example, one of Whorf’s most famous research¹¹ focused on the differences between Standard Average European’s and Hopi’s linguistic structures. It emerged that while the first linguistic structures tend to analyse space and time in a spatial static sense, the latter have a more dynamic conception than that, which is based on processes rather than on points. Whorf argues that this could be responsible for different understanding of mathematics, of spatial metaphors etc.

Among recent studies dealing with linguistic differences among populations, which provide evidence for the linguistic relativity hypothesis, Gordon’s 2004s research can be mentioned. This research was conducted on a Brazilian tribe, whose language only contemplates three counting words, namely one, two and many. The complete inability of the tribe’s members to learn how to count has been ascribed to this peculiarity of the tribe’s language and interpreted as a sign of the shaping role the social construct language may have on the community which originated it.

The Sapir-Whorf hypothesis implies in particular that although language as a social fact is a construction of the human thinking activity, it may have an influence on human thought. This indicates that a circular relation between language and thought establishes and hints at the recursive effects between the two entities. Language and thought can be therefore interpreted as staying in a self-supporting stabilizing reference relation, linguistic determinism being its product.

Reflexivity among language and thought has often tickled human fantasy, as shown by the conspicuous fictional presence of linguistic determinism. In Orwell’s “1984,” for example, language is interpreted as a means for pursuing political totalitarian aims. In Orwell’s novel, the idea underlying the formulation of “Newspeak” is that by abolishing words such as “freedom,” people will no longer strive for it, or by not knowing the meaning of “revolution” they will never rebel.

As the existence of a social fact depends on the assignment of a certain function and meaning to certain physical objects or situations (a natural fact) as well as on its acceptance among a community social group, relations of mutual maintenance and influence can often occur in the realm of social reality, as the proceed of the analysis illustrates.

¹⁰ Cf. Whorf and Carroll (1964, pp. 212–214).

¹¹ This research was mostly conducted during the 1930s, cf. Whorf and Carroll (1964).

2.2.2 Reflexivity in Linguistics

Reflexivity of the natural language constitutes an interesting case of study and is worth careful analysis, since it can concern two different levels of the semantic allowance of self-references and of the recursive dynamics of linguistic changes and maintenance. The first level has been already addressed in 1.5, which focused on the terms and the constructions through which natural languages admit self-referential devices and either tolerate the semantic they imply or not. The second level concerns autopoietic dynamics of language and thus addresses self-enforcing and self-defeating developments that determine the evolution of language. Languages are constructions of the human thought, but at the same time they can anchor or affect their own “creator,” though they can recursively act on the human thought. The evolution of a language can be characterised as a circular bi-directional process, because language evolves as a result of modifications in its speakers’ community but at the same time may induce some of the modifications that determine its evolution. The conception underlying the considerations on linguistic reflexivity that follows is that the evolution of a language comprehends both reflexive stabilization and subversion of norms and can be therefore characterised as the result of those two opposite circular processes.¹²

The establishment of a language as the means of communication of a certain community relies on self-supporting dynamics. This is because the acceptance of the semantics and of the norms of a language is the necessary prerequisite for a rough combination of sounds to become a word. Since the living norms of a linguistic community are defined by the convergence of social practices, language norms represent at the same time cause and effect of this convergence process, which can then be said to be self-referential.

Conventional usage of language is based on the self-enforcing compliance of the members of the speaking community. This is because the acceptance of a norm by the majority or by a conspicuous part of individuals belonging to the linguistic group of reference represents per se a reason not to deviate but to conform to that norm. Deviations tend to be sanctioned through misunderstanding and/or criticism, while compliance is rewarded by efficacy of communication, understanding, social acceptance and feeling of belonging to a certain speaking community. These mechanisms put the basis for the self-stabilization of language, which is a process that ensures the efficacy of language as a major communication means among individuals. Furthermore, this self-stabilization process stresses how once a linguistic norm is established, its survival is caused by the existence of the norm, whereas the existence of the norm decisively depends on its survival. In this spirit, the maintenance of linguistic norms can be at the same time alleged to the conventional usage of language and is motivated by such a conventional usage. Linguistic norms can be thus interpreted as being the creator and at the same time as being created by linguistic conventions and can be furthermore characterised as “*historical, or immanent, or constitutive a*

¹² Cf. Suber (1989).

posteriori.”¹³ In other words, the validity of certain linguistic norms refer to certain historical, immanent conditions and are neither eternally valid nor immune to changes and they constitute almost paradoxically a *posteriori*, because they “*structure not only what we approve but what we understand and how we act.*”¹⁴ Their “*normative priority to experience arises (‘congeals’) from the flux of history and passes away again.*”¹⁵

The other dynamics which are involved in the evolution of a language involve the reflexive substitution of language norms and grants in this way for a reflexive dynamics of change.

There are many reasons for linguistic changes to take place and correspondingly many mechanisms through which linguistic changes may occur. Lending words from other languages (both foreign and technical), introducing new words to cope with new needs and circumstances, “*playfulness, imitation, laziness, ignorance [...]*”¹⁶ are just few examples of the numerous mechanisms through which linguistic changes may happen.

In general, the processes by which linguistic norms get substituted, revised or commuted can be said to be based on a logics of “*amendment through violation*”.¹⁷

Furthermore, the mechanisms through which new language norms are established, or through which old norms get changed, can be divided into phonetic and non-phonetic ones. While linguistic changes happening on a phonetic base can be lead back to “*mispronunciation,*” the class of non-phonetic mechanisms of linguistic change is more articulated and illustrates clearly the role of errors and violation in the process of linguistic change.

In all languages it is possible to find cases in which systematical mispronunciation of words induces their spelling modification, so that a word substitution occurs. A mispronunciation becomes only then systematic if it does not get sanctioned, whereas sanctioning linguistic deviations has been discussed as an essential base for a language to gain the status of means of communication. It should be hereby premised that the notion of “*mispronunciation*” implicitly requires a standard of correctness. For a language such a standard consists in a family of acceptable pronunciations. In addition, the authoritative source for specifying the notion of acceptability among a certain speaking community is represented by its members, whereas no hierarchy among them can be in principle justified, if the conventional basis of language is accepted. This allows for the possibility of a norms violation, whenever the boundaries of mutual understanding do not get overwhelmed. Mutual understanding is a relative notion that can only be specified with reference to a particular speaking community, whereas speaking communities “*overlap each other, admit of innumerable borderline members, and may take very different shapes depending on*

¹³ Cf. Suber (1989).

¹⁴ Idem.

¹⁵ Idem.

¹⁶ Idem.

¹⁷ Idem.

*what case of usage we are investigating.*¹⁸ Official languages coexist with slang, dialects, technical languages, familiar lexicons etc.

Examples of language changes due to mispronunciation are the English words with Old French origin “naperon,” which changed into “apron,” or the consonant inversion between “s” and “p,” which occurred in “waeaps,” which was the original word for the insect named “wasp.” In several other cases letters have been added in order to simplify the pronunciation, for example “thunder” did not originally contain the “d,” showing more clearly its relationship with its German equivalent “Donner.”¹⁹

Non-phonetic changes can stem from popular but wrong etymologies, misleading backformation, according to which the prior between a verbal and a substantive form get exchanged and consequently some syllables get improperly added or omitted, or per analogy with other similar words.²⁰ The latter mechanism based on heuristic reasoning and analogical thinking and is nicely illustrated by the children’s way of speaking. Children typically infer regularities in the language and they often apply them improperly, not being able to mind for exceptions and irregularities. Whenever a conspicuous number of members of a speaking community conform to the improper application of a rule such a violation may become more widely accepted, till it might amend the norm. For example, the past form of the English verb “to snow,” which was originally irregularly built as “snew,” got changed into the ‘regular’ “snowed,” while the original regular past form of the “to strive” (“strived”) progressively changed into “strove,” which was most likely derived per analogy with other similar verbs.²¹

Finally, even the reflexive subversion process of a linguistic norm requires a reflexive stabilization process in order to establish *ex proprio vigore*, so that linguistic changes can be interpreted as emerging from the combination of loops working in opposite directions and respectively relying on a self-disrupting and self-enforcing dynamic.

It can be therefore concluded, that “*the mutability of language and its norms is a result of the balance of two reflexive processes. One is the self-reinforcing stability we called self-stabilization, and the other is the reciprocal causation and reflexive hierarchy we see in any norm of vulnerable to change from the posterior usage it structures.*”²² Those opposite processes balance, in the sense of leading to a stable development, essentially because of their different time horizons: while norms’ constraint is a day to day process, norms’ change typically takes years to occur, or it takes a period over which changes in the speaking community may become relevant.

¹⁸ Cf. Suber (1989).

¹⁹ The examples refer to Suber (1989), to which it can be forwarded for further details.

²⁰ Cf. Suber (1989).

²¹ The examples refer to Suber (1989).

²² Cf. Suber (1989).

2.2.3 Reflexivity in Law

Self-reference casts its shadows also in law and may work both stabilizing and disrupting factors into the development of a legal system. Paradoxes or infinite regresses might arise, when laws contain self-referential statements, which, as it will be discussed in this paragraph, cannot be totally avoided. Paradoxes and recursive dynamics would always have tremendous destabilizing effects if juridical praxis had not found in many cases pragmatic solutions and routine procedures for escaping the contradictions they in principle always imply. Still some self-referring instances or sentences can actually give life to logical inconsistency that puzzle not only logicians and philosophers but create shortcuts in the juridical system. Some other self-references might however even represent a useful way to avoid infinite regresses.

For example, the principle of validation of each law through its legitimation by prior or higher law should ensure the legitimacy of a legal system but implies an infinite regress.²³ To escape the shortcuts such an infinite regress would imply, juridical systems have to admit some laws to be valid *ex proprio vigore*. A process of validation by its own strength, by its own validation clearly implies a recursive dynamics. This common legal device illustrates a case in which a self-referring clause acts to correct another self-referring device.

Similarly, according to the so-called “bootstrap doctrine,” courts must have some forms of self-applicable jurisdiction at their disposal, in order to be legitimate to rule some questions concerning their own jurisdiction without forwarding them to another court, which if put in the same situation would have to forward them to another one and so on.²⁴

Self-legitimizing laws and courts ruling on their own activity represent cases in which recursive circular structures are employed to interrupt different potentially destabilizing loops and to grant the smooth functioning of a juridical system.

As the rule, however, legal circles are more likely to create problems of ungroundedness, instead of solving them. A “renvoi” occurs if a court has to consider and to deliberate on the law of another state.²⁵ Of course, even if in principle a renvoi or every other circular remand cause a loop that cannot be escaped or solved, juridical systems are usually able to find a pragmatic solution to avoid jurisdictional stagnation. Perfect legal norms and perfect contracts cannot exist, since it is not possible or at least not economically sustainable to foresee all possible future states and developments. Therefore, legal systems are always provided with residual clauses that enable them to solve conflicts in a finite time and with a reasonable disposal of resources.

²³ Cf. Suber (1990).

²⁴ Cf. Suber (1990).

²⁵ This could happen for example when a contract that has been stipulated in a certain state gets violated by one of the parts involved in another state. There are cases in which, despite the contract explicitly states that such controversies are competence of the state in which the violation takes place, the laws of that state want such controversies to be solved according to the laws of the countries in which the contract has been stipulated. For further examples see Suber (1990).

Another formally controversial matter in law which is based on a reflexive mechanism is the constitutional amendment. The concept of “amendment” is used to depict the alteration of a law, whereas legal systems with “rigid” or “entrenched” constitutions rule the amendment of their constitutional law through a specific procedure, which differs from the one adopted for the other laws.

An amendment needs an amending clause to be formally admitted by a system. Because of its universality, any amending clause is feasible due to its recursive application. Therefore, self-amendment is in principle always possible. This resembles the so-called “paradox of omnipotence:”²⁶ a deity to be as such has to be omnipotent but can she create a so heavy stone she cannot lift? It can be similarly argued to what extent an amending clause can amend itself.

Self-amendment of constitutional norms stems from the need to balance between the two opposite instances of the stability of a legal system as a product of its formal consistency and the possibility of its modification., on the one hand to overwhelm shortages that may follow from the incompleteness of law and on the other hand to cope with new necessities.

2.2.4 Reflexivity in Politics

The logic underlying amending clauses in laws reflects the necessity of limiting power in modern political systems. Political power derives from sovereignty and is exercised either directly or through delegating representatives by the sovereignty holders. Every modern political system has to rule both the self-limitation and the self-augmentation of the political power. This involves the definition of limitations the political power has to underline, both concerning the time (e.g. time for the representatives to govern) and the content of its exertion (e.g. inviolable rights).

The political course may be affected both by stabilizing and disrupting recursive dynamics. For example, a shared fundamental ideological background underlies each political system and creates a self-validating system of beliefs that works self-reinforcing and self-isolating.²⁷ This shared ideological background - exemplified by national symbols, flag and patriotic creed - increases cohesion and sense of belonging among the members of the political system and promotes the acceptance and maintenance of its institutions. Such an ideology is an expression of a certain political system and affects at the same time the system’s dynamics in a stabilizing way. Similar considerations obviously apply to every kind of ideology, so that ideologies can be interpreted as self-enforcing systems of beliefs.²⁸ Ideologies can also work in a destabilizing way on a political system, leading to structural changes that might even assume a revolutionary connotation. This indicates that revolutions can

²⁶ Cf. Suber (1990).

²⁷ Cf. Bartlett (1989, p. 15).

²⁸ Similarly, also religious belief-systems can be said to be self-referential. Cf. Bartlett (1989, p. 15).

also be interpreted as reflexive phenomena, in concomitance with whom the internal dynamics of a political system becomes self-destructive.²⁹

The legitimacy of a political system and of its institutions is indissolubly tied to its perception among the members of that political system. The system's stability as well as the stability of its institutions may also depend on the coherence between reality and its perception, so that a significant gap between reality and perception might erode legitimacy of institutional arrangements. This implies that in certain situations, even without objective relevant social changes, the perception of certain institutional arrangements as inadequate might, in itself, spread among the members of the political system and call for their modification.

From the discussion of some of the reflexive phenomena affecting politics it emerges again how self-referential phenomena involving positive feedback loops work in a stabilizing self-reinforcing way, allows for continuity and does not introduce contradictory elements, whilst self-referential phenomena which rely on negative feedback loops have a destabilizing character and challenge logical thinking.

The balancing between positive and negative self-referring dynamics represents a particularly critical issue in the perspective of a political system. Similarly to the processes of linguistic change, subversive political dynamics owes its survival to a successive stabilization process, whose regulative efficacy depends on the one hand on the degree to which it self-enforces and on the other hand to the disruptiveness of the initial negative loop. Even if gradual changes can also lead to deep modifications in a political system, more radical changes can be needed in some cases, especially when it comes to subverting the balance of power or the established pecking order, as illustrated by the famous quote "*If you strike at a king, you better kill him.*"³⁰

2.2.5 Reflexivity in Sociology

Within the social sciences, sociology is maybe the only one that directly attempts to confront the problems of reflexive social phenomena. This is because sociologists are conscious that social phenomena might occur simply because of its common acceptance among a certain community. The existence of social facts is tied with their perception among the social actors and socially relevant developments which might decisively depend on the degree with which they are thought to be true and accepted.

The difference between the two orders of reflexivity that can affect social reality becomes particularly slight if applied to the realm of sociological analysis. Sociology deals with all social phenomena, with discourses about social reality included. Sociology focuses both on social facts and on the opinions and beliefs the social

²⁹ Cf. Bartlett (1989, p. 15).

³⁰ Cf. Holmes (1980), who ascribes this sentence to the philosopher, essayist and poet Ralph Waldo Emerson.

actors hold about them. The constitutive role of opinions and beliefs in shaping social reality represents a core topic in sociology. For example, the research program of the sociology of scientific knowledge aims at the analysis of social influences on science and addresses explicitly reflexivity in sociology. To simplify things, one main thesis underlying sociology of scientific knowledge is that social factors play an active role in shaping the development of science.

Plenty of examples of self-fulfilling as well as of self-destroying dynamics can be mentioned. A published prediction may affect the predicted event and either work toward the self-fulfilment or the self-destruction of the prediction. The disclosure of a public opinion survey or the publication of scientific results can purposefully strive for certain reactions among the public.

While reflexive predictions will be more specifically approached in the next chapter (par. 3.2.3), the reflexive effects of beliefs and opinions will be here illustrated by the so-called “Pygmalion effect.”

The Pygmalion or Rosenthal effect refers to situations in which pupils, who are expected to perform better than others, will indeed perform better. This effect was first examined in a study by Rosenthal and Jacobson (1968, 1992), in which some teachers were misleadingly told that some children had a higher-than-average IQ. It was shown that the expectations of the teachers led the children to an actual enhancement of their performance. The name refers to Ovid’s tale of the sculptor Pygmalion, who created a statue of perfect beauty and fell in love with his own creature.

As said, the thematic of reflexive predictions will be more specifically approached in the next chapter (par. 3.2.3).

2.2.6 Reflexivity in Psychology

Psychological states of individuals can have a decisive impact on reality, as different beliefs or attitudes might *ceteris paribus* lead to the realisation of opposite developments and produce alternative outcomes.

For example, the cognitive bias in which a researcher may occur, if she expects certain results can be mentioned: the researcher could either unconsciously manipulate the research method and the experiment or misinterpret the data and therefore actually obtain the expected results. This bias is known as the “observer-expectancy effect.”³¹

Rosenthal (1998) provided evidence that an experimenter can subtly and unintentionally communicate the experimental subjects’ own expectations and biases through a conspicuous number of cues or signals. These cues can significantly affect the outcome of the experiment and artificially create the conditions for expected developments to occur.³²

³¹ This effect is also known in the literature as “experimenter-expectancy effect,” “experimenter effect,” or “observer effect.”

³² Cf. Rosenthal (1998).

This effect is a clear example of how even science, despite all methodological premises that should grant for the objectivity of enquiry and results, cannot transcend its own dimension of human enterprise and is therefore “held in check” by the consciousness of the human mind. In other words, the reflexivity of human understanding implies the reflexivity of all its elaborations. Scientific knowledge makes no exception.

A possibility of debiasing the observer-expectancy effect is to rely on a double-blind methodology. This consists in concealing both experimenters and subjects from which subjects are assigned to which group (control and test group) until the end of the study. This procedure can best be applied in computerised experiments but also presents the disadvantage of being quite costly.

Also the participants to an experiment or to a research study can manipulate the results of the analysis. In similar cases it can be spoken of “subject-expectancy effect.” Plenty of evidence of this effect can be found in psychotherapy and medicine. The effects of the subjects’ expectancy on the efficacy of a certain cure can even imply healing processes to be accelerated or to fail. That the patient’s symptoms can be alleviated, just because of the belief in the efficacy of an otherwise ineffective treatment, is the well-known placebo effect. The opposite effect, the so called “nocebo effect,” can occur as well, if a patient disbelieves an effective treatment.

The usual procedure to prevent biased behaviours of the experimental subjects consists in running single-blind trials, i.e. not to reveal to the subjects whether they belong to a test or to a control group.

When the experimental results confirm the experimental hypothesis, but not for the expected reasons it can be spoken of Hawthorne effect. The assumption underlying this effect is that the results simply occur because of the subjects’ awareness of participating in an experiment, with no other plausible explanation. The Hawthorne effect is thus a reaction of the experimental subjects to the fact that they are objects of analysis. It therefore represents a case in which the act of observing induces a modification in the observed entity that would not have taken place without the observing act and provides evidence for a recursive causal relation between the act and the object of an observation to establish.

The Hawthorne effect first emerged from investigations on the influence of different work environment characteristics on productivity, which were conducted between 1924 and 1932 at the Hawthorne work of the Western Electric Company in Chicago.³³ It could be observed, that the modification of different factors of the work environment, e.g. pay, light levels, rest breaks etc., all induced an increase in productivity, independently on the direction of such changes (increase or decrease). It was also found that even the return to original conditions had a positive effect on the productivity and therefore any plausible explanations could be formulated except that the awareness of being an object of a study per se motivated the experimental subjects to modify their behaviour.

³³ These studies were conducted by Fritz J. Roethlisberger and William J. Dickson.

2.2.7 Reflexivity of Economic Reality

Reflexive dynamics can also affect the course of the economy, as the actors interacting in an economic system act purposefully and can on this basis have a part in determining economic events or developments. It can be thought of several examples of self-fulfilling as well as of self-destroying dynamics concerning economic systems and interactions.

For example, the disclosure of a market research can influence both investment and consumer behaviour. It can assume a different predictive value independent of its dissemination status and of how trustworthy it is perceived to be among the economic actors involved.

Similarly, the German Federal High Court recently had to decide on the responsibility of the Deutsche Bank for the bankruptcy of Kirch's corporation; Kirch accused the bank of having caused its bankruptcy by publicly doubting its creditworthiness.

It can be said, that the expectations of the market's participants can have a decisive influence on the market's performance. Evidence for similar dynamics can be observed in many contexts. Examples can be found that inflationary and deflationary developments often show a self-fueling character, and that the compounding of reinvestment can influence economic growth. Reflexive dynamics can also be exploited as a way of achieving economic goals, as illustrated e.g. by self-investment as possible management strategic device. They have also been contemplated to different extents from a theoretical point of view, as attested e.g. by game theoretical prescriptions that can reveal both a self-undermining and self-guaranteeing character.

2.2.7.1 Reflexivity of Finance

It is unquestionable, that the development of the financial markets is influenced and mirrors the historical course of the events: political stability or shortcuts, profound social changes as migrations, conflicts etc. inevitably reflect on the dynamics of financial markets and decisively coin their functioning. However, because the markets are a product of the interaction of purpose oriented actors, they can sometimes anticipate real developments and therefore enforce or accelerate their occurrence. Financial interactions are social facts that are embedded in the social reality, which means that mutual influences between them and political, social as well as cultural events and developments can never be excluded. This implies that causal relations between financial interaction and other social facts have to be interpreted as a circular recursive process.

Soros' (1994) conception of the financial markets and their functioning focuses exactly on this point, namely on the relation of mutual influence in which financial markets stand with the social system they are embedded in. This has been quite frequently discussed in financial literature. It is commonly known and accepted both among managers and operators and among researchers and analysts³⁴ that manag-

³⁴ Cf. Copeland, Koller, and Murin (2000, p. 52).

ing expectations of markets' participants can have a decisive influence on market's performance.

This is also illustrated by the three forces that are typically considered to govern the market's course. These forces are the fundamentals (revenue, cost, capital etc.), the technicals (price and volume data) and the market behaviour, whose dynamic is not easy to predict.

Operating in a financial market requires thinking about the system and the events one is participating in. The thinking contributes to shape the object of thought, which is social reality "*not independently given, but contingent upon our decisions.*"³⁵ As thought constitutes an element, a part of the social reality, it should be considered in examining social dynamics. Since "*our thinking forms part of the reality we think about, the separation between thinking and reality is breached. Instead of a one-way correspondence between statements and facts there is a two-way connection.*"³⁶ In this spirit Soros criticizes the view that the market should always be right. In Soros' eyes the market can only be wrong, as it is always, inevitably biased. The market's distorted view of future events works in two directions. First, market participants rely on such a distorted view. Second, this view can influence its future developments. The impression that markets predict the truth can actually be inferred. But only because of this bidirectional influence does the impression appear to be sustained by evidence. This relation of mutual influence implies for the one side, that the view of the market's participants contributes to shape the course of the market, while from the other side, concurrently the course of the market enforces or corrects the participants' view.

Soros (1994) applies the concept of "reflexivity" to the description of this mutual relation of causality between the course of the market and its participants' expectations. In Soros' view the application of the methodology of the natural to the social sciences is condemned and its failure has to be ascribed to this reflexivity. As economics is the social discipline with the highest ambition of resembling formalisms, axiomatic construction and method of the natural sciences, the effects of reflexivity might have devastating consequences on its scientific validity. This is particularly evident if one considers the notions of rationality and perfect understanding, which are assumed to inspire the behaviour of the economic actors. These assumptions are clearly inadequate to stylize the real individual cognitive capabilities that can actually be observed. Imperfect understanding, limited processing and computational capabilities seem to inform the behaviour of individuals who deal with economic problems and interactions.

Financial markets are always biased, which is confirmed by the continuous fluctuations that steadily perturb their long term dynamics. The force acting beyond such perturbations is, in Soros (1994) view, mainly constituted by the participants' perception or preconception about the dynamics of the market.

The reflexive relation, which links the thought of the actors involved to the situation they are part of, can be expressed by means of a system of recursive functions

³⁵ Cf. Soros (1994).

³⁶ Cf. Soros (1994).

consisting in a “cognitive” or “passive” function, $y = f(x)$, and a “participative” or “active” function, $x = \phi(y)$.

The cognitive function expresses the participants’ perception and opinion on the market, for example, y , as a function of the independent variable, x , which summarizes the main features of the market, i.e. the trends which underlie the market. In this way, the function y points out that the markets’ participants form their beliefs and opinions on the dynamic of the market on the basis of the observation of the market. The beliefs as a result of the thinking activity of the individuals will then reflect on the dynamic of the market. Therefore, participants’ beliefs constitute the argument of the participative function, $x = \phi(y)$, which thus catches their influence on the course of the market.

Such a recursive system of functions ensures that changes in the cognitive function are captured by the participative function, which describes the course the events will take. Let $y = f(x)$ be a “cognitive” or “passive” function, which expresses individual beliefs about the situation that they are confronted with and $x = \phi(y)$ a “participative” or “active” function, which catches the repercussions of such beliefs on real developments.

The reflexivity of the system constituted by $y = f(x)$ and $x = \phi(y)$ can be appreciated by substituting the arguments of the two functions with each other, so that both $y = f[\phi(y)]$ and $x = \phi[f(x)]$ become a function of themselves. This is illustrated by Fig. 2.1, which points out that the market’s underlying trends, x , influence the participants’ beliefs, y , as expressed by the cognitive function $y = f(x)$, while at same time the participants’ beliefs, y , affect the market’s trends, x , as captured by the participative function $x = \phi(y)$.

This reflexive functional system can either develop toward the equilibrium or generate changes and invert trends. While pre-programmed routinized cognitive patterns and procedures can be expected to inform the decisions of the market’s participants in usual settings, historical events are most likely to induce significant changes in the participants’ beliefs. Therefore, the participants will act in a stabilizing way toward the market equilibrium when they perceive the course of the market to be normal. They will react and contribute to the deviation from the equilibrium,

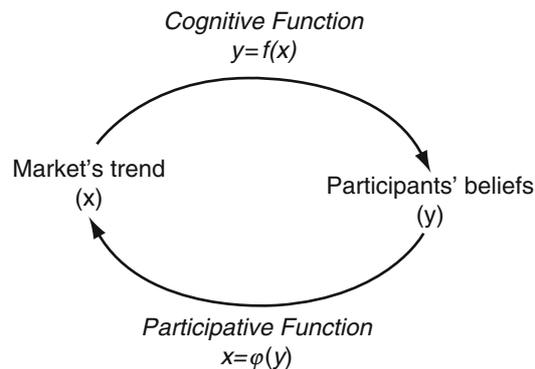


Fig. 2.1 Reflexive interaction between cognitive and participative function (author’s representation)

whenever they perceive the market to be challenged by unusual developments. This yields for the coexistence of stabilizing and destabilizing reflexive perturbations, the combination of which inform the course of the social reality.

The stock market represents an ideal setting for analysing reflexivity and appreciating its biasing influence. This is because the stock market resembles the basic feature of a market with perfect competition: it is a centralized marketplace, with a high number of buyers who do not make the price and do not have a direct immediate control on it. In addition, in the stock market entrance barriers are practically absent. Homogeneous goods are traded with very low transaction costs, almost in absence of transport costs. Furthermore, brokers' reports provide a plausible basis for inferring something about the beliefs that are held by the market's participants. These reports can convey a picture of largely shared opinions about the market in a certain moment. However, it is, in principle, impossible to understand exactly which beliefs and opinions are mostly shared by the market's participants. It is even more difficult to infer such beliefs *ex post* on the basis of the observation of how the stock market has developed. It can be inferred that positive optimistic beliefs must have been shared by the majority of the markets' participants, if *ceteris paribus* stock prices grew. On the contrary, the fact that *ceteris paribus* stock prices failed can be ascribed to negative pessimistic beliefs and expectations. However, even the specification of the *ceteris paribus* condition is only possible on the basis of contrafactive speculations and therefore, different ways to infer the participants' beliefs have to be explored.

The course of the stock market is illustrated by the development of the stock prices. This is again shaped by an "objective" and a "subjective" component. While the first component is represented by the development of fundamental variables of the market, the latter reflects the prevailing beliefs of the market's participants. In this perspective, the dynamics of the stock market can be simplified to the product of interaction between the trends in the fundamentals and the prevailing opinions and beliefs that are held by the market's participants. The development of the stock prices - from boom to collapse - can be related to the interaction between the fundamentals trend and the prevailing market participants' opinion. In this way, the reflexivity that influences the market will be closer examined.³⁷

Reflexivity can be extrapolated from the comparison between the development of the market's and of the fundamentals' trends. Reflexivity can be interpreted to work in a stabilizing way whenever those trends reveal similar dynamics. Reflexivity can be alleged to have biased the course of the market, whenever there is a discrepancy between the market's underlying trend and the trends in the fundamental.

Under the label "fundamentals" are summarized all those variables which may affect the market. Among them are e.g. dividends, patrimonial values, cash flow and earnings. For simplicity, in the following model of the stock market, the earnings per share have been chosen as representative for the fundamentals because they can be interpreted as a variable which results from the market's development.

³⁷ Cf. Soros (1994).

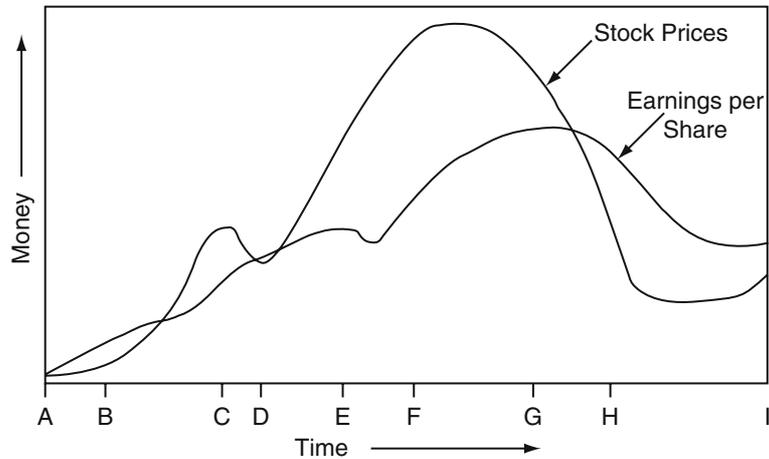


Fig. 2.2 Reflexivity in the Stock Market (Soros, 1994)

Therefore, the stock market's development will be modelled (see Fig. 2.2) by observing the development of stock prices (as result of the market's course) and the development of earnings per share, which have been chosen as representatives for the fundamentals.

Typically, market cycle is articulated over the following steps. At the beginning (AB in Fig. 2.2) a certain trend positively affirms and affects the per share earnings. Most likely, market's participants hold spread beliefs about the market's future developments, so that no prevailing opinion can be outlined. As time passes, the market's participants gain awareness on the developing trend and enforce it through conform expectations (segment BC in Fig. 2.2). The trend further develops with a certain stability and is not decisively disturbed by slight transitory changes that can occur in the participants' expectations, as illustrated e.g. in CD. The stability and persistence of the market's trend finally breaks participants' last resistances and enforces trend conform expectations. Expectations remain optimistic and sustain the stock prices in spite of a deceleration in the earnings' trend (DE). In EF participants' optimistic expectations are the only force sustaining the stock prices and are no longer confirmed by reality, as it is illustrated by the inversion on the fundamentals' trend. In this insight, *"The essence of a speculative bubble is a sort of feedback, from price increases, to increased investor enthusiasm, to increased demand, and hence further price increases. The high demand for the asset is generated by the public memory of high past returns, and the optimism those high returns generate for the future. The feedback can amplify positive forces affecting the market, making the market reach higher levels than it would if it were responding only directly to these positive forces."*³⁸

Eventually, the market's participants recognise their optimistic expectations to be erroneous. This then induces the prevailing opinion to change (FG). The stocks

³⁸ Cf. Schiller (2001, p. 3.)

lose their last support and their price fails, whereas both the expectations and the fundamentals' trend work in the same negative direction and amplify each other's effect (GH). It can be observed, that "*Just as the euphoria of a boom exacerbates investors' preference for making abnormally large returns, a bust exacerbated the despondency of suffering deep portfolio losses.*"³⁹ Finally, as the pessimism of the markets' participants becomes too big, the market slowly stabilizes (HI).

The cycle that has been sketched is just one of the infinite possible configurations the dynamic of the stock market can assume. On its basis, the interaction between beliefs and expectations of the market's participants and the market's "objective" development can be observed. In this frame, reflexivity emerges as the residual force that affects the market's dynamics and can find expression in the difference between the fundamentals' trend and the market's course.

In "The Alchemy of Finance," Soros systematically applies this model of reflexivity to the analysis of several cases, e.g. to the currency market, to the Real Estate Investment Trusts, to the venture capital boom, and to the conglomerate boom.

The boom that many conglomerate companies experienced in the late 60s was based on a very simple mechanism, the rising of per share earnings which should have reflected the good management of a company. But in the end, reality was produced by the acquisition of companies with typically high dividends but low price-earnings ratio.

Because of the positive expectations of investors, the shifting of the conglomerate from high tech to consumer goods does not get reflected in a lower price-earnings ratio. The positive expectations motivate the investors to buy more stocks and this further artificially sustains their price.

In more detail, when a high tech company with high price-earnings ratio starts diversifying, it typically acquires consumer goods companies with high dividends but low price-earnings ratios. This makes the earnings of the conglomerate company rise and improves its market value per share. This further increases the borrowing possibilities of the conglomerate company for further expanding, so that further consumer goods companies can be acquired. The continuous growth of the per-share earnings of the expanded company will induce the investors to buy, attracted by the high price-earnings ratio. The investors' behaviour will further enforce such a blown up upward trend, which is only supported by the overall earnings ratio and does not reflect the fraction of the conglomerate company that operates in low price-earnings ratio businesses. When eventually the investors realize this, the stock price will fall to match the real characteristics of the company.

Finally, Soros' analysis is centred on the self-referential character of the financial markets. Their dynamics can therefore be described by a reflexivity theory, according to which the market process is determined by a two-way feedback loop between fundamental values, on the one hand, and subjective beliefs and estimations of the market's participants, on the other hand. Soros focuses on the interaction between cognition and action of actors involved, which yields for reflexivity.

³⁹ Cf. Calandro (2004, p. 53).

2.2.7.2 Reflexivity of Business Cycle in Politicised Markets

The dynamic of the business cycle is shaped by the interaction between the objective features of the economic system, i.e. its fundamentals, and their subjective perception by the participants in the economic system. This interaction informs market behaviour. In this perspective, the business cycle can be seen as steered by the adjustments between the fundamentals and the way they are subjectively perceived and processed by the market's participants.

Par. 2.2.7.1 sketched the dynamic of a typical boom-bust cycle on the stock market, which has been approximated as being substantially free from "external" interferences. Its course has been interpreted as mainly determined by its own fundamentals and the decisions of the people engaged in the exchange. However, the inference of politics on economics cannot be understated, as it creates the institutional frame in which economics develops.

Political intervention on economics pursues precise aims and interests and can be motivated both by regulative purposes and opportunistic instances, e.g. re-election. The reduction of the interest rate below its market-determined level is a frequent example of a political device which serves opportunistic concerns. This induces the market's participants to spend more which then leads in the short-term to a boom. The boom is blown up by the increased selling amount, which continues until the market's participants finally realize the discrepancy between the biased fundamentals and those that would reveal the real condition of the market.

The boom-bust model presented in par. 2.2.7.1 will be sketched again and discussed together with some of the typical political interventions that may occur in each of its phases. Hereby, the reflexive implications of economic policy making will be focussed, as they emerge when political intervention creates mechanisms that affect the political course either in a self-enforcing or in a self-defeating way.⁴⁰

The market's participants initially need some time to recognize the trends in the fundamental. Since the electors typically consider a positive conjuncture to be favoured by the political action, a good trend in the fundamentals (as illustrated by segment AB in Fig. 2.2), this typically yields the politicians an increasing popularity. The politicians are as a rule reluctant to waste their potential of interventions in the very beginning of a boom, where positive further developments of the business cycle can be expected. In addition, it is in this initial phase that the central bank typically intervenes by diminishing the interest rate. However, as soon as the end of the legislature approaches, the politicians' incentives for adopting business cycle encouraging manoeuvres are high and therefore similar interventions (e.g. tax reductions) are most likely to be considered even in the initial phase of the business cycle.

Segment BC in Fig. 2.2 illustrates price appreciation. It drives market's participants' expectations to grow and the political leadership typically is enjoyed over a spreading consensus. Despite some perturbations (cf. CD in Fig. 2.2) the positive trend holds. The upward dynamics of the business cycle continues even when the

⁴⁰ Cf. the analysis of Calandro (2004).

fundamentals' trend inverts downward as due to the only support of the market's participants' unrevised positive expectations.

In this phase, politicians and institutions can be interested in artificially sustaining such positive expectations and could for this reason choose to affect some fundamental substitutes in order to influence the investment climate.

To do that it can sometimes be enough to encourage certain accounting practices to spread, as for example focussing on spurious gain indicators in order to induce an overestimation of the real profits.⁴¹ Similar devices achieve the artificial sustainment of the cycle's upward dynamics, in that they induce the economic actors to "*replace fundamental analysis with fundamental substitute analysis that will support the boom.*"⁴²

In similar settings expansive manoeuvres of economic policy are likely to be undertaken, e.g. credit expansion. The boom could then be ascribed to wealth effects created on the basis of the new economic manoeuvres or even to new economic conditions,⁴³ as for example the debate on the new economy pointed out.

Finally, the market's participants recognise the prevailing negative course of the market. Their expectations reconcile with the fundamentals' trend and as a consequence the price falls uncurbed (see segment FG). Typically and in particular in those cases where the boom had been artificially amplified, politics should interfere in order to avoid a market crash.

A contraction in the central bank's monetary stance, e.g. an increase in the interest rate, then sets a bust in motion. As such a bust develops expectations, it becomes more negative. The market behaviour gets more and more biased toward what can be called "*irrational despondency*"⁴⁴ and this leads to massive disinvestment and mass selling (GH). Finally, the market stabilizes progressively, while prices and fundamentals adjust toward their pre-bubble levels (HI).

⁴¹ Cf. Hayek (1970, p. 95).

⁴² Cf. Calandro (2004, p. 52).

⁴³ Cf. Hazlitt (1996, p. 158).

⁴⁴ Cf. Calandro (2004, p. 62).



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