Austrian Economics and the Theory of Negative Selection

Content, Explanatory Power and History of the Theory of Negative Selection

By

Hardy Bouillon

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To my best choice
and our children

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Hardy Bouillon

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Foreword

This book is an introduction to the theory of negative selection. In it, Hardy Bouillon traces a figure of thought that leads him to key figures of the Austrian School of Economics, and to other important thinkers who, with a few exceptions, can be counted as belonging to Classical Liberalism. On his way, he arrives at a new interpretation of the selection processes in nature and society, which is presented here for the first time in the depth and breadth it deserves and in a highly original way.

Despite this depth and breadth of content, Bouillon's book reads easily. It is a very successful mixture of about 200 pages of history of ideas, 120 pages of "game theory" and about 80 pages of theory of action. The corresponding chapters naturally fulfil different tasks. One is devoted to the origins, another to the analysis and one to the applicability of the theory of negative selection. Hardy Bouillon knows what he is asking of his readers and thankfully begins with a long introduction to awaken a preliminary understanding of his thinking (Ch. 1). He then pays tribute to the most important precursors of the theory of negative selection, here above all David Hume and Charles Darwin, Carl Menger and Eugen von Böhm-Bawerk and of course F. A. von Hayek and Karl R. Popper (Ch. 2).

In chapter 3, he takes the reader into the world of the Japanese number puzzle Sudoku, which vividly shows how negative selections take place. In this way, he succeeds in providing "game-theoretical" proof that negative selections can also be thought of as the originators of complex developments, namely in the form of well-known domino effects.

In all of this, however, Bouillon's research focuses above all on the principle according to which negative selections take place. For him, the key to this principle lies in the competitive relations of the constitutive conditions, in what he calls the *competitive melange*. What is meant by this can best be illustrated by Carl Menger's theory of subjective value and need satisfaction: Needs compete with each other for satisfaction, and the decision as to which need is satisfied first depends not only on the importance of a need, but also on its acuteness. More generally, it depends on the competitive situations in which the needs stand in relation to each other in terms of importance and acuteness.

Bouillon considers the importance and the acute nature of a need as two categories, adds the opportunity to satisfy the need as a third category and develops a simple general theory of action (SGTA) from all this. This development already begins in the section on the history of ideas and finds its conclusion in chapter 4.

Hardy Bouillon was born in Trier, Germany, in 1960. After studying philosophy and art history in Albuquerque, Oxford and Trier, he wrote his dissertation (1991) and became assistant to Gerard Radnitzky. He then habilitated with a thesis on freedom, liberalism and the welfare state (1996). Guest professorships have taken him to Duisburg-Essen, Frankfurt, Prague, Salzburg, Vienna and Zagreb. Bouillon has written numerous monographs, including *Business Ethics and the Austrian Tradition in Economics* (Routledge 2011) and *Criticist Philosophy of Science* (Frankfurt 2024). In addition, he has edited a dozen anthologies and put together breviaries on Kant and Popper.

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Preliminary Remarks

While being a student, I worked part-time as a tour guide for a town steeped in history. As the number of visitors increased year after year, the municipal tourist information office proudly announced at the end of each season that the flow of visitors had been increasing for years thanks to their efforts. How could and did the tourist information know that their efforts were the reason for increasing numbers of visitors? Could they even know that? The only obvious thing was that whatever else the office might have done; it had not caused a standstill or even a decline in visitor numbers.

It often suits us to turn a correlation into a causal relationship. The fact that the growing number of visitors correlated with the city's efforts was certainly very convenient for the city at the time. And there was certainly a great temptation for them to interpret the swelling stream of visitors as the result of their own efforts. Perhaps they were even right in their assumption, but they had no way of knowing.

Our inclinations often tempt us to conclude more than the premises admit. Fortunately, in such cases, our reasoning ability acts as a corrective, and the inclination to follow logic when in doubt causes us to draw more modest conclusions.

Popper's philosophy came just in time for me. Popper is known to urge modesty, especially regarding our ability to know. According to his theory of knowledge, we cannot - to put it simply - know what is the case, but only what cannot be the case; and that only under the proviso of fallibility. This view was to have a lasting influence on my understanding of evolutionary processes. Above all, it saved me from the short-circuit of always equating a lack of disadvantageousness with advantageousness.

Biological species, cultural rules, scientific theories: many things can be subject to variations, and many of these variations may prove beneficial to the object of selection. But for the further preservation of the mutation this advantageousness is not absolutely necessary. It is sufficient that the variation does not cause a fatal disadvantage to the object of selection. This view, whether correct or incorrect, is of considerable importance for what is to be presented here, namely the theory of negative selection.

Picky Selections, the working title for this book, sprang from a whim. With a little wink, it expresses in its own way what the main ideas and theses of this treatise imply. One of these ideas is that only selection processes can select; and they do so in specific ways that will be set out in the chapters to come. Another of these ideas expresses precisely what might be called the minimal thesis of this book: Selections can take place in different ways. The maximal thesis, on the other hand, could be summarised as follows: All selections, even those that we assume to have some kind of creative originator or creative reference so that we can speak meaningfully of *positive selection* at all, are ultimately only *negative selections*, the results of which consist of nothing other than the remaining options of the selection process, which is constituted solely by its framework conditions.

Didactic

The choice of the term *negative selection* already poses a didactic problem. There is a simple reason for this: the content rubs off on the form. From this point of view, the term negative *selection* always has something "negative" attached to it, even if unintentionally. The term is tainted. It remains to be seen whether this aftertaste will disappear after reading the book. Ultimately, a bundle of factual reasons tipped the scales in favour of sticking to the term. The reader will find many

of these reasons on the first pages of this treatise, others are scattered throughout the other chapters.

However, negative selection is the central theme of this book, whereby - as will be explained in detail later - the label is applied to *the process* and *not the product of* selection. We are concerned exclusively with the modality of the *process,* not with the characterisation of the process *outcome*. This is rather unusual. Wherever else one encounters the term *negative selection* the adjective usually refers to the result, not the process of selection. We will explain examples of this use of the term in appropriate places. So, our understanding is that it is the exception rather than the rule. And although this is so, there are many antecedents to what we call the theory of negative selection.

If one wants to explain how certain theories have taken on a pioneering role for a new idea, then one is faced with a problem. Even the most willing reader will hardly be able to follow the presentation if he does not have a rough idea of the new idea in advance. In this respect, one is obliged to at least sketch the outlines of the new idea before explaining to what extent the claimed relationship exists between it and the pioneer theories. Only after that can the exposition take place, and then the presentation of the new idea in its entire epic breadth.

This is precisely the procedure we intend to use here. First, we sketch in broad outline the most important features of what we call the theory of negative selection. We then look at a number of theories and considerations that can be seen as precursors to this theory. We then conclude with the full-blown expansion of the theory of negative selection as we understand it. This includes the inclusion of the number puzzle Sudoku which illustrates large parts of what is for the most part a very abstract topic in a way that can be called playful in both a literal and a figurative sense.

In all this, one thing should not be forgotten, if only to avoid misunderstandings: the theory of negative selection is not to be understood as an *empirical* theory. The author may get a bit carried away here and there when, in the course of his extensive expansion of the theory, he occasionally makes statements as if he were making empirical assertions. If anything, such suspicious statements are only to be understood as a preliminary stage to any working hypotheses. What is at stake here is primarily what philosophy can achieve: the elaboration of conceptions. It is about theory *as a conception*, as a *figure of thought*. As such, it represents one of the pillars on which scientists can build their empirical hypotheses if they so desire.

The selection of those authors whose ideas are precursors to the theory of negative selection was partly self-evident. It was clear from the outset that some of the classics of evolutionary thought, such as David Hume and Charles Darwin, or Karl Popper and F. A. Hayek, would be part of the party. With others, especially Carl Menger, Eugen von Böhm-Bawerk and Ludwig von Mises, inclusion was not so obvious. In comparison, the reader may find other relevant authors who have taken up the theme of selection and evolution (one thinks, for example, of Adam Smith and Herbert Spencer) are missing here. Much of what can be shown on the basis of the selected authors could possibly also have been presented in consideration of other thinkers; perhaps even a little more or differently. However, the time and framework of the research project, and not least the subject of the book itself, suggested following the motto "as much as necessary" instead of indulging in "as much as possible". Here and there, "as much as necessary" demanded a rather detailed examination of the intellectual legacies of the authors studied. This applies above all to Hayek, but also to some extent to Popper and the relationship between the two. Such detailed considerations resulted in a work that was somewhat more extensive than originally planned. In return, here and there, where it did not seem detrimental to the purpose of the book, an appreciation of the

secondary literature was dispensed with. This is not to diminish the achievements of the researchers who were omitted. But a comprehensive exploration of the precursors to the theory of negative selection was not the primary aim anyway. The main purpose of this book was and is to present and explain in detail the theory of negative selection and to outline its explanatory potential, which the author believes is immense.

Although the author is responsible for all assertions presented here, there are expressions in the plural ("we think", "in our opinion" etc.) in many places. They were chosen solely for stylistic reasons, to counteract a certain monotony in reading, and in no way serve to "draw anyone in". Monotony is not a means of promoting concentration. For this reason, and because the subject of this book demands a high degree of concentration from the reader over long stretches, the author was also keen to avoid other shoals of monotony, such as the temptation to always refer to certain facts and phenomena, which had to be mentioned again and again due to the subject, with the same terms and the terms introduced for them. If it seemed feasible to avoid misleading statements in the context, synonyms and sufficiently related terms were used.

A word about the citation. All quotations were taken over verbatim, i.e., without adjustments to the current spelling. Quotations originally written in German were either translated or taken from existing English editions. Where reading errors could not be ruled out (e.g., when quoting from handwritten letters), corresponding notes or curly brackets indicate possible misinterpretations. In the footnotes, a space-saving abbreviated form was used for the references. In most cases, it consists of author and year. In the case of works that are considered relevant for our purposes, it seemed sensible for a number of reasons to choose a source citation consisting of author and short title. Where a short form consisting of author and year could

possibly give rise to confusion regarding the book edition used, the above-mentioned alternative short form was preferred. In the bibliography, the works of one and the same author have been listed in the order in which they were written by the author concerned. (Where it seemed appropriate, the dates of writing have been added).

Acknowledgement

I have many people and institutions to thank. They have contributed, sometimes directly, sometimes indirectly, to the creation of this work; often far more than they realise. I owe a debt of gratitude to many of my students, for example, who, with their wise remarks and attentive advice, have brought numerous small errors and misleading formulations to light. I am also grateful to all those colleagues, first and foremost Hartmut Kliemt and Kurt Leube, who warned me of wrong turns and dead ends. I hope they will forgive me for ignoring some of their well-intentioned warnings.

I would like to thank the *Hoover Institution* and *Stanford University* for granting me access to the Hayek archives; and Bruce Caldwell, the custodian of the Hayek estate there, for permission to quote from Hayek's letters. *The Hayek Foundation*, Berlin, has supported the work on this book by funding a research project on the theory of negative selection in Popper and Hayek. For their generous support, I would like to express my sincere thanks to them and especially to their chairman Gerd Habermann. Last, but not least, I would like to thank Kurt Leube for his kind and friendly willingness to include the German original of this book in his series *Studien zur Wirtschafts- und Gesellschaftsordnung* as volume XI, titled *Wählerische Selektionen. Eine Einführung in die Theorie negative Selektion.*

Chapter 1

Introduction

1.1 The new view

The following sections are intended to familiarise the reader with the new view of selection proposed here and to make him or her understand (at least approximately) the choice of certain terms. Many of the explanations are quite general, and some of the things that are described in detail may be familiar to some readers from other contexts.

However, the basic thesis of this book is what we call the theory of negative selection. *By negative selection we mean a selection procedure that, due to the mixture of all the existing competitive relations within and between the categories constitutive for selection produces a selection result.* Admittedly, when formulated in this way, the definition of negative selection hardly becomes accessible to the reader, at least not intuitively. However, there is no reason for him to worry. One of the main tasks of this book is to present the considerations that led to the creation of this definition.

If we are correct in our basic thesis, then the previous view of all processes that result in selections needs to be revised considerably in many points, if not replaced by a new way of looking at things. The following sections are intended as an introduction to this new way of looking at things. The author knows that he is asking a lot of his readers in this book, including a good deal of patience and the temporary abandonment of old familiar ways of looking at things. He feels like an optician who hands his customer new glasses, knowing full well that the customer is quite happy with his old glasses and believes that he will see worse with the new ones. The optician now has to use all

his skill to keep the customer in line; all this in the hope of being able to show that patience is worthwhile and come up with a result that will amply compensate the customer because it lets him see a dimension that was hidden from him before. It is a bit like looking at 3-D pictures, which were popular in the 90s of the 20th century. The eyes need a certain amount of time, have to relax and try to focus their gaze just before the image. Et voila, a third dimension appears: the image within the image.

In this sense, you should understand the next sections as small exercises and remain relaxed. The author knows that the call to remain relaxed demands a lot, especially from seasoned evolutionary theorists, because they will possibly suspect inadmissible reductions in the simplifications made and the lack of differentiations on the next pages. This applies not only, but especially, to the following section.

1.1.1 The relationship between evolution and selection

In the relevant theories on evolutionary processes in nature and society, selection is part of evolution, and not vice versa.[1] In order to understand the view presented here, it is extremely helpful to free us from this perspective and to take the opposite view. That is, we consider selection as the fundamental principle and understand evolution as a subordinate phenomenon of selection[2], which - as described below -

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[1] This applies not only, but especially, to the biological theory of evolution. In addition to the replication of fixed entities and the error rate that occurs in the process (mutation), selection under conditions of scarcity is for many the third factor in biological evolutionary theory; cf. *Kliemt/Lahno* (2003), p. 462f.

[2] Darwin did not use the term evolution in his 1859 book on the *origin of Species*, but he did use the term selection in the title of the book: *The origin of species by means of natural selection*. However, in terms of conceptual history, evolution has won the race, while selection has fallen by the wayside. Many reasons can be cited for this, among them problem-historical reasons. The problem that concerned Darwin and his contemporaries was to

derives its self-understanding from the characteristics of the phenomenon of selection.

The change in perspective proposed here has far-reaching implications. These can be seen, among other things, in a change that takes place under the new perspective in the relationship between status, variation and selection. Both status and variation are seen here as a consequence of selection.[3] The variation is not - it should be emphasised here - understood by us as the child of two parents, namely evolution and selection, of which one parent would be responsible for the birth and the other for the further fate. Or formulated differently: We do not see in a variation a random product of evolution, whose future would be decided by selection.

Selection is thought of by us as a process that can initially be represented as a simple dilemma regarding two competing categories, one of which (status) already exists and the other (variation) is not (yet). Consequently, we understand a variation as that which remains

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explain the gradual development from species to species. Selection theory was only one building block in this explanatory model. Seen in this light, it is only understandable that we are talking about evolutionary biology but not about selection theory. Kutschera speaks of Darwin's 5 theories and mentions in the first place the theory of evolution as a real-historical process, the thesis of descent with modification. Darwin's other theories included the idea of common descent, the concept of gradualism, the thesis of the multiplication of Species, and - as the final one - the theory of natural selection; cf. *Kutschera* (2009), p. 79f.
Like Darwin, Wallace also did not use the term evolution; cf. also *Kutschera* (2009), p. 17 and 42. In this respect, one cannot claim that either of the two would have initiated the more insignificant phenomenon in front of the more significant phenomenon.

[3] We use the terms "status" and "variation" here as placeholders for the numerous conceptual variants that populate the various evolutionary theories as explicata. Thus, status would include any form of retention of existing entities (replication, imitation, etc.), while "variation" would represent mutation, novelty and similar terms.

when, due to selection, an event must occur but the status is not eligible for occurrence.

In principle, this is like a simple case in football. Let us say there is an intestinal flu, with the consequence that the coach cannot field the complete veteran team and, for better or worse, has to call a newcomer into the team. The new call-up is therefore not a coincidence, but a consequence of circumstances that condition the selection of the variation.

The selection that leads to the creation of the variation should not - and this should also be emphasised here - be confused with the selection that decides on the further fate of the variation. To stay with football: The calling of the rookie is a (one-time) thing. The question of whether he will still be part of the team for the next game is another matter.

We are therefore dealing here with two different selections. The first (which we call *creative selection*) creates a situation and, by doing so, paves the way for the second (which is called *elective selection*). In this respect, one can also say that the overall phenomenon that encompasses the two types of selection has an evolutionary aspect that can be paraphrased as a dilemma engendering dilemma. The first dilemma is about the question "Creation or non-creation?", and the second dilemma is about the question of which choice, given the options of status and variation options.

This understanding of selection and the fact that creative selection is followed by elective selection also affect the understanding of the concept of evolution proposed here. When we speak of evolution in the context of the proposed new view, we mean nothing other than the phenomenon of the juxtaposition of dilemmas engendering dilemmas described above.

1.1.2 Creative selection and elective selection

As indicated above, the outcome of *creative* selection does not prejudge the outcome of *elective* selection. The latter is a different matter and has to take into account a candidate that was not at issue in the creative selection: the status. In the case of elective selection, things are different from those in creative selection. In this case, status and variation are in and it is obvious that elective selection describes the state that is commonly referred to by the term selection.

In elective selection, a choice is made among candidates under competitive pressure, whereby it is basically irrelevant which selection processes we have in mind. What has been said applies equally to biological, cultural or other selection processes. Let us look at the biological theory of evolution as an example! Generally speaking, it is a matter of selection among intergenerational replicates, some of which are complete and others defective, whereby scarcity restrictions and the ability to come to terms with them determine the distribution of success among the defective and the defect-free replicates.[4]

To bring our (by creative selection) newly called footballer into the game again: The elective selection decides whether he will be called up a second time. The coach can now choose from at least 12 players. The question in this case - as in all other comparable cases - is: According to which criterion is it decided whether he will remain in the team for the next game?

In the conventional presentations of Darwinian evolutionary theory, one often encounters the idea that a variation is preserved if it has advantages over the status. We will break off with this idea. From our point of view, variations are preserved if they do what all members of

[4] Something similar could be said with regard to cultural selection processes. Let us recall the model of rule selection offered by Hayek; cf. on this see *Bouillon* (1991), p. 39ff.

the status fulfil which are retained: *In the absence of disadvantageousness* they must *fail to be eliminated.* In football language: They do not have to play better than all the others in the team, but for each one it applies: He must not play worse than the other 10.[5]

In short: we give up the *idea of necessary advantageousness* and replace it with the idea of *the lack of disadvantageousness*. But before we turn to the issues involved, let us conclude this section with two remarks. The first remark serves only to clarify: The issue of lack of disadvantageousness, in particular to what extent it replaces the idea of necessary advantageousness, only arises in the context of elective selection, because only there is a competition among competing alternatives.

The second remark is about the relationship between the two options of elective selection: status and variation. If a variation competes with the status, then the reproductive fitness it achieves in comparison to the reproductive fitness of the status shows how we have to interpret it: Does it represent an improvement, a deterioration or an equivalent alternative?

In a sense, such elective selections represent the basic mental pattern that dominates in biological evolutionary theory. The theory of biological evolution is mainly about variations, for which the question comes up whether they are better, worse or equivalent compared to the status. Cases in which several biological variations are in competition with the status at the same time are the exception to the rule. In other areas of life, it is often the other way round. Markets provide an excellent example of this.

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[5] Football experts may forgive the author for oversimplifying things a little. He too knows that every advanced footballer can only play in a few positions. The goalkeeper, seen in this light, does not compete with the libero, left winger or centre forward, etc. But it would not further our purpose to take such peculiarities into account. Alternatively, and to interpret our metaphor correctly, think of a village or youth team in which, in principle, anyone can replace anyone else when it matters.

As soon as profitable goods appear on the market, resourceful rivals try to bring various alternatives to the market that prevail over the status quo. Admittedly, there are also many industries in business life in which one good represents the status quo over a long period of time, for which a competitor can only be found once in a while. But these cases receive comparatively little attention in economics. By this we mean to say that the picture of elective selection in economics differs markedly in one respect from the picture of elective selection that prevails in biological evolutionary theory. While the biological evolutionary theorist focuses primarily on competition between status and variation, the economist favours a different subject of competition: that between status and more than one variation.

This alone may not seem remarkable (and may well be disputed), but it gains significance if we call to mind a consequence that emerges from the evolutionary approach taken by the economist. If several variations pop up and compete with the status simultaneously, then this inevitably arouses interest in comparing not only the variations with the status, but also the relationships of the variations among each other. If one gives in to this interest, then one soon realises that losers and winners are in some respects cut from the same cloth. The genius and the crank are equally deviants. But unlike the crank, the genius has failed to lose in the game. Or to put it another way: The genius and the spinner are both successful in the process of creative selection. The difference between the two only becomes apparent in the process of elective selection.

1.1.3 Advantageousness vs. lack of disadvantageousness

One of the biggest problems of evolutionary theory, for many authors, is to explain all the beneficial facilities that are *not* necessary for the preservation of a species. From our point of view, this problem results from a presupposition that is wrongly assumed by many to be a neces-

sary condition for the evolutionary emergence of species. In our opinion, the question of the advantageousness should be replaced by the question of the lack of disadvantageousness. Traditionally, however, it is customary to always ask the question of the advantageousness of a development. Already David Hume, with whom we will deal in detail in a chapter yet to come, discussed this problem when letting Cleanthes reply to Philo:

> "No form, you say, can subsist, unless it possess those powers and organs requisite for its subsistence: some new order or economy must be tried, and so on, without intermission; till at last some order, which can support and maintain itself, is fallen upon. But according to this hypothesis, whence arise the many conveniences and advantages which men and all animals possess? Two eyes, two ears, are not absolutely necessary for the subsistence of the species."[6]

Hume seems to have Philo implicitly assume that only those organs are created and preserved that are beneficial, indeed necessary, for the preservation of humans and animals.[7] This assumption - as obvious as it may seem - is anything but self-evident. Once a "convenient and advantageous organ" has evolved, it does not have to help its host or its species in the preservation of the species or in any other way. It is sufficient if it does not stand in the way of species preservation. The same applies to the entire course of its development.

In other words, a mutation does not *have to* confer any species-preserving advantages on a species. It does not have to bring any other advantages. It is sufficient if it does not impose a fatal disadvantage

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[6] *Hume* (1779), p. 73. On Hume's contribution to evolutionary biology, cf. *Huntley* (1972), p. 457.

[7] Cf. *Ganten, Deichmann* and *Spahl* (2003), p. 87: "The genome varies randomly and only the preference of advantageous mutations in natural selection causes the change of a species."

on it; if it behaves in a way that is *neutral* to the preservation of the species.[8] The same applies - and this is even more important - to the individual: it can deviate from the status. As long as its deviation does not imply a fatal disadvantage, it is not relevant to selection. As we shall see, the view that selection favours advantageous mutations proves to be a huge burden for understanding evolutionary processes. Moreover, as we shall see, this assumption is usually accompanied by another problematic conjecture, namely the idea that advantageousness can always be equated with a lack of fatal disadvantageousness.

Irrespective of this, it should not be denied here that there are countless selections in which precisely the case occurs that many evolutionary theorists seem to assume as the rule, namely that those mutations are selected that prove to be advantageous. It is not disputed here that in many selections the selected mutation is both free of fatal disadvantages as well as rich in advantageousness.

Be that as it may, if one follows the view proposed here, then this also has consequences for future research questions. For example, it is not a question of whether a new rule that prevails over the status is more appropriate than the status, but whether it avoids greater inappropriateness. A characteristic of unsuccessful variations would be that they do not avoid this greater inappropriateness. Correspondingly established theories would also be falsifiable. If, for example, it were shown for a more successful variation that it has greater inappropriateness than the status, then this circumstance would (possibly) disprove the theory that the variation arose according to negative selection.

If such considerations are taken further, then there are many shifts in perspective, some of which we would like to mention here in conclusion. Among other things, they would have to be reflected in a change of linguistic habits. For example, it would be far more appropriate to

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[8] Neutral evolution is also known in evolutionary biology; cf. *Kimura* (1983).