Weber's ideal types and idealization

Juraj Halas

Max Weber's "ideal types" (ITs) have long drawn the attention of philosophers of science. Proponents of the Poznan School have formulated at least two different methodological reconstructions of Weber's conception. One, by Izabella Nowakowa, views ITs as extreme elements of classifications and argues that the procedure employed in constructing ITs is but a special case of the method of idealization. Another, by Leszek Nowak, explicates ideal-typical statements as analytic statements which perform explanatory or heuristic functions. In this paper, I assess these reconstructions and confront them with Weber's original writings. I show that both are inadequate and propose a new one, based on a revised conception of abstraction and idealization. I show that the heuristic function of ITs, as discussed by Weber, consists in their role in formulating contrastive explanations.

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Introduction

Max Weber's writings on "ideal types" (ITs) have been an important influence in the debates on the philosophy and methodology of social sciences and the humanities. In the context of the Poznan School of philosophy of science, at least two contributions to the reconstruction of ITs have emerged. Unlike Hempel, both emphasize the role of idealization. The historically prior approach is due to Leszek Nowak and was first formulated in English in his (1980). The second approach was presented by Izabella Nowakowa in (2007). This paper critically examines both contributions. In the first part, I briefly restate the accounts

and argue that neither of them adequately captures the intent of Weber's conception. Therefore, in the second part, I present a different reconstruction, based in part on Jones' (2005) understanding of the methods of abstraction and idealization. I show that the construction of ITs, as described by Weber himself, involves the application of both of these methods. I propose to view ITs as *ideal objects* similar in nature to the "point mass" or the "simple pendulum" of physics. Analyzing one of Weber's examples of the use of ITs, I conclude that their heuristic import lies in their role in the formulation of *contrastive explanations* of social phenomena.

1 The Poznan School on Weber's ITs

Before turning to the reconstructions in question, it seems appropriate to briefly summarize some of the key points of Weber's conception, in order to arrive at a standard with which the methodological analyses can be compared. In Weber's view, all sciences strive for an "intellectual ordering of empirical reality" (Weber, 2012c, 102) by means of "concepts" (*Begriffe*). Because phenomena are characterized by an "infinite multiplicity", both "extensive" and "intensive" (Weber, 2012e, 40), their processing into concepts is necessarily selective. For Weber, all concepts are the result of a process of abstraction which sets apart those aspects of reality that are deemed relevant (relative to certain cognitive goals) from those that are not. In line with the neo-Kantian tradition, Weber distinguishes two major kinds of abstraction: generalization, which focuses on the common characteristics shared by several phenomena and collects them together in a single concept, and individualization or isolation, which extricates the aspects specific to a particular phenomenon and disregards those that it holds in common with other phenomena. These two forms of "concept formation" (*Begriffsbildung*) lie at the basis of two different cognitive strategies and two different kinds of sciences.

The goal of natural sciences is the ordering of reality by means of "*relational* concepts" or "laws" which have the form of "*causal equations*" (Weber, 2012e, 5). Formed by generalizing abstraction, such general concepts enable the subsumption of the most disparate phenomena. The price to pay for the relatively wide extension of such concepts is their relatively meager content: they represent empirical reality as devoid of qualities (Weber, 2012e, 5). However, with respect to the cognitive goals of natural sciences, this does not present a problem.[1] In contrast, the task of social sciences is the "attaining knowledge of

[1] In this respect, Weber's conception draws on the traditional, and now long outdated, doctrine

reality, with its constant and universal character of qualitative differentiation and uniqueness" (Weber, 2012e, 5); "what matters to us in the social sciences is the *qualitative* aspect of events" (Weber, 2012c, 115). Corresponding to this goal is individualizing abstraction as a mode of concept formation. However, faced with the infinite multiplicity of all phenomena, a further criterion is required to select those aspects of an event which not only are unique to it, but are also deemed more relevant than other such aspects. This criterion is "value relation" (*Wertbeziehung*):[2] in their concepts, social scientific disciplines capture those aspects of phenomena which are relevant with respect to certain values.[3]

It should be noted that Weber never viewed the distinction between natural and social sciences as absolute – in the sense that the latter would *never* use generalizing abstraction and the former would *never* form individual concepts by isolating abstraction. Even a natural-scientific discipline can assume a historizing, i.e. individualizing viewpoint, as when, for example, physical geography studies the origin of a particular mountain. Similarly, a social-scientific discipline may form law-like generalizations which capture the common features of many disparate phenomena. According to Weber, the distinction only strictly applies to "pure mechanics" and "certain parts of historical science" (Weber, 2012e, 6); in the case of the other disciplines, it only refers to the *predominant* cognitive goals and methodological practice.

Besides concepts which are the results of one of the two types of abstraction discussed above, Weber identifies yet another kind of concepts, supposedly specific to social-scientific disciplines. As examples of this third kind, he lists "economic exchange", "capitalism", "Christianity" (Weber, 2012c, 131) or the "economic subject" (in the sense of a "*homo oeconomicus*") (Weber, 1990, 30).

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of the inverse proportionality between the extension and the content (intent, comprehension) of a concept. However, I shall not deal with this aspect of Weber's conception in more detail.

[2] Earlier English translations of Weber's writings use the fitting term "value-relevance".

[3] For purposes of this paper, the following example will suffice: in forming the concept of a unique historical event (like World War I), the historian can choose from an infinite number of aspects which distinguish it from other events. Based on the criterion of value relation, she chooses those which are relevant with respect to the cultural problems she (or "her time") considers important. Thus the aspect of World War I which merits the inclusion into the corresponding concept could, depending on the wider context, be imperialism, the historically unprecedented use of tanks, or the fact that the war broke out shortly after the assassination of Archduke Franz Ferdinand, etc. Needless to say, Weber thought that the criterion of value relation was specific to social sciences. And because the context of values which forms the background of these disciplines is constantly changing, it is legitimate for scholars to return to phenomena that had already been treated by other scholars from the viewpoint of different values. Hence, these disciplines shall remain "eternally youthful" (Weber, 2012c, 133).

Further examples of this kind are concepts formed by Weber himself: „competition", „organization", „institution" and many others in (Weber, 1968). On the one hand, these concepts appear general, because one can seemingly subsume many exemplifications under them – particular cases of economic exchange, particular historical forms of capitalism etc. (Burger, 1987, 122). On the other hand, none of the particular exemplifications *completely* satisfy the criteria postulated by the concept: in each case of a market exchange, the circumstances and the motives of agents involved distinguish it from the "pure" exchange postulated by economic theory (which holds, e.g., that all agents are perfectly utility-maximizing). From the point of view of the theory of concepts to which Weber subscribed, these cannot be general concepts of the usual kind, but neither are they individual concepts. Weber calls them "ideal types".

Similarly to other kinds of concepts, ITs serve to "order empirical reality". They are also formed by abstraction, albeit a specific one. It entails a "*theoretical* accentuation of certain elements of reality" (Weber, 2012c, 124), a "one-sided *accentuation* of *one* or *a number of* viewpoints" and the "synthesis of a great many diffuse and discrete *individual* phenomena (more present in one place, fewer in another, and occasionally completely absent)" into "an internally consistent *mental* image" (Weber, 2012c, 125). Such concepts have no particular exemplifications in empirical reality; they are "unrealistic" (Weber, 1968, 21) and only "approximate [reality] more or less closely" (Weber, 2012b, 331).

As was already mentioned, Weber thought that ITs only occur in the social sciences. This is due to the complexity of their subject matter,[4] which is ultimately the consequence of human intentionality (Burger, 1987, 116). A certain kind of human action – say, economic exchange – is always motivated by a heterogeneous set of reasons, goals and values. Therefore, generalizing abstraction is unable to form a general concept of it which would cover all cases. Individualizing abstraction, on the other hand, cannot cover more than a single particular case. An ideal type should enable one to capture what forms human action *would* take *if* it *were* motivated exclusively by particular and explicitly formulated reasons, goals or values. Which of these will be the focus of a particular IT is determined – just as in the case of individualizing abstraction – by the criterion of value relation.[5] For Weber, a specific feature of the IT as

[4] „For example, the same historical phenomenon may be in one aspect feudal, in another patrimonial, in another bureauratic, and in still another charismatic. In order to give a precise meaning to these terms, it is necessary for the sociologist to formulate pure ideal types of the corresponding forms of action […]" (Weber, 1968, 20).

[5] „Just as there are therefore different 'viewpoints' from which we can regard these phenomena as significant for us, so one may rely on entirely different principles for the selection of those

a "concept" is, therefore, not only that it is unrealistic, but also that it concerns human action and its "meaning" – in the sense of the motives ascribed to action by the acting agent or by others. Weber realized that natural sciences used concepts such as "point mass" or "absolutely empty space" and obviously saw them as analogous in some sense to ITs,[6] but only spoke of ITs with regard to "meaningful action", i.e., in the context of social science.

He viewed the function of these concepts as twofold: expository and heuristic.[7] As regards the former, ITs enable one to formulate unequivocal descriptions and classifications of social phenomena, albeit at the cost of "abstractness" (Weber, 1968, 22). In other words, an IT "*is not* a *depiction* of reality, but it seeks to provide [the scientific] account with unambiguous means of expression" (Weber, 2012c, 125). As regards the latter, an IT serves "to 'compare' empirical reality with it, to establish how it contrasts with reality, how far removed or relatively close it is to [reality]" (Weber, 2012b, 331) as well as to „guide the formulation of hypotheses" (Weber, 2012c, 125) which would explain *why* observed human action differs from the ideal-typical one. ITs thus function as a key instrument in the formulation of causal explanations in the social sciences: „In order to grasp the real causal interconnections, we *construct unreal ones*" (Weber, 2012a, 182).

I shall come back to further details of the "construction" of ITs and their use as heuristic instruments in Section 2. The material covered so far will suffice to assess the adequacy of the two reconstructions of Weber's conception to which I now turn.

1.1 I. Nowakowa: extreme element of a classification

Izabella Nowakowa sets out in (2007) to compare Weber's conception of ITs with Hegelian idealization as formalized in the idealizational philosophy of science. An IT, she argues, can be viewed as a „possible object" resulting from a specific "deformation" of a real object – namely, from a contrafactual ascription of a minimal value to a certain property (properties) of the real object (Nowakowa, 2007, 164). Following earlier classifications of deformational procedures, she terms this operation "negative potentialization". Since Nowakowa views idealization, in line with the Poznan tradition, as a combination of two kinds of deformation procedures ("reduction", i.e. the elimination of properties, and

relationships that are to be included in an ideal type […]" (Weber, 2012c, 125).

[6] See, e.g., (Weber, 1990, 30), (Weber, 1968, 20)

[7] See, e.g., (Weber, 2012e, 74), (Weber, 2012c, 125), (Weber, 1968, 21).

"negative potentialization"), she concludes that the procedure involved in the construction of Weberian ITs is simply a special case of idealization.

On Nowakowa's account, an IT is the extreme member of a classification. In an ascending scale of objects based on a given property, the element S_0 is an IT if it is empty, i.e., if there are no real objects that satisfy the given (minimal) value of the property (Nowakowa, 2007, 160). Conversely, the elements $S_1, \ldots, S_n$ of the classification are "real types" which are exemplified by real objects. Thus the role of ITs, on Nowakowa's account, seems to be systematizing: the IT serves as a standard with which real types are compared.

Before turning to a criticism of this account, it should be noted that Nowakowa acknowledges the "purely conceptual character" of her conclusions, as well as the fact that her explication is based on previous reconstructions, and not on original material by Weber (Nowakowa, 2007, 159 and 164). Still, there is some evidence in Weber in favor of her approach: for example, Weber characterizes the IT as a "*limiting* concept against which reality is *measured* – with which it is *compared*" (Weber, 2012c, 127). However, there seem to be two reasons why Nowakowa's account is lacking.

First, this account does not address the question of the heuristic function of ITs. Attempts to explicate the IT in this manner, i.e. as a "limiting concept" in the sense of an extreme element of a classification, have a long history. However, as was pointed out by Hans Albert,

> „If we examine the use of ideal types in *Max Weber*, it seems it is not in tune with this analysis of [IT as an extreme element] [...] By means of ideal-typical constructions, Weber evidently wanted to provide a foundation for the explanation of social reality." (Albert, 1967, 57)[8]

Nowakowa justifies her approach by referring to the "reconstruction proposed by C. G. Hempel and P. Oppenheim as an explication of the Weberian tradition" (Nowakowa, 2007, 159). Clearly, the implicit reference here is to the groundbreaking (Hempel – Oppenheim, 1936). But neither that work, nor its later development in (Hempel, 1960) addresses ideal types. The subject matter of these contributions are typologies and types as found, for example in psychological theories of personality, where they indeed fulfill a *systematizing* role. Hempel did in fact analyze Weber's ITs and their *explanatory* role in (1965), but explicated them *not* as comparative concepts, but as theories.

Second, it seems that Nowakowa is wrong in reducing the deformational proce-

[8] For similar conclusions, see (Janoska-Bendl, 1965, 78) and (Burger, 1987, 158).

dure used in constructing ITs to "negative potentialization". In an unpublished manuscript of lectures in economics, Weber analyzes the method by which economic theory introduces the "„*construed* 'economic subject"'. Economics

> "[…] (a) treats as *absent*, – *ignores* all such motives influencing the empirical Man which are not specifically *economic*, i.e. do not originate in the satisfaction of material needs; (b) *pretends* the existence of certain qualities that the empirical Man does *not* have or has only in an imperfect way […]. The arguments of economics relate to an *unrealistic* Man, analogous to the ideal figure in mathematics" (Weber, 1990, 30)

Since Weber viewed economics as a paradigmatic case of a discipline using ITs,[9] it is safe to assume that the above describes the construction of an IT. Confronting it with Nowakowa's reconstruction, one can object that it does not take into account the difference between the "ignoring" (i.e., the elimination or reduction of a property) and the explicit ascription of a minimal value (i.e., negative potentialization). Moreover, it completely disregards the case (b), i.e., the ascription of properties that the original object (in this case, the "empirical Man") does not have. In the Poznan vocabuary, this would be termed "transcendentalization". Nowakowa's conclusion what Weber's procedure is merely a special case of idealization – insofar as the latter is understood as a combination of reduction and negative potentialization – is thus false.

1.2 Nowak: analytic statement

In his classic account of the idealizational philosophy of science, Leszek Nowak (1980) also discusses Weber's ITs. He proposes to view them as statements of the form "If $A_1(x) \wedge \ldots \wedge A_m(x)$, then $B(x)$". Because B refers to a property that is satisfied *by definition* by any object with the properties A_1, ..., A_m, such ideal-typical statements are analytic. The properties involved may or may not be exemplified by any real object (Nowak, 1980, 48–49).

The role played by the IT in explanation depends, according to Nowak, on whether it "deviates from reality" or not (Nowak, 1980, 49). This question can be answered by testing the hypothesis about the applicability of the ideal-typical statement to a given hypothesis, i.e., a statement of the form $A_1(a) \wedge \ldots \wedge A_m(a)$. If the test is positive, an explanation can be formulated based on the following scheme (Nowak, 1980, 49):

[9] "[E]conomic theory reveals itself as a sum of 'ideal-typical' concepts" (Weber, 2012g, 249).

$$\frac{(\forall x)\left(A_1(x) \wedge \ldots \wedge A_m(x) \rightarrow B(x)\right) \quad A_1(a) \wedge \ldots \wedge A_m(a)}{B(a)}$$

The fact that a has the property B is explained by referring to the fact that it has the properties $A_1, \ldots, A_m$ and to the IT-statement.

In case the object under investigation does not have the property B, the IT-statement fulfills a heuristic function. It should guide the researcher to look for a property C which prevents the object from having one of the properties $A_1, \ldots, A_m$ (and therefore also B). Explanation has the form (Nowak, 1980, 50):

$$\frac{(\forall x)\left(C(x) \rightarrow \neg A_1(x)\right) \quad C(a)}{\neg A_1(a)}$$

An important feature of Nowak's reconstruction is that it emphasizes the relation between ITs and explanation and considers their heuristic function. However, Nowak's solution has its problems. To make them explicit, a closer look at some of the details is necessary.

Since Nowak does not provide an illustration of the way in which ITs work in practice, I will construct one from the following Weberian example, which is also referred to by Nowak:

> „One can, for example, arrive at the theoretical conclusion that in a society which is organized on *strict* 'handicraft' principles, the only source of capital accumulation can be ground rent. From this perhaps, one can – for the correctness of the construct is not in question here – construct a pure ideal picture of the shift, conditioned by certain specific factors – e.g., limited land, increasing population [...] – from a handicraft to a capitalist economic organization. Whether the empirical-historical course of development was actually identical with the constructed one, can be investigated only by using this construct as a heuristic device for the comparison of the ideal type and the 'facts'. If the ideal type were 'correctly' constructed and the actual course of events *did not* correspond to that predicted by the ideal type, the hypothesis that medieval society was *not* in certain respects a *strictly* 'handicraft' type of society would be proved. And if the ideal type were constructed in a heuristically 'ideal' way – whether and in what way this could occur in our example will be entirely disregarded here – it will guide the investigation into a path leading to a more precise understanding

> of the non-handicraft components of medieval society in the peculiar characteristics and their historical significance. *If* it leads to this result, it fulfils its logical purpose, even though, in doing so, it demonstrates its divergence from reality." (quoted in Nowak, 1980, 48, omissions by J. H.)

In this case, it seems that the antecedent of the IT-statement would refer to the properties "being organized on strict handicraft principles" (A_1), "having limited land" (A_2), "having increasing population" (A_3), while the consequent would refer to the property "to shift to a capitalist economic organization" (B). Investigating the emergence of a capitalist economy in a given society, the researcher would confront data on its preceding form of economic organization with the IT-statement. If it would appear that the society satisfied the antecedent, she could – supposing that the IT is "'correctly' constructed" – explain the emergence of a capitalist economy as the result of properties $A_1, \ldots, A_3$. Weber does not consider this case in the example, though, and assumes that the actual course of events did not correspond to the ideal-typical one. This discrepancy means, in Nowak's terms, that the society studied does not have the property B (i.e., it differs in certain aspects from the constructed image of a capitalist economy), and therefore also lacked at least one of the properties $A_1, \ldots, A_3$. Supposing that the presence of properties A_2 and A_3 can be reliably and independently confirmed, one may infer that the society lacked the property A_1, i.e., it was not a society organized on strict handicraft principles. Further investigation will thus attempt to identify the specific circumstances (C) due to which the economy of society a differed from that of a pure handicraft economy, and ultimately formulate an explanation based on Nowak's second scheme.

However, it is not clear why Nowak views IT-statements as analytic. Sticking to the example quoted and reconstructing the statement as "If the economy of a certain society is organized on strict handicraft principles and this society has limited land and…, then the economy of this society will transform to a capitalist one", it does not seem that we are dealing with an analytic statement – not even relative to the "theoretical conclusion" with which Weber introduces the example. Suppose, however, that IT-statements really were analytic. Assuming the standard operational definition of the property "being an acid", the statement "In all liquids (A_1) that are acids (A_2) a litmus paper will turn red (B)" is analytic and would qualify as an IT-statement according to Nowak's criteria. The fact that after submerging a piece of litmus paper into the liquid b, the paper turned red, could then be explained by referring to b being an acid and to the IT-statement. In contrast, if in any liquid the litmus paper does not

turn red, one can infer that it is not an acid. One can then try to confirm the property *C* ("being a sample of tap water") incompatible with A_2. Finally, one may formulate the explanation using the second scheme provided by Nowak:

> Tap water is not an acid.
> *b* is a sample of tap water.
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> *b* is not an acid.

The point of this exercise is to show that if IT-statements were analytic, their import for empirical science whose goal is causal explanation would be – limited, at best. In the first case, the "explanation" is purely explicative. In the second case, not only does the IT-statement not appear in the explanation (as acknowledged by Nowak), but its heuristic role is questionable, too. If it is a question of *definition* that any object with properties A_1, A_2 has the property *B*, then the inference from the absence of *B* to the absence of one of A_1, A_2 can hardly be viewed as a significant discovery. Moreover, Nowak does not pose the question how the IT-statement could assist in the identification of the properties (e.g., *C*), due to which the real object diverges from the IT.

However, the problems do not end here. Nowak seems to justify the analyticity of IT-statements by the fact that they "cannot be tested at all" (1980, 48). On the other hand, he concedes the possibility that the IT-statement "agrees with the investigated phenomenon" or "does not correspond to the actual phenomenon" (Nowak, 1980, 48). It is not clear how an *analytic* statement, lacking empirical content, can be pronounced to correspond or not with facts. If a statement cannot be tested at all, one should not even be able to pose the question of such correspondence.

Further difficulties of Nowak's reconstruction concern the very concept of IT. Nowak does not specify what kind of an object an IT is. Instead, he prefers the terms "ideal-typical concept" and "ideal-typical statement". The former is a concept that "denotes" an IT (Nowak, 1980, 41), the latter a statement which "refers to" an IT (Nowak, 1980, 48). For the purpose of explicating the concept of IT, Nowak quotes a short passage from Weber's "Objectivity",[10] which,

[10] "An ideal type is formed by the one-sided *accentuation* of one or more points of view and by synthesis of a great many diffuse, discrete, more or less present and occasionally absent *concrete individual* phenomena, which are arranged according to those one-sidedly emphasised viewpoints into a unified *analytical* construct. In its conceptual purity, this mental construct cannot be found empirically anywhere in reality. It is a *Utopia*." (cited in Nowak, 1980, 41). It should be noted that the earlier English translation cited by Nowak has "*analytical* construct" in place of the original *Gedankenbild*, which *prima facie* favors Nowak's interpretation of ITs as analytic statements. In the more recent translation, the more fitting "*mental* image" is used (Weber, 2012c, 160).

unfortunately, does not address the question of what an IT *is*. Therefore, the nature of the procedures used in the construction of ITs remains undisclosed.

In a later text, Nowak seems to have revised his original reconstruction, in the same direction as the one pursued by Nowakowa (2007):

> "*The neo-Weberian paradigm*. Idealization is basically a method of constructing scientific notions. Having a certain typology in mind, one may identify its extreme member. If the member is an empty set, it is termed an ideal type and the notion attached to it is labelled idealization [...]. The source of this approach lies in Max Weber's methodology. In modern philosophy of science it is Hempel's conception that is an explication of Weberian ideas [...]" (Nowak, 2000, 1)

Here, Nowak refers to Hempel – Oppenheim (1936) and Hempel (1960) – which, as mentioned above, are not concerned with Weber's ITs at all.

To summarize, neither of the accounts discussed provides an adequate description of the methods used in the construction of ITs or an adequate reconstruction of their use in explaining social phenomena that would free of conceptual problems. In the next section, I propose an account of Weber's conception that encompasses both of these aspects.

2 Abstraction, idealization and ITs

In this section, I first show that ITs can be viewed as abstract (i.e., non-spatio-temporal) objects which result from the application of the methods of abstraction and idealization. These are non-empirical methods which are routinely used in both the natural and the social sciences. Thus, I argue that the procedures employed in the construction of ITs are not principally different from those used in the natural sciences when introducing ideal objects like the "simple pendulum". I then move on to reconstruct the method involved in the heuristic use of ITs in causally explaining human action. The so-called ideal-typical method is thus a complex meta-method consisting of two methods: the construction of IT and its heuristic use.[11] In reconstructing both methods, I draw on a model of method as a sequence of instructions, as well as on an explication of the methods of abstraction and idealization in that model.[12]

[11] I abstract from the expository function of ITs, as it had not been the focus of Weber's writings either.

[12] See Bielik et al. (2014a,b,c,d) and Halas (2015).

2.1 The "construction" of ITs

In Section 1, we have seen Weber describe the process of the construction of ITs as a "*theoretical* accentuation" in which properties of real (spatio-temporal) objects are treated "as *absent*", while the existence of other properties is pretended. Elsewhere, he characterizes this procedure as a "process of *abstraction*" which results in an "*imaginary picture*" or a "*theoretical* construct" (Weber, 2012a, 175). Weber also emphasized that an IT is "put together out of the individual parts which are taken from historical reality" (Weber, 1992, 13), i.e., that its source material is that which is "immediately given" (Weber, 2012a, 175). From this, two conclusions relevant to the explication of the method of constructing ITs can be drawn. First, if a method is understood as a sequence of instructions which guide on to transform a certain input object to an output object, then the construction of ITs consists in a transformation of a certain veridical representation of "historical reality" (e. g., a representation of the "empirical Man") into an "imaginary picture" (e.g., the "economic subject") which distorts, in a sense, the original veridical representation.

Second, two kinds of distorting operations are involved in this transformation: the ignoring of some of the properties of the input object and the counterfactual specification of "new" properties which are not exemplified by the input object. Following (Jones, 2005), I call these operations "abstraction" and "idealization", respectively. In (Halas, 2015), I have proposed an explication of these methods in terms of sequences of instructions. Both methods take an abstract object (i.e., a non-spatio-temporal object) as their input and produce a different abstract object as the output. The input object may or may not be a (veridical) representation of some spatio-temporal object; but it may itself also be the product of previous abstraction and/or idealization. I take the method of abstraction to consist of the following steps:

1. Identify the input object o!
2. Identify the set of poperties A encoded[13] by o which are relevant with respect to the present cognitive objectives!
3. Define the output object o' which encodes properties from the set A!
4. Declare o' to be the abstractum based on o!

In contrast, the method of idealization consists of the following instructions:

1. Identify the input object o!

[13] On the distinction between the exemplification and the encoding of properties, with regard to abstract objects, see (Zalta, 1988, 15ff).

2. Identify the set of poperties A encoded by o !
3. Identify the set of properties $A_n \subset A$ encoded by o which do not conform to the present cognitive objectives!
4. Identify the set of properties A_i which conform to the present cognitive objectives!
5. Define the output object o' which encodes the properties from the set $A' = (A - A_n) \cup A_i$!
6. Declare o' to be the ideal object based on o!

Hence an abstractum does not encode some of the properties encoded by the input object, while an ideal object encodes properties which were not encoded by the input object. In both cases, the selection of properties encoded by the output object is governed by the wider cognitive objectives in pursuit of which the input object is being transformed.

To illustrate the proposed understanding of both methods, let us consider a typical ideal object of physics: the "point mass". Its introduction motivated by certain theoretical goals and takes place on the background of pre-existing knowledge. It can be reconstructed as a transformation of an input object, e.g., a representation of a generic physical body (itself an abstract object, although one which is exemplified by particular spatio-temporal objects), into an output object. The transformation proceeds in two sequential steps. In the first step, all properties except for "having mass", "having (nonzero) volume" and "having position" are abstracted from. In the second step, the property "having nonzero volume" is replaced with "having zero volume". The resulting ideal object only encodes the properties "having mass", "having zero volume" and "having position".

2.1.1 Cognitive objectives: three criteria

The construction of an IT can be grasped as a procedure that combines abstraction and idealization and is guided by specific cognitive objectives. The specificities of these objectives – which particular properties will be abstracted from, which properties will be idealized – will differ from one case to another. However, it is possible to identify in Weber's conception certain general guidelines which he viewed as imperative. According to Weber, each IT must satisfy the three criteria:

1. the criterion of "value relation",

2. the criterion of "adequacy on the level of meaning" ("meaning-adequacy"),
3. the criterion of "causal adequacy".

Weber's first criterion has already been mentioned; in his view, it applies universally to concept formation in social science. With regard to the abstraction and idealization involved in the construction of an IT, this criterion leads to the selection of properties (those which, in the case of abstraction, are *not* ignored, and, in the case of idealization, are counterfactually ascribed to the resulting object) which are "value relevant". However, according to Weber, there is no single and conclusive test of value relevance. As we have seen, Weber permits the existence of different ITs constructed from the same source material, but on the background of different value-viewpoints. Some critics have therefore accused Weber of "voluntarism", "subjectivism" or "decisionism".[14] But although Weber allowed for some degree of freedom in the *construction* of ITs, this was not the case for their *heuristic use*. Only some of the ITs that can possibly be construed on the basis of different values will prove themselves useful:

> „And, indeed, it is never possible to determine in advance *whether* [such constructive efforts] are mere fantasies or whether they constitute scientifically fruitful concept formation. Here, too, the only standard is whether [the ideal type] is useful for acquiring knowledge of concrete cultural phenomena – their context, their causal determination and their *significance*. Consequently, the construction of abstract ideal types can only be considered a *tool*, never an end [in itself]" (Weber, 2012c, 126)

The *criterion of value relation* ultimately reduces to the maxim that the properties encoded by the IT are always determined by the wider theoretical background on which it is constructed. This background sets apart certain aspects of the investigated phenomenon – the Reader is reminded of the example of World War I in Section 1 – as relevant. Some ITs may prove heuristically fruitless, while others will hold out in the test and will be preserved as productive *with regard to certain objectives*.

As mentioned above, Weber viewed ITs as concerned with human action which, for him, was the proper subject-matter of social science. The examples of ITs he discusses to all "depict" types of action (e.g., "instrumentally rational action"), systems of beliefs which motivate a specific kind of action („Christianity"), kinds of agents, groups of agents and systems which act or in which action takes place based on specific motives ("organization", "feudalism"), or kinds

[14] For examples, see Weiss (1981) on the Marxist reception of Weber.

of social processes which result from specifically motivated action ("economic exchange", "rationalization"). Therefore, at least some of the properties encoded by ITs are intentional: they concern the reasons, goals or values which motivate human action, and dispositions to act on these motives in a specific way. An IT satisfies the *criterion of meaning-adequacy* if the motives it encodes correspond to the dispositions it encodes.

Weber thought that the assessment of such correspondence relies on certain "*rules* of experience" (Weber, 2012a, 181) which are based on antecedent observation of human action (Weber, 1968, 10):

> "The interpretation of a coherent course of conduct is 'subjectively adequate' (or 'adequate on the level of meaning'), insofar as, according to our habitual modes of thought and feeling, its component parts taken in their mutual relation are recognized to constitute a 'typical' complex of meaning." (Weber, 1968, 11)

These rules of experience have the character of commonsense knowledge (Burger, 1987, 86) which enables one to judge a course of action as "understandable" given the motivational circumstances. This aspect of Weber's conception has led to criticisms: subjective "understanding" can hardly be the basis for a scientific account of social reality and its causal explanation. Often, Weber is ascribed a position according to which the proper *method* of social science is subjective "understanding" (*Verstehen*), as distinguished from causal explanation. Alas, this is no place to deal with the question of *Verstehen* in detail.[15] I believe, however, that the demand for "understandability" need not be seen as an appeal for esoteric insight.[16] It can also be interpreted simply as to mean that the means (or courses of action) selected for the IT must correspond with the selected ends (or motives), on the basis of a wider context of empirical knowledge ("rules of experience"), which may be of pre-scientific ("common sense") or scientific nature. In other words: if an IT encodes properties concerning motives and dispositions to act, the motives must correspond, according to preexisting "rules" to the dispositions, and the motives themselves must not be in conflict.[17] This can be determined by inference from the rules of experience, insofar as they are known.

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[15] But see Burger's (1987), according to which Weber "radically opposed any such arguments which postulated a special *method* of understanding" (Burger, 1987, 104).

[16] After all, Weber himself suggested to his contemporaries who emphasized the role of intuition: "He who yearns for seeing (*Schau*) should go to the cinema [...]" (Weber, 1992, xli). For Weber's critical remarks on psychologism in the social sciences, see (Weber, 1968, 18–19).

[17] This is how I interpret Weber's thesis that the IT should be an "internally consistent cosmos of *imagined* interrelations" (Weber, 2012c, 124).

Weber balances out the criterion of meaning adequacy with the *criterion of causal adequacy*. The relation between events, properties etc. is causally relevant if "there is a probability, which in the rare ideal case can be numerically stated, but is always in some sense calculable, that a given observable event (overt or subjective) will be followed or accompanied by another event." (Weber, 1968, 11–12). In the construction of an IT we – in the "ideal case" – rely not only on the knowledge of the usual and therefore "meaningful" relation between a motive and action, but also on the nomological knowledge of their causal relation. Both criteria of adequacy must be, according to Weber, united.[18] If the criterion of meaning adequacy is not fulfilled, then the researcher is left with a mere "incomprehensible statistical probability" (Weber, 1968, 12); if, on the other hand, causal adequacy is lacking, then the supposed relation between motives and courses of action has a purely hypothetical character (Weber, 1968, 9, 11). Weber does not seem to have considered the possibility that the criteria of adequacy run into conflict: that, e.g., the criterion of meaning would guide one to select motives and dispositions which are known to be statistically wholly unrelated. However, judging by the role ascribed to him to nomological knowledge in the social scences,[19]he would probably have viewed such a conflict as a major obstacle in the construction of the given type.

To summarize, the cognitive objectives which guide the methods of abstraction and idealization in the construction of ITs lead to the selection of properties which

1. are relevant relative to a preexisting system of knowledge;
2. are intentional and correspond according to known empirical knowledge;
3. occur together in antecedent nomological statements.

Thus the method of construction of ITs is a special case of the application of methods of abstraction and idealization. Its specificity lies in the peculiar nature the cognitive objectives it presupposes, as summarized in the three

[18] „A correct causal interpretation of typical action means that the process which is claimed to be typical is shown to be both adequately grasped on the level of meaning and at the same time the interpretation is to some degree causally adequate" (Weber, 1968, 12). In a similar way, in the earlier "Objectivity": "What we are concerned with is the construction of relationships that our *imagination* considers to be sufficiently motivated and therefore 'objectively possible', and that seem *adequate* in the light of our nomological knowledge" (Weber, 2012c, 126).

[19] "It is simply not possible [...] to perform a *valid* [causal] imputation of some individual effect without making use of 'nomological' knowledge – knowledge of the regularities of causal relationships." (Weber, 2012c, 118).

points above. This specificity is a consequence of the nature of the subject-matter of the disciplines which, according to Weber, necessarily construct ITs.

2.1.2 ITs as ideal objects

Using the previous conclusions, I shall now reconstruct particular cases of ITs, reading Weber's characterizations and definitions of ITs as brief accounts of the process of their construction. Perhaps the simplest example, for which Weber also provides a basic analysis, is the "economic subject" of theoretical economics, already cited above. According to Weber, the goal of economic science is first and foremost to grasp the most elementary phenomena in the economic life of a "fully developed" Man (Weber, 1990, 29). With that purpose in mind, this discipline constructs an IT of an economic subject which lacks any such motives that are not directly related to the satisfaction of material needs; at the same time, this subject is characterized by three properties which no "empirical Man" exemplifies: "α) perfect *insight* into the current *situation* – economic omniscience, β) exceptionless choice of the *means most suitable* to the given end – perfect 'economizing', γ) full use of one's own capacities in the services of acquiring goods – 'relentless drive for acquisition"' (Weber, 1990, 30).

The construction of the IT of "economic man", summarized in the above lines, can be interpreted as a procedure combining abstraction and idealization. From the input object, which is a veridical representation of the "empirical Man" and thus encodes realistic properties, is firstly transformed into an abstractum which only encodes the properties relevant from the point of view of economics (Weber does not specify these), selected on the basis of pre-existing cognitive objectives. Secondly, this abstractum is used as an input object in the method of idealization and transformed into an ideal object. This encodes the three properties mentioned above which are not exemplified by any spatio-temporal object. The selection of these properties is also based on the antecedent cognitive objectives.

Other examples of ITs include the four types of social actions distinguished in (Weber, 1968, 24ff). Instrumentally rational, value-rational, affectual and traditional action are "types" in "in conceptually pure form" to which "actual action is more or less closely approximated or, in much the more common case, which constitute its elements" (Weber, 1968, 26). The introduction of all these types can be reconstructed as a procedure combining abstraction and idealization. Weber's commentary to the second type is instructive:

> "Examples of pure value-rational orientation would be the actions of persons who, regardless of possible cost to themselves, act to put into practice their convictions of what seems to them to be required by duty, honor, the pursuit of beauty, a religious call, personal loyalty, or the importance of some 'cause' no matter in what it consists." (Weber, 1968, 25)

Thus the IT of value-rational action is an ideal objects which encodes exclusively the motives corresponding to the list above ("values") and the disposition to act always on such motives regardless of the consequences.

In (Weber, 1924), Weber discusses the IT of a "demoractic citizen polis", characterized thus:

> „Army service and full citizen rights have been emancipated from landed property and there exists a tendency (which, of course, would not ever be truly realized, not even in the time of the most radical Attican democracy, in the domain of qualification for office) to allow anyone capable of serving in the fleet to hold office, that is: all citizens as such, with no regard to differences in property." (Weber, 1924, 40, transl. mine)

The "democratic citizen polis" is an ideal object which encodes (a) properties exemplified by some spatio-temporal object (trivially: e.g., *being a form of social organization*), (b) properties exemplified by no such object. It is the result of transforming an abstract input object representing, e.g., the Attican democracy. Again, construction can viewed as proceeding in two steps. First, an abstractum is formed which encodes only some of the properties of the input object. In a second step, this abstractum is transformed into an ideal object which encodes counterfactual properties (i.e., the one mentioned above).

Interestingly, Weber notes that ITs can be used in the construction of new ITs. For example, the IT of a "purposive association" (*Zweckverein*) relies on the IT of "instrumentally rational action", and allows one to introduce the ITs of "organs of the association", "purposive assets" and "coercive apparatus" (Weber, 2012d, 285).

2.2 The heuristic function of ITs

We have seen that the construction of ITs combines methods which in terms of their structure and nature do not principally differ from those used in the natural sciences. In this section, I focus on the methods in which constructed

ITs are used. Here, too, I show that these are standard non-empirical methods which are not specific to the social sciences. As the summary of Weber's views in Section 1 makes clear, Weber thought the primary role of ITs was one of heuristic tools. This belief often takes the form of the thesis that ITs are not an end in itself, but rather a means; ITs do not constitute knowledge in themselves, but are a means of acquiring knowledge.[20] This is quite consistent with the usual approach to the methods of abstraction and idealization in the philosophy of (empirical) science, where they are seen as instruments subordinate to the overarching goal of acquiring (empirical) knowledge with the help of the study of (unrealistic) abstract objects.

Weber considered ITs as tools which are used in the formulation of hypotheses about the (probable) causes of social phenomena. Such use of IT is described in the following:

> "For example a panic on the stock exchange can be most conveniently analysed by attempting to determine first what the course of action would have been if it had not been influenced by irrational affects; it is then possible to introduce the irrational components as accounting for the observed deviations from this hypothetical course." (Weber, 1968, 6)

The "panic on the stock exchange" is the event to be explained by referring to its cause, i.e., by what Weber calls the "causal imputation" (Weber, 2012e, 51) of this event to some other event. In this case, the latter event are the "irrational affects" influencing the actions of the agents on the stock market. Such imputation presupposes the *identification* of the relevant cause. According to Weber, this identification proceeds through *comparing* the factual situation with a hypothetical one, in which agents act in a purely instrumentally rational way. Let me try to examine this example in more detail, although – due to a certain parsimony Weber's writing – at the cost of some conjectures.

The explanation that Weber proposes here is contrastive: "the events took the course e rather than e', due to the presence of the antecedent conditions c rather than c'".[21] To formulate such an explanation, a contrast must be available – in this case, the course of events expected in conditions of purely instrumentally rational action. The IT of an instrumentally rational agent does not, in itself, provide the answer. The heuristic use of IT in formulating explanation will therefore consist of two steps. I call the first "the study of IT" and the second

[20] See, e. g., (Weber, 2012f, 225), (Weber, 2012c, 126), (Weber, 2012b, 332).

[21] On contrastive explanation, see (Lipton, 1990); in the context of social sciences, see (Ylikoski, 2011).

"the contrastive explanation from IT".

In the first step, the aim is to determine the contrast: how an IT would "behave" in a certain more or less specific situation. The cognitive problems that can be solved by the study of IT are illustrated by the following questions: "Which means would an *instrumentally-rational agent* choose if he had the means $M_1, M_2, \ldots, M_n$ at his disposal and pursued the end E_1?", "What steps could a *charismatic leader* take in a situation S to maximize her influence?", "Which of the types of *religious ethics* $R_1, \ldots, R_m$ best corresponds to the *capitalistic orientation of profit-making*?".[22] Given that ITs are abstract objects without any spatio-temporal correlates, these questions cannot be answered by empirical research.

The starting point of the construction of an IT is, among other things, some nomological knowledge, e.g., about the disposition of human beings to act in a situation S_1 and its variants $S_2, \ldots, S_o$ in the way K_1 or its variants $K_2, \ldots, K_o$. Based on this and other knowledge which constitutes the cognitive objectives, one transforms some input object into the output object. The resulting IT, e.g., that of an instrumentally-rational agent i, only encodes the selected motives and dispositions to act. It can be thus be unequivocally determined about this agent that in a situation S_1, his course of action will be K_1. The further study of the IT is concerned with finding out how i would act in a modified situation S_1'. Schematically, the study of ITs takes the form:

$$S_1(i) \rightarrow K_1(i)$$
$$S_1'(i) \rightarrow ?$$

Here, based on the knowledge of a certain constellation of a situation and action, one asks what the action would be in a modified situation. This scheme corresponds to the procedure employed in thought experiments.[23] Whether this will be an "intuitive imaginary experiment" employing imagination and non-deductive inference, or a "theoretical imaginary experiment", depends on the wider context of knowledge which forms the background of the construction and study of the IT.[24] If a rich enough theory is available, then the assessment of how an agent would act in a modified situation can be a question of deductive inference from the theory and certain auxiliary assumptions.

Let us go back to the panicking stock exchange. The researcher has established that in a situation S (e.g., the emergence of information about a decline in asset

[22] All ITs from (Weber, 1968).

[23] I draw here on (Picha, 2011), a work focusing on the epistemology of thought experiments.

[24] On the distinction between the two kinds of imaginary (thought) experiment, see (Hempel, 1965).

prices), the real agent a had decided to act in a way K (e.g., selling off the assets which led to a further decline in asset prices). First, the researcher must implant the IT of an instrumentally rational agent into such a situation. This is done, as shown above, by means of a thought experiment. Based on the knowledge that in a generic situation T the instrumentally rational agent i would act in a way L, it is inferred that in the stock exchange situation S the agent i would act in the way K':

$$T(i) \rightarrow L(i)$$

$$S(i) \rightarrow K'(i)$$

In this way, the contrast $S(i) \rightarrow K'(i)$ to the real-world situation $S(a) \rightarrow K(a)$ is obtained. The aim is now to explain which properties (motives, beliefs, dispositions to act etc.) led the real-world agent a to acting in the way A.

At this juncture, the heuristic function of the IT comes to the fore. The properties $A'_1, \ldots, A'_r$ which are encoded by the IT, are known beforehand. The characteristics of the ideal-typical action K' were made clear by thought experiment. At least some of the properties $A'_1, \ldots, A'_r$ are known to be "causally adequate" with respect to the action K'. The aspects of the real-world course of action K are known from empirical evidence. The IT guides the researcher, then, to identify properties $A_1, \ldots, A_s$ of the real-world agent a, which are not encoded by the IT and therefore could have been responsible for the aspects in which the real-world course of action K differs from the ideal-typical course of action K'. The identification of these properties, as well as their confirmation in a, are a matter of further investigation, which may require the researcher to gather more empirical evidence; the role of the IT lies in indicating which properties *could not have been* responsible for the course of action under investigation.[25] Let us assume that it can be confirmed that agent a differs from agent i only in that he lacks the property A'_1 and has the property A_1. One can infer, then, that it was this property which caused the "deviation" or real-world action from the ideal-typical one. An explanation can be formulated of the form:

> „(In the situation S) the course of action K took place, rather than K', because the agent a had the property A_1, rather than A'_1."

[25] The IT also may, in combination with other knowledge, guide the researcher to identify properties that are known to be incompatible with the properties encoded by the IT. Whichever it is, Weber emphasized exactly this "negative" heuristic role of ITs: "The more sharply and precisely the ideal type bas heen constructed, thus *the more abstract and unrealistic in this sense it is, the better it is able to perform its functions* in formulating terminology, classifications, and hypotheses" (Weber, 1968, 21, emphasis mine).

In the case of the stock exchange panic, A_1 would be the "irrational affect" responsible for the "deviation" from the purely instrumentally rational action.

The procedure leading up to the explanation on the basis of the property A_1 does not principally differ from the well-known method of difference, one of "Mill's Canons of Induction": from the presence of a property in one case and its absence in another, one infers that it is the cause being sought after. Of course, in line with Weber's belief that the ITs should serve in the formulation of *hypotheses*, the resulting explanation should be viewed as hypothetic, i.e., one that has to be confronted with other cases of similar courses of action in similar situations.

It is clear that the heurisitic use of ITs is a complex method which includes other non-empirical methods (the methods of thought experiment, inference, and explanation) and may include the gathering of supplementary evidence by means of empirical methods. Without claiming exhaustiveness, it can schematically be captured thus:

1. Based on preexisting knowledge of the situation under investigation S and the course of action K, identify a pertinent IT i!
2. By means of thought experiment, identify the ideal-typical course of action K' of the agent i in the situation S!
3. Identify the set of properties C in which the real-world course of action K of the real-world agent a differs from the ideal-typical course of action K' of the agent i!
4. Identify the set of properties A of the real-world agent a in which he differs from the ideal-typical agent i, and which could therefore be responsible for the presence of properties from C in the course of action K!
5. Formulate a contrastive explanation in which the explanandum refers to the specificities of the course of action K and the explanans refers to the properties from A, and in which the contrast is the course of action K' and the relevant properties of the agent i!

It should be noted that "action" is understood here in a broad sense – it includes actions by individual agents, but also wider social processes, while "agents" include groups. In the reconstruction of other particular cases of the use of ITs, a modification of some of the formulations above would probably be necessary, depending on the nature of the situation under investigation and the IT used.[26]

[26] The sequence of instructions sketched above could be used, e.g., to reconstruct the example of a "handicraft society" briefly discussed in the first section.

The explanation formulated in instruction 5 has a hypothetical character. If it holds out in the face of further evidence, the heuristic fruitfulness of the IT selected in instruction 1 is confirmed. If it does not, this means that the selected IT cannot be productively used in the given case, and another is to be sought. For Weber, this was not a reason to completely discard the former IT: "this does not exclude the possibility of using that" IT "in any other case" (Weber, 2012e, 84). In this, he saw yet another feature peculiar to the social-scientific disciplines. A law of nature which only applies with exceptions is, for Weber, unsustainable, while an IT which only proves useful in a handful of cases, has a secure place in social science. Disregarding the many difficulties of laws as "strictly universal" statements, this comparison does not seem to be too fair. Even the natural sciences are no strangers to using a multiplicity of "local" models with specific limitations (Weisberg, 2007, 645–646), or even false but simple, computable or predictively powerful models (Bokulich, 2011).

Conclusion

The relevant literature offers a host of characterizations of Weber's ITs: they are models,[27] images, hypotheses or definitions (Hufnagel, 1971, 223), but also limiting concepts or theoretical systems. I have proposed to view the ideal-typical method as a combination of two methods: that of the construction of ITs and that of their heuristic use. The first of these has the character of a non-empirical method whose structure and nature does not principally differ from the manifold applications of abstraction and idealization known in the natural sciences. The objects resulting from the application of this method, i.e., the particular IT, is specific only in the sense that it is concerned with human action and its motives. This property is a consequence of the nature of the subject-matter and cognitive goals of the social sciences.[28]

The use of the latter method may include the application of empirical methods in identifying the properties in instruction 4. However, here it holds, too, that the procedures employed in the heuristic use of ITs do not principally differ

[27] See, e.g. (Janoska-Bendl, 1965, 55), (Burger, 1987, 164), (Lindbekk, 1992, 290) and (Mommsen, 1992, 131).

[28] In his recent paper, Hilliard Aronovitch arrived at conclusions are, in part, similar to mine: the main difference between the abstract objects of the natural sciences, like "absolute vacuum" or "frictionless surface" and the ITs consists, he says, in that the latter concern human agents (Aronovitch, 2012, 361). However, this difference should not be overstated. We could, in a similar way, juxtapose the abstract objects of biology and physics.

from those routinely used in the natural sciences. Of course, the methodological reconstruction sketched above does not answer the question whether social sciences *should* use the ideal-typical method, nor whether they *do* in fact use it. But insofar as they do, they rely on a combination of methods which are also available to the natural sciences.

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