



Analytical Sociology and Symbolic Interactionism: Bridging the Intra-disciplinary Divide

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Abstract

The aim of the present article is to contribute to the development of the Desire-Belief-Opportunity-model from a symbolic interactionist perspective. The main argument is that this model needs to incorporate the classical notion of *definition of the situation* to be able to account for the formative impact of interaction on the formation of actor's beliefs, as well as the complex interdependency between two of its key components, namely the beliefs and the action opportunities of the actor. It is argued that the theoretical advancement of the DBO-model in this particular direction is not only feasible but also brings it considerably closer to the analytical refinement and the empirical validation it currently lacks.

Keywords Herbert Blumer · Definition of the situation · Imitation · Self-fulfilling prophecy · Social action · Social mechanisms · Social psychology

Introduction

Launched as a “general action theory” (Opp, 2013: 330), the Desire-Belief-Opportunity model (henceforth referred to as the DBO-model) has been introduced as an analytical device to dissect any instance of action into its “primary entities” (Hedström, 2005, 2008; Hedström & Bearman, 2009). The first component, desire, simply denotes the actor's preferences that motivate the actor. The second component, belief, represents the actor's perception and understanding of the choice situation. Finally, opportunity refers to the actual possibility of carrying out a certain action and underscores the existence of the means that are necessary for doing so. Accordingly, the DBO-model makes it possible to lay bare the specific combination of the most basic components that together make a certain course of action likely to be taken by the actor. Once this is done, we can explain or alternatively predict why an actor with an array of alternatives chooses one particular line of action over all

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the other feasible ones or why he or she believes that a certain course of action can better serve his or her desires.

Although in its prime analytical ambition – that is, the identification of the key components that together trigger social action – the DBO-model is by no means original, it nonetheless does have certain merits (see, e.g., *Theory of Planned Behavior* or *Theory of Reasoned Behavior*, developed by Ajzen, 1985, 1991). Given some of its specific features, this model has the potential of serving as an analytically useful device for providing empirically detailed and specified accounts of why and how real-world actors choose to behave the way they do – a potential, which not only justifies a serious treatment of the model but also opens up real opportunities for a fruitful exchange of ideas across intra-disciplinary divisions. However, it is also argued here that the DBO-model in its current condition suffers from the lack of specification in some important regards, and that, despite the steps taken in the right direction, it is as yet unfit for capturing the complexities of real-world social action.

Against this backdrop, the article begins with a short introduction of the main thrusts of analytical sociology to which this model belongs and a brief presentation of its key features. The next section contains a critical assessment of the model followed by a theoretical proposal which, based on the classical notion of the *definition of the situation*, is put forth in order to contribute to the further development of the DBO-model. Finally, the article proceeds by highlighting some of the potential payoffs of incorporating the proposed input within the analytical framework of the DBO-model.

Analytical Sociology

As presented by some of its most renowned adherents, analytical sociology is an intellectual endeavor that “seeks to explain complex social processes by carefully dissecting them and bringing into focus their most important constituent elements” (Hedström, 2005: 1). Rejecting the conventional variable-based survey analysis as the scientific method proper, this tradition “is concerned first and foremost with explaining important social facts ... not merely by relating them to other social facts ... but by detailing in clear and precise ways the mechanisms through which the social facts under consideration are brought about” (Hedström & Bearman, 2009: 3–4). Although there seems to be no consensus within this tradition about the precise referent of the term social mechanism (Hedström, 2008), it appears to stand for “a constellation of entities and activities that is organized in such a way that it regularly brings about a particular type of outcome” (Hedström, 2005: 11; see also Hedström & Swedberg, 1998; Hedström & Ylikoski, 2010).

The emphasis on social mechanisms reflects the defining quest of analytical sociology, notably the idea that to explain a given phenomenon is to specify the mechanisms by which that phenomenon is actually generated (Hedström, 2006: 74) or, as Elster (1989: 3–4) frames it:

To explain an event is to give an account of why it happened. Usually . . . this takes the form of citing an earlier event as the cause of the event we want to

explain. . . . [But] to cite the cause is not enough: the causal mechanism must also be provided, or at least suggested.

That is, rejecting variable analysis as the mode of analysis that can produce valid explanations, analytical sociology seeks to provide detailed accounts that lay bare exactly how behavior, designed and carried out independently by autonomous individuals, become aligned to produce the empirically observable behavioral patterns that sociologists discover in all areas of social life. In other words, the core thrust of analytical sociology is the ambition to make such regularities intelligible by specifying in detail how they are brought about and, thereby, to replace mainly variable-driven empirical analysis with a methodology that explicitly addresses the causal mechanisms underlying statistical correlations. This ambition is, for instance, formulated as follows:

Analytical sociology is . . . concerned with explaining important social facts such as network structures, patterns of residential segregation, typical beliefs, cultural tastes, and common ways of acting. It explains such facts by detailing in clear and precise ways the mechanisms through which the social facts were brought about. Making sense of the relationship between micro and macro thus is one of the central concerns of analytical sociology (Hedström & Ylikoski, 2013).

To illustrate, the emergence of residential areas with a high concentration of one or few ethnic groups is a macro level pattern that can be accounted for as the *unintended outcome* of a segregation mechanism. As Schelling (1978) suggests, residential segregation arises out of myriad choices made independently by individual households who initially live in ethnically mixed neighborhoods. Accordingly, whenever a white household, for instance, moves to a neighborhood where the majority of the residents are white, it leaves the original neighborhood with even fewer white families. If this trend continues, then the original, initially heterogeneous and spontaneously mixed neighborhood is eventually turned into one that is ethnically more segregated than most people prefer. Similarly, if families without children tend to move out of neighborhoods with many children, they leave these neighborhoods with an even higher concentration of child-rich families, thus unintentionally generating neighborhoods that are strongly segregated by parental status.

The DBO-Model

The preferred methodological approach of analytical sociology – that is, the one suggesting “social facts should be explained as the intended or unintended outcomes of individuals’ actions” (Hedström & Bearman, 2009: xx), however, requires a theory of individual action and a battery of social mechanisms that operate at the individual level. Therefore, the DBO-model is put forth as an analytical device to serve as “a micro-foundation of sociological theory” (Hedström, 2005: 40) – a micro foundation upon which the mechanism-based explanations of various macro patterns in terms of the unintended consequence of individual actions can rest.

The DBO-model has several characteristics worth noticing, which are presented here briefly and discussed more thoroughly in the next section. First, although the model regards actors' desires as one of the key determinants of action, it assumes no pervasive and omnipresent ones like utility maximization. Nor does it exclude by default any non-egoistic kind of driving force or motivation fueling action. In fact, the model puts no restrictions on the kinds of desires, preferences, and/or interests that might trigger action.

The second feature of the DBO-model concerns the assumption of rationality. As Hedström and Ylikoski (2014) emphasize, the most decisive feature of analytical sociology that differentiates it from any version of rational choice theory is the rejection of rationality assumption. As the argument goes,

[F]rom the point of view of mechanism-based causal explanations ... rational choice explanations contain black boxes [in that, they are] often built on implausible psychological and sociological assumptions [and on] empirically false assumptions about human motivation, cognitive process, access to information or social relations. [Therefore] they are unacceptable to analytical sociology (Hedström & Ylikoski, 2014: 65).

Firmly anchored within analytical sociology, the DBO-model dismisses the rationality assumption of the original version of rational choice theory, and, although it does take the individual as its point of departure, it does not subscribe to any ahistorical or pre-social conception of human nature presumed to have some inbuilt faculty for universal rationality. Instead, acknowledging the limitation of actors' cognitive abilities (Simon, 1957), the model allows actors to harbor all kinds of cognitive biases and heuristic modes of understanding the social world, making room for the actors to choose their lines of action based on dubious or even false beliefs.

Furthermore, the model postulates interdependency among its three key components, in the sense that each one of these can influence and/or be influenced by the others. For instance, some classical findings from cognitive psychology – such as *sour grapes syndrome* (Elster, 1983; Hedström, 2006) and *wishful thinking* (Davidson, 1980; Hedström, 2006) – are frequently cited in the literature in order to demonstrate the presumed interdependencies between the actor's desires and beliefs. According to the phenomenon known as the *sour grapes syndrome*, for instance, actors may tend to desire only what they believe they can obtain. The phrase denotes a psychological defense mechanism that is activated in situations where reality contradicts one's preferred self-conception. The natural response to such situations is to change one's desire in such a way as to preserve one's self-conception – as in Aesop's fable, the fox decides he never wanted the grapes in the first place so that he would not have to admit he couldn't jump high enough to get them. Or, *wishful thinking* relates to the formation of beliefs and making decisions according to what might be pleasing to imagine, instead of by appealing to evidence, rationality, or reality (Bastardi et al 2011). As Hedström (2008: 326) explains, wishful thinking denotes a pattern opposite to the *sour grapes syndrome* in that whereas the latter captures the tendency of the actor to desire only what she or he believes can be reached, the former refers to the actor's misperception of reality, making him or her believe that the actually existing reality is nothing but what he or she desires it to be.

Finally, and more importantly, the DBO-model acknowledges the formative impact of social interaction upon its key components. As Hedström (2008: 326) puts it:

Individuals do not act in isolation from one another In order to explain why they do what they do, we must also seek to understand how their beliefs, desires, and opportunities are formed in interaction with other individuals. Simply assuming that beliefs and desires are fixed and unaffected by the actions of others may be plausible in some very specific situations, but it would be an untenable assumption in the general case.

The acknowledgement of the formative impact of social interactions finds its way into the model through the assumption that the key components of the model can be shaped “through interaction or more precisely through various interaction-mediated social mechanisms,” (Hedström, 2006: 77). Hence the need “to specify the social mechanisms through which the actions of some other actors may come to influence the beliefs, desires and opportunities, and [thereby] actions of others” (Hedström, 2006: 77). Subsequently, a battery of such mechanisms are identified and mentioned repeatedly, including *signaling* (Gambetta, 2009), *rational imitation* (Hedström, 1998, 2006, 2007) and *self-fulfilling prophecy* (Merton, 1968; Hedström, 2006, 2007) – all assumed to affect the actor’s desire, belief, and/or opportunity through interaction.

For instance, the phenomenon of *vacancy chains* (White, 1970) is repeatedly mentioned as an interaction-mediated mechanism affecting the actor’s opportunities (Hedström, 2006, 2007). Accordingly, vacancies occur within a career system (the formal structure of an organization, for instance) when individuals leave the organization or, alternatively, when new positions are created. When an employee fills the vacancy, his or her old position becomes vacant and represents a mobility opportunity for someone else. Eventually, the latter is also filled by an employee who, by doing so, leaves yet a new vacancy behind. This new vacancy is, in turn, filled by yet another person, leaving still another vacant position behind. Hence the chain of vacancies within the organization. Originally developed for the analysis of mobility within an American church organization, this model captures, according to White, a general feature of mobility and is applicable to other cases such as mobility within marriage and housing markets (White, 1971). With regard to housing markets, for instance, White (1971: 90) holds that “many of the details and much of the argument must be recast, but the essential dynamics of the systems seem the same. Men correspond to families, jobs to houses, and vacancies in jobs to vacancies in houses.”

An Assessment

Although the above-mentioned amendments represent important steps in the right direction, they are by themselves insufficient and leave the DBO-model in need of much further elaboration. Some of the shortcomings of the model have been pointed out by analytical sociologists themselves who, on the whole, appear to receive it with what can be labeled as skeptical enthusiasm (Barbera, 2006; Edling, 2012;

Gross, 2009; Kaidesoja, 2012; Little, 2012; Manzo, 2010; Mayntz, 2004). Unsurprisingly, the model is evaluated within this community out of the defining premises of analytical sociology and is mainly criticized for lacking analytical specification and empirical validation. For the purpose of the present paper, however, the most relevant assessment is delivered by Opp (2006: 119) who, among other things, underlines the need of sufficient proper empirical support for the model in order to validate its aptness, asserting that, “a theory that is regarded as the basis of a whole research program deserves a more detailed analysis of its empirical corroboration than is provided.” Moreover, Opp criticizes the model in particular for lacking detailed accounts in two areas, notably those that report on specifically how the key components the model are affected through the focal actor’s interaction with others, and those that explain exactly how these components relate to and impact one another.

The present article takes the lead offered by Opp and argues that there are basically two areas where the DBO-model in its current state needs further elaboration. The first one consists of a whole array of questions regarding the impact of social interaction upon the formation of the key components of the model and, in particular, actors’ beliefs. As mentioned above, the model explicitly allows the actor’s subjective beliefs to take form in and through social interaction and strives to identify the specific social mechanisms through which the formative impact of interaction is mediated. Yet, despite this explicit acknowledgement, there is a remarkable absence of elaborate accounts regarding the ways in which the focal actor’s involvement in ongoing interactive processes may affect the formation of his or her belief about the nature of the present action situation. The most thorough attempt made in this regard is found in a chapter in *The Oxford Handbook of Analytical Sociology* (Hedström & Bearman, 2009) devoted exclusively to the belief component. Here, *observation*, *inference*, *social influence*, and *cognitive dissonance* are presented as mechanisms affecting the actor’s belief (Rydgren, 2009). Although the citation of these phenomena reveals a clear reliance on social rather than cognitive psychology, and although this borrowing allows for a successful integration of the impact of social interaction on belief formation, the chapter barely exceeds what is elementary knowledge in social psychology. That is, the chapter not only fails to include phenomena such as *social comparison* (Festinger, 1954) and *reference groups* (Blumer, 1969; Hyman & Singer, 1968; Merton & Rossi, 1968; Passas, 1997; Shibutani, 1955) as elements important for the formation of actor’s belief, it also falls short of providing detailed accounts of the sequences of events taking place within interactive processes pertinent to any of the presented ‘mechanisms,’ and thereby fails to illuminate the ways in which these ‘mechanisms’ operate to affect the focal actor’s belief.

The second area of inadequacy in the DBO-model relates to the host of issues raised by the presumed *interdependencies* among its main components. As mentioned above, one of the main adjustments introduced in order to bring the DBO-model closer to empirical reality concerns the presumed interdependency among its key components. Yet the accounts to be found in the literature concerning such interdependencies address mainly the impact that the actors’ desires and beliefs may have on each other (see above), while explicit explanations that clarify how the actor’s belief and his or her action opportunities influence one another are largely

missing. As a result, this presumed interdependency remains largely underdeveloped and analytically vague despite the high analytical ambitions associated with the model.

What we do find in the literature instead are a few brief comments made in passing that suggest the existence of a Chinese wall between these two key components. For instance, it is maintained that, whereas beliefs express the actor's subjective mental states, opportunity is a feature of the external, objective social circumstances (Hedström, 2006, 2007). In the absence of further elaborations on the issue, such statements leave the impression that a crude and indefensible dualism is assumed – a dualism that postulates that the objective reality 'out there,' that is, the constitution and the state of the world, is a matter that is independent from any conscious entity that perceives and experiences them. Such a position might of course be defensible in some cases, for instance in the situations captured by the vacancy chains model presented above. But there are myriad real-world situations where the opposite is true, and withholding such dualism not only appears untenable in the face of the large number of empirical observations but also runs counter to one of the most important and the deep-rooted sociological insights. That is, in holding this view, the DBO-model overlooks actors' perceptual capacities to create and expand their "opportunity spaces" (Crothers, 2011: 9) and omits the long-established fact that neither actors' identification of action opportunities nor their estimations regarding the availability and plausibility of these opportunities are matters entirely independent from the subjective understandings and interpretations that actors have of their relevant segments of social reality.

The complexity of the interdependency between desires and beliefs on the one hand, and the perception of opportunities offered by external societal conditions on the other hand, is captured in numerous studies across a variety of research areas, although not always explicitly recognized as such. A few such studies suffice to make the point. For instance, it is well known that individuals' career development is not only influenced by the objective conditions of the labor market – such as the number of vacancies or the size of the demand for a given type of competence – but also by the individuals' subjective perceptions of their own employability, including their assumptions about how their competence is valued and/or how the particular social group to which they belong is treated in the labor market (Lent et al., 2000). To take another example, in a recent study based on a cross-national sample taken from 22 European countries, Reeskens and van Oorschot (2012) examine young adults' (30 years old or younger) perceptions regarding their first employment opportunities. Among other things, the study reveals that, in comparison with their male counterparts, female young adults are more likely to believe that the labor market systematically disfavors them and offers them fewer first-job opportunities – a belief which rests on the assumption that this group of young adults makes about the discriminatory behavior of potential employers and which in turn affects their own job search strategies and behavior. Finally, to take another example, research on race relations has repeatedly revealed the commonness of race-specific beliefs among ethnic minorities regarding the society's opportunity structure (Bobo & Hutchings, 1996; Schuman & Scott, 1989). Accordingly, such beliefs, which reflect the objective, macro-level, and historical conditions of group experience regarding the racial and ethnic stratification of the society, are deeply rooted in the collective memory

of these minorities and represent an important dimension of the so-called racial *alienation* (Middleton, 1963).

Theoretically, sociology is rich with conceptual attempts made to capture the complex interdependency between actors' beliefs and opportunities, undertaken within different perspectives and cast in diverse terminologies. For instance, it was realized long ago that the action opportunities that are objectively assessable to actors and the action options that they perceive as open to them do not necessarily always coincide and that the two may be, and in fact often are, at odds for a variety of reasons. The commonness of such discrepancy and its importance for the analysis of social action was underlined by March and Simon (1958: 53) for instance, who observed the existence of "a gap" between the action alternatives "objectively available" to the actor, and those "perceived [or] evoked." Therefore, as they argued, we should not regard the two as equivalent. Nor should we take for granted the transformation of the former into the latter and omit the whole range of complex social processes involved. Or, to mention a more recent example, the fundamental insight regarding the discrepancy between opportunities and beliefs is most elaborately articulated in Bourdieu's (1989, 1990) notion of *habitus*. This concept is defined as a self-confining mechanism, inducing actors to adjust their aspirations to the actually existing options and impediments generated by objective structures and to internalize these external conditions in the form of their *sense of reality* and the corresponding action dispositions.

From the standpoint of the present article, however, the most relevant basic insight to fetch from the body of empirical as well as theoretical works addressing the issue is the one suggesting that the actor's understanding and interpretation of the action situation has a crucial bearing on his or her perception of the alternative courses of action. The present article, in other words, suggests W. I. Thomas's classic notion of *the definition of the situation* as a conceptual remedy for both the above-mentioned shortcomings of the DBO-model. The main rationale of this suggestion is that the focal actor's subjective and not necessarily correct beliefs – that is, his or her perceptions, understandings, and interpretations of the nature of the action situation, including his or her assumptions and expectations regarding the actual and/or likely behavior of relevant others – have a significant bearing on the actor's perception of the possible courses of action present in the situation. Furthermore, it is argued here that these subjective perceptions and appreciations constitute the key element that links together, on the one hand, the objectively existing action opportunities offered by the situation and, on the other hand, the actor's subjective assessments regarding his or her own action capacities and his or her beliefs concerning the menu of options and the set of obstacles in the situation. What follows below is an explication of this proposal.

Definition of the Situation

Derived from the fundamental conception of humans as active meaning-creating beings, the notion of definition of the situation captures the creative responses that actors give to the social situations they experience and expresses the view that social

actors actively construct the meanings of the situations they face. It also suggests that such meanings are essential for the line of action they choose in order to deal with these situations, and that actors act towards their situations based on the meanings these have for them (Charon, 2007; Denzin, 2016; McCall & Simmons, 1966; McHugh, 1968; Park & Burgess, 2009). Put differently, to define a situation is to assign a particular meaning to it, and such an assignment of meaning constitutes an indispensable primary prerequisite of any deliberate action because without it, the actor is unable to make sense of the world and respond to it, either emotionally or intellectually. As Thomas and Znaniecki (1920: 68) define the term:

[T]he definition of situation is a necessary preliminary to any act of the will, for in given conditions and with a given set of attitudes an indefinite plurality of actions is possible, and one definite action can appear only if these conditions are selected, interpreted, and combined in a determined way and if a certain systematization of these attitudes is reached, so that one of them becomes predominant and subordinate the others.

Furthermore, this notion also reflects one of the basic tenets of symbolic interactionism which suggests that social situations, like any other object in the world, have no inherent meanings in themselves (Blumer, 1969) – a position that, in turn, echoes the notion of “the world openness” and the indeterminacy of social life (Berger & Luckmann, 1966: 51). Accordingly, the meaning of any particular situation is not given and, without any intrinsic meaning, the situation can potentially assume multiple meanings, depending on how it is characterized jointly through the “defining activities” of those involved (Blumer, 1969: 5). Or, as it has been suggested, “a social situation is what it is defined to be by its participant” (Berger, 1963: 100), and its definition “makes a shared reality effectively real for its participant, as W. I Thomas famously argued” (Collins, 2004: 24).

Given the actors’ limited cognitive capacities, however, definitions of the specific situations are typically made on the basis of rough, practical, and experienced-based mental short-cuts used to reduce the complexity of required judgments, or as W. I Thomas (quoted in Volkart, 1951: 5) puts it, people in general “live by inference” rather than making their decisions “either statistically or scientifically” (see also Fiske & Tylor, 2013; Tversky & Kahneman, 1974). Nor are such definitions necessarily based on established facts, as the selection of any factual element and its impact on the formation of the actor’s definition of the situation is always contingent upon his or her scheme of perception or frame of mind. This point is underlined by Blumer (1969: 118) who asserts that the definition the actor develops of a given situation:

[C]an be highly subjective due to the actor interpreting various cues (bites and pieces) not necessarily corresponding to objective facts of the situation. Generally, the influence of any objective fact is dependent on the selective receptivity and positive inclination of the [actor].

It should be underlined that the most critical constituent element of any action situation is often the *behavior of the significant relevant others* involved in that

situation. Or, as Blumer (1969: 88) emphasizes, “one should bear in mind that the most important element confronting an acting unit in situations is the actions of other acting units.” In other words, a social situation, at its core, is a combination of circumstances among which the expectations and behavior of the relevant others constitute the most crucial part, and “from the viewpoint of the individual participant, this means that each situation [that] he enters confronts him with specific expectations, and demands of him specific responses to these expectations” (Berger, 1963: 111). As an actor is called on to act in a given situation, he or she needs to interpret and ascertain the meaning of the behavior of the relevant others involved in that situation.

However, the actor does not typically develop his or her belief or definition of action situation in isolation and independently from the behavior of the significant, relevant others involved in the situation; on the contrary, in forming his or her belief, the focal actor takes notice of these behaviors and treats them as crucial parameters that determine the nature of the situation when designing his or her own scheme of action. The behavior of each one of the participants becomes the “context” inside which the behavior of the other ones develop, in that each participant is constantly required to determine and assess the behavior of others in some fashion and adjust his or her own line of action based on such interpretations and assessments (Blumer, 1969: 97).

Moreover, it has been long recognized that, in confronting a situation, the actor not only observes and infers but also anticipates the ways in which the ongoing interaction will unfold and adjusts her or his responses accordingly. That is, although the actual behaviors of the significant relevant others obviously have a crucial impact on the focal actor’s determination of the action situation, the sheer assumptions and expectations that he or she may foster about the forthcoming behavior of these others are also important, and perhaps equally so. However, the actor’s definition of the action situation does not necessarily have to be true. That is, the belief that the actor develops regarding the possible lines of action and the potential impediments embedded in the situation that he or she faces needs not necessarily correspond with or fully reflect the actually existing characteristics of the situation. In fact, the contrary is more likely; the focal actor’s assumptions and expectations will at least be incomplete, derived from the necessarily limited and fragmentary cues on the intentions and dispositions of the relevant others. However, the accuracy of such assumptions and expectations is no prerequisite for the focal actor, and the possible lack of truthfulness of his or her assumptions and expectations regarding the behavior of others does not per se raise an obstacle, preventing them from entering the focal actor’s belief. In other words, irrespective of their accuracy, the assumptions and expectations that the focal actor embraces about the likely behavior of relevant others normally enter his or her definition of the situation. They become a central constitutive element of his or her interpretation and understanding of the nature of the situation and, thereby, have a significant bearing on his or her identification and assessment of the objectively available action opportunities.

The central point can be exemplified through a study of white-collar crime in Sweden (Azarian & Alalehto, 2014). This qualitative study, which addresses the tendency to engage in illegal activities among restaurant owners in some major

Swedish cities, demonstrates that the self-employed white-collar offenders are inclined to view their tax crimes as economic measures that are necessary for survival in their line of business. The main reason given by the restaurant owners in the interviews is that they assume that various misconducts such as moonlighting and dishonest bookkeeping are common practices among their competitors. Believing that they operate in a malfunctioning market, they commit their own offenses on the assumption that the unlawful behaviors of their competitors undermine the possibility of running their businesses both honestly and cost-effectively. The study, in other words, shows that their crimes are mainly triggered by the assumptions they make about the behaviors of relevant others and about the probable impact of these behaviors on their own opportunities. The assumption in question, however, is never verified, and yet it plays a crucial role in the formation of the self-employed restaurant-owners' definition of the situation and their belief concerning the existing opportunities and obstacles in their market.

The Payoffs

It should be underlined, however, that the theoretical input proposed above is by no means alien to or incompatible with the DBO-model. On the contrary, there currently seems to be a rather strong urge among the proponents of rational choice theory to find suitable theoretical inputs to import into the original framework, and it appears that this search is particularly directed towards the action theories within interpretative traditions (Little, 2012). Realizing the greater context-dependence of social action, both Lindenberg (2001, 2008) and Esser (1993, 2009) for instance have recently tried to incorporate some of the key ideas borrowed from symbolic interactionism, phenomenological sociology, and social psychology. They have in particular drawn on the notion of the definition of the situation as the point of departure in their models.

Moreover, analytically minded sociologists have a rather long history of drawing on symbolic interactionist insights, and the concept of definition of the situation in particular. For instance, in his work on white-collar crime, James Colman – one of the key inspirational mentors of contemporary analytical sociology – not only underlines the subjective character of actors' definitions of their action situations but also highlights the significance of ongoing interactions for the perceptions, understandings, and beliefs that actors develop about their specific situations. In his words,

The meaning that individuals attribute to a particular situation and to social reality in general structures their experience and makes certain courses of action seem appropriate, while others are excluded or ignored. [Such] socially created symbolic constructs not only define reality, they also allow individuals to anticipate the kinds of responses their behavior is likely to bring and adjust their actions accordingly (Colman, 1987: 410).

Finally, and more importantly, the theoretical input proposed above is indeed already a constituent element in a number of models frequently used by analytical sociologists, even though not always openly acknowledged or explicitly

accentuated. More specifically, Robert Merton's well-known notion of *self-fulfilling prophecy*, exemplified through the case of the so-called *bank run* (Merton, 1968), is repeatedly mentioned by analytical sociologists (Hedström, 2006, 2007, 2008), yet this notion is often presented merely as an example of social mechanism. What is left out, on the other hand, is that self-fulfilling prophecy, which is Merton's advancement on the so-called *Thomas Theorem*, derives from W. I. Thomas' underlying concept of definition of the situation – a concept that “is the symbolic interactionist watchword” (Collins, 2004: 24), that expresses no less than the “very distinctive position” of this tradition (Blumer, 1969: 3), and that has exercised a “powerful sway” on research within this brand of sociology since its introduction (Davis, 1982: 112).

Let us take a closer look. A bank run occurs when a large number of people withdraw their money from a bank because they believe the bank may cease to function in the near future. The process begins with a rumor of insolvency of the bank in question, which causes some depositors to withdraw their savings. As they do so, the act of withdrawal in itself can become a sign, signaling to other depositors that something might be wrong with the bank. This produces even more withdrawals, until the bank actually becomes insolvent and goes bankrupt because too many depositors empty their accounts at the same time. In other words, as a bank run progresses, it generates its own momentum: as more people withdraw cash, the likelihood of default increases, triggering further withdrawals. This can destabilize the bank to the point where it runs out of cash and thus faces sudden bankruptcy.

This particular case of bank run represents for Merton only an illustration of what he considers to be “a basic sociological idea” (Merton, 1995: 380), notably the significance of actors' subjective – and not necessarily empirically correct – definition of the situation for their choice of action or, as he puts it:

[M]en [and women] respond not only to the objective features of a situation, but also, and at times primarily, to the meaning this situation has for them. And once they have assigned some meaning to the situation, their consequent behavior and some of the consequences of that behavior are determined by the ascribed meaning (Merton, 1948: 194).

The case of bank run is intended by Merton to capture a general type of social process in which the independent behavior of individuals who act out on their own narrow interest and limited information merge to produce unintended consequences at the aggregated level that are well beyond the acting individuals' perceptual horizon and/or their action capacity. It also reveals how these individual behaviors – designed and performed independently – become aligned through observation and imitation, resulting in an initially false belief becoming true. What is important for our discussion, however, is that the run on banks captures the general social process in which the observable behavior of relevant others (the other depositors' withdrawals) becomes a decisive factor that affects the focal actor's belief about the action situation. That is, on the basis of his or her observation regarding the behavior of others, the focal actor makes inferences about what the situation looks like, what is going on, and what the best course of action is, thus forming a specific definition of the situation that in turn induces him or her act in a certain way.

Far from being incompatible, the incorporation of the theoretical input proposed above will advance the DBO-model in several ways and will bring about a number of important payoffs. The first one regards the empirical validation of the model. The ambition of having the highest possible applicability often causes analytical models of social action to suffer from the fallacy of grave simplification and pay little or no attention to the real-world complexities of actual empirical cases (Axelrod, 1997). In this regard, the DBO-model makes no exception, as its key components are left unspecified with regard to their contents in order to maintain the highest possible level of applicability. The result, however, is hardly more than an “ideal-typic” (Mjösset, 2011) outline of a theory of action, which can provide only very “thin explanations” (Crothers, 2011: 3) at its present level of elaboration.

The integration of the notion of the definition of the situation as outlined above, on the other hand, will make possible and guide detailed, in-depth investigations of real-world cases, thus providing this abstract model with the sufficient proper empirical support it needs “in order to validate its aptness” (Opp, 2006: 119). The notion of the definition of situation offers a whole array of theoretical insights regarding, for instance, the impact of social interaction on the formation of actors’ beliefs about the nature of the action situation. Its incorporation enables the DBO-model to map out in detail and ask specific testable questions regarding the significant parts of this interactive process. That is, it can help the model become a viable source for formulating specific research questions and testable hypotheses which, when examined, can provide the detailed, empirically grounded specifications that the model currently needs in order to fine-tune its treatment of the impact of interaction on the formation of its components as well as the interdependencies among them.

The second payoff pertains to the explanatory width and strength of the DBO-model. As mentioned at the outset, the main rationale of launching the model is to demonstrate analytically why an actor with a range of options chooses one particular course of action over all the other feasible ones or why she or he believes that a particular course of action can better fulfill his or her desires. In its current condition, however, the model is too rudimentary to capture the convolutions of social reality and to deliver fine-grained accounts of why actors do as they do in more complex action situations. It is too roughly hewn to yield sufficiently thick descriptions of, for instance, the complex interplay between the action opportunities that are objectively available to the actor and his or her subjective understandings and interpretations of these opportunities. The theoretical proposal presented above, on the other hand, allows the model to deal with questions as to how objectively available opportunities are valued and appreciated subjectively, and how the availability and reachability as well as the plausibility and suitability of each one is assessed in comparison with the others.

The following example can illustrate these payoffs. In the literature on analytical sociology, *rational imitation* is repeatedly underscored as an interaction-mediated mechanism that – under the conditions of bounded rationality and the entailing uncertainty – may have a decisive, formative impact on the actors’ beliefs regarding the character of the action situation, and thereby on their perceptions of the relative appropriateness of various courses of action (Hedström, 1998, 2006, 2007). This emphasis mirrors the growing awareness of the importance of imitation as an

uncertainty-reducing strategy in organizational theory in general, and in the institutional school and business research in particular (Cyert & March, 1963; DiMaggio & Powell, 1983; Fligstein, 1985; Haunschild & Miner, 1997; Haveman, 1993; Hawley, 1986; Levitt & March, 1988; Meyer & Scott, 1983; Stinchcombe, 1965; Thompson, 1967; Tolbert & Zucker, 1883; Zucker, 1988). Despite this increased awareness, however, there is still a regrettable absence of detailed analytical accounts in which the imitation process is *contextually particularized* in that the conducted analysis goes beyond reasserting the general importance of bounded rationality and uncertainty as the main rationale for imitation and pins down the specific conditions of the process in the individual cases under observation. A more elaborate version of the DBO-model that incorporates the idea put forth above can, on the other hand, be fruitfully applied here. In other words, it can be used as a sharp analytical device to dissect the convolutions involved and to break down the generative processes beneath the observable imitative behavior by addressing testable questions such as: to whom a given organization finds suitable to imitate; how and on what grounds the identification and selection of the peers (i.e., the significant relevant others) take place; what kind of information is extracted from the observable behavior of these peers; in what ways the informational cues obtained through peer monitoring affect the beliefs of the focal organization regarding the action situation and the options as well as the impediments embedded in that situation; how the focal organization in each case perceives, arrives at, and maintains the delicate balance between imitating its significant peers and simultaneously differentiating itself from them; and, finally, how the choices and decisions of the focal organization interlock with those of the significant relevant others and how the assumptions and expectations that the focal organization foster about the likely behavior of these others become the key elements of the definition of the situation and thereby play a crucial bearing on how the organization in focus plans its own lines of action (for a fuller description see Azarian, 2015).

Some Final Remarks

As any exchange is reciprocal by definition, we may ponder how symbolic interactionism can benefit from a modified DBO-model enriched with the notion of the definition of situation. This question is evidently important and relates to the capacity of symbolic interactionism to deliver precise, analytical, and structured explanations but, since it lies outside the scope of the present article, it can be addressed only briefly here. The benefit of the DBO-model for symbolic interactionism stems from the chief value of the model, notably its analytical qualities, enabling researchers to detail the cogs and wheels of the action under observation. That is, the analytical character of the model allows social analysts to reconstruct – especially in close qualitative case studies – the immediate action situation and to examine what exactly motivates and guides the actor when choosing his or her course of action. In other words, although it might be true that the DBO-model is yet not able to provide any assistance to our *empathetic understanding* of the subjective meaning that the actor attaches to his or her action (Weber, 1978: 6) it nonetheless brings us considerably

closer to such an understanding by increasing the clarity and verifiable accuracy of our comprehension regarding the ways in which the actor “perceives, interprets and judges” the action situation (Blumer, 1969: 72).

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References

- Ajzen, I. (1985). From Intentions to Actions: A Theory of Planned Behavior. In: J. Kuhl and J. Beckman (eds.). *Action-control: From Cognition to Behavior*. Springer.
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211.
- Axelrod, R. (1997). Advancing the art of simulation in the social sciences. *Complexity*, 3(2), 16–22.
- Azarian, R. (2015). Imitative behavior among producer firms: some insights from social psychology. *Human Systems Management*, 34(4), 301–310.
- Azarian, R., & Alalehto, T. (2014). Patterns in account-giving among white collar criminals. *Deviant Behavior*, 35(2), 101–115.
- Bastardi, A., Uhlmann, L., & Ross, L. (2011). Wishful thinking: belief, desire, and the motivated evaluation of scientific evidence. *Psychological Science*, 22(6), 731–732.
- Barbera, F. (2006). A star is born? The authors, principles, and objectives of analytical sociology. *Papers: Revista de Sociologia*, 80, 31–50.
- Berger, P. (1963). *Invitation to Sociology: A Humanistic Perspective*. Penguin Books.
- Berger, P., & Luckmann, T. (1966). *The social construction of reality: A treatise in the sociology of knowledge*. Anchor Books.
- Blumer, H. (1969). *Symbolic interactionism: Perspective and method*. Prentice-Hall.
- Bobo, L., & Hutchings, V. (1996). Perceptions of racial group competition: Extending Blumer’s theory of group position to a multi-racial social context. *American Sociological Review*, 61(6), 951–972.
- Boudon, R. (2003). Beyond Rational Choice Theory. *Annual Review of Sociology*, 29, 1–21.
- Bourdieu, P. (1989). Social space and symbolic power. *Sociological Theory*, 7, 14–24.
- Bourdieu, P. (1990). *The logic of practice*. Polity Press.
- Charon, J. (2007). *Symbolic interactionism: An introduction, an Interpretation, an Integration*. Pearson Education.
- Colman, J. (1987). Toward an integrated theory of white-collar crime. *American Journal of Sociology*, 93(2), 406–439.
- Collins, R. (2004). *Interaction ritual chains*. Princeton University Press.
- Cooper, J. (2007). *Cognitive dissonance: Fifty years of a classic theory*. Sage.
- Crothers, C. (2011). Thin explanation: A review of ‘The Oxford Handbook of Analytical Sociology’. *Philosophy of the Social Sciences*, 43(2), 257–267.

- Cybert, R., & March, J. (1963). *A behavioral theory of the firm*. Blackwell Business.
- Davidson, D. (1980). *Essays on actions and events*. Clarendon Press.
- Davis, F. (1982). On the 'Symbolic' in symbolic interaction. *Symbolic Interaction*, 5(1), 111–126.
- Demeulenaere P. (ed.) (2011). *Analytical Sociology and Social Mechanisms*. Cambridge University Press.
- Denzin, N. (2016). *Symbolic interactionism*. Wiley.
- DiMaggio, P., & Powell, W. (1983). The iron cage re-visited: Institutional isomorphism and collective rationality in organizational fields. *American Sociological Review*, 48, 147–160.
- Edling, C. (2012). Analytical sociology is a research strategy: contribution to the symposium on analytical sociology: Critique, advocacy, and prospects. *Sociologica*.
- Elster, J. (1983). *Sour grapes: Studies in the subversion of rationality*. Cambridge University Press.
- Elster, J. (1989). *Nuts and bolts for the social sciences*. Cambridge University Press.
- Elster, J. (2007). *Explaining social behavior: More nuts and bolts for the social sciences*. Cambridge University Press.
- Esser, H. (1993). The rationality of everyday behavior: A rational choice re-construction of the theory of action by Alfred Schutz. *Rationality and Society*, 5(1), 7–31.
- Esser H. (2009). Rationality and Commitment: The Model of Frame Selection and the Explanation of Normative Action. In M. Cherkaoui and P. Hamilton (eds.) *Rymond Boudon: A Life in Sociology, Part Two: Toward a General Theory of Rationality*. Bardwell.
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations*, 7, 117–140.
- Festinger, L. (1957). *A theory of cognitive dissonance*. Row & Peterson.
- Fine, G. (2012). *Tiny publics: A theory of group action and culture*. Russell Sage Foundation.
- Fiske, S., & Tylor, S. (2013). *Social cognition*. Sage.
- Fligstein, N. (1985). The spread of the multidivisional firm, 1919–79. *American Sociological Review*, 50, 377–391.
- Gambetta, D. (2009). Signaling. In: P. Hedström and P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology*. Oxford University Press.
- Goffman, E. (1959). *The presentation of self in everyday life*. Penguin Books.
- Gross, N. (2009). A pragmatist theory of social mechanisms. *American Sociological Review*, 74, 358–379.
- Hauschild, P. (1993). Inter-organizational imitation: The impact of interlocks on corporate acquisition activity. *Administrative Science Quarterly*, 38, 564–592.
- Hauschild, P., & Miner, A. (1997). Modes of inter-organizational imitations: The effects of outcome salience and uncertainty. *Administrative Science Quarterly*, 42(3), 472–500.
- Haveman, H. (1993). Follow the leader: Mimetic isomorphism and entry into markets. *Administrative Science Quarterly*, 38, 593–627.
- Hawley, A. (1986). *Human ecology: A theoretical essay*. University of Chicago Press.
- Hedström, P. (1998). Rational Imitation. In: P. Hedström and R. Swedberg (eds.) *Social Mechanisms: An Analytical Approach to Social Theory*. Cambridge University Press.
- Hedström, P. (2005). *Dissecting the social: On the principles of analytical sociology*. Cambridge University Press.
- Hedström, P. (2006). Explaining social change: An analytical approach. *Papers*, 80, 73–95.
- Hedström, P. (2007). Sociala påverkansprocesser. In: C. Edling and J. Rydgren (eds.) *Social handling och sociala relationer*. Natur och Kultur.
- Hedström, P. (2008). Studying mechanism to strengthen causal inferences in quantitative research. In: J. Box-Steffensmeier, H. Brady and D. Collier (eds.) *The Oxford Handbook of Political Methodology*. Oxford University Press.
- Hedström, P. and Bearman, P. (2009). What is analytical sociology all about? An introductory essay. In: P. Hedström and P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology*. Oxford University Press.
- Hedström, P., & Swedberg, R. (1998). *Social mechanisms: An analytical approach to social theory*. Cambridge University Press.
- Hedström, P. and Udehn, L. (2011). Analytical sociology and theories of the middle range. In: P. Bearman and P. Hedström (eds.) *The Oxford Handbook of Analytical Sociology*. Oxford University Press.
- Hedström, P., & Ylikoski, P. (2010). Causal mechanisms in the social sciences. *Annual Review of Sociology*, 36, 49–67.
- Hedström, P. and Ylikoski, P. (2013). Analytical sociology and social mechanisms. In: B. Kaldis (ed.) *Encyclopedia of Philosophy and the Social Sciences*. Sage.

- Hedström, P. and Ylikoski, P. (2014). Analytical sociology and rational choice theory. In: G. Manzo (ed.) *Analytical Sociology: Actions and Networks*. Wiley.
- Hyman, H., & Singer, E. (Eds.). (1968). *Readings in reference group: Theory and research*. Free Press.
- Kaidesoja, T. (2012). The DBO theory of action and distributed cognition. *Social Science Information*, 52(3), 311–337.
- Kelman, H. (1959). *Social influence and personal belief: A theoretical and experimental approach to study of behavior change*. Wiley.
- Kroneberg, C. (2006). *The definition of situation and variable rationality: The model of frame selection as a general theory of action*. Working Paper No. 06–05. Mannheim University.
- Kroneberg, C., & Kalter, F. (2012). Rational choice and empirical research: Methodological and theoretical contributions in Europe. *Annual Review of Sociology*, 38, 73–92.
- Lent, R., Brown, S., & Hackett, G. (2000). Contextual supports and barriers to career choices: A social cognitive analysis. *Journal of Counselling Psychology*, 47(1), 36–49.
- Levitt, B., & March, J. (1988). Organizational learning. *Annual Review of Sociology*, 14, 319–340.
- Lindenberg, S. (1989). Choice and culture: The behavioral basis of cultural impact on transactions. In: H. Haferkamp (ed.) *Social Structure and Culture*. de Gruyter.
- Lindenberg, S. (2001). Intrinsic motivation in a new light. *Kyklos*, 54(2–3), 317–342.
- Lindenberg, S. (2008). Social rationality, semi-modularity and goal-framing: What is it all about? *Analyse & Kritik*, 30, 669–687.
- Little, D. (2012). Analytical sociology and the rest of sociology: Contribution to the symposium on analytical sociology: Critique, advocacy, and prospects. *Sociologica*, 79.
- Mahoney, J. (2001). Beyond correlation analysis: Recent innovations in theory and method. *Sociological Forum*, 16(3), 575–593.
- Manzo, G. (2010). Analytical sociology and its critics. *European Journal of Sociology*, 51, 129–170.
- Manzo, G. (2013). Is Rational choice theory still a rational choice of theory? A response to Opp. *Social Science Information*, 52(3), 361–382.
- March, J., & Simon, H. (1958). *Organizations*. Wiley-Blackwell.
- Maurer, A. (2016). Social mechanisms as special cases of explanatory sociology: Notes toward systemizing and expanding mechanism-based explanation within sociology. *Analyse & Kritik*, 38(1), 31–52.
- Mayntz, R. (2004). Mechanisms in the analysis of macro-social phenomena. *Philosophy of the Social Sciences*, 34(2), 237–259.
- McCall, G., & Simmons, J. (1966). *Identities and interactions*. Free Press.
- McHugh, P. (1968). *Defining the situation: The organization of meaning in social interaction*. Bobbs-Merrill.
- Merton, R. (1948). The self-fulfilling prophecy. *The Antioch Review*, 8(2), 193–210.
- Merton, R. (1968). *Social theory and social structure*. Free Press.
- Merton, R. (1995). The Thomas theorem and the Matthew effect. *Social Forces*, 74(2), 379–424.
- Merton, R. and Rossi, A. (1968). Contributions to the theory of reference group behavior. In: R. Merton (ed.) *Social Theory and Social Structure*. Free Press.
- Meyer, J., & Scott, R. (1983). *Organizational environments: ritual and rationality*. Sage.
- Middleton, R. (1963). Alienation, race, and education. *American Sociological Review*, 28(6), 973–977.
- Mingot, J. (2011). Symposium review. *European Sociological Review*, 27(6), 824–828.
- Mjøsset, L. (2011). Review essay. *Acta Sociologica*, 54(3), 301–395.
- Olsen, M. (1965). *The logic of collective action: Public goods and the theory of groups*. Harvard University Press.
- O’Neil, J. (1973). *Modes of individualism and collectivism*. Heinemann.
- Opp, K. (1999). Contending concepts of the rational choice theory. *Journal of Theoretical Politics*, 11(2), 171–202.
- Opp, K. (2006). Review of ‘dissecting the social: On the principles of analytical sociology by P Hedström’. *European Sociological Review*, 23(1), 115–122.
- Opp, K. (2013). What is analytical sociology? Strengths and weaknesses of a new sociological research program. *Social Science Information*, 52(3), 329–360.
- Park, R., & Burgess, E. (2009). *Introduction to the science of sociology*. The University of Chicago Press.
- Passas, N. (1997). Anomie, reference groups and relative deprivation. In: N. Passas and R. Agnew (eds.) *The Future of Anomie Tradition*. Northeastern University Press.
- Reeskens, T., & van Oorschot, W. (2012). Those who are in the gutter look at the stars? Explaining perceptions of labor market opportunities among European young adults. *Work, Employment Society*, 26(3), 379–395.

- Rydgren, J. (2009). Beliefs. In P. Hedström and P. Bearman (eds.) *The Oxford Handbook of Analytical Sociology*. Oxford University Press.
- Schelling, T. (1978). *Micro-motives and macro-behavior*. Norton.
- Schuman, H., & Scott, J. (1989). Generations and collective memories. *American Sociological Review*, 54(3), 359–381.
- Shibutani, T. (1955). Reference groups as perspectives. *American Journal of Sociology*, 60(6), 562–569.
- Simon, H. (1957). A behavioral model of rational choice. In: *Models of man, social and rational: Mathematical essays on rational human behavior in a social setting*. Wiley.
- Stinchcombe, A. (1965). Social structure and organizations. In: J. March (ed.) *Handbook of Organizations*. Rand McNally.
- Thomas, W. (1923). The unadjusted girl: With cases and standpoint for behavior analysis. *Criminal Science Monographs* 4: 1–257. Little, Brown.
- Thomas, W. (1966). *On social organization and social personality: Selected papers*. M. Janowitz (ed). University of Chicago Press.
- Thomas, W., & Znaniecki, F. (1920). *The Polish Peasants in Europe and America: Monograph of an immigrant. Group*. Richard G. Badger.
- Thompson, J. (1967). *Organizations in action: Social Science Bases of Administrative Theory*. McGraw-Hill.
- Tolbert, P., & Zucker, L. (1883). Institutional sources of change in the formal structure of organizations: the diffusion of civil service reform 1880–1935. *Administrative Science Quarterly*, 28(1), 22–39.
- Tversky, A., & Kahneman, D. (1974). Judgement under uncertainty: Heuristics and biases. *Sciences*, 185, 1124–1131.
- Udehn, L. (2001). *Methodological individualism: Background, history and meaning*. Routledge.
- Volkart, E. (Ed.). (1951). *Social behavior and personality: contributions of W. I. Thomas to theory and social research*. Social Science Research Council.
- Watkins, W. (1959). Methodological individualism: A reply. *Philosophy of Science*, 22, 58–62.
- Weber, M. (1978). *Economy and society: An outline of interpretative sociology*. (Vol. 1). University of California Press.
- White, H. (1970). *Chains of opportunity: System models of mobility in organizations*. Harvard University Press.
- White, H. (1971). Multipliers, vacancy chains and filtering in housing. *Journal of American Institute of Planners*, 37, 88–94.
- Zucker, L. (1988). *Institutional patterns and organizations: culture and environment*. Ballinger Publications.

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