

RICERCHE

# Free Action and Interventionist Theories of Causality

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**Abstract** I shall discuss the relationship between the interventionist theory of causation and free action. Interventionist accounts of causation define causation on the basis of “intervention”. These theories can be reductive, if they explain causes on the basis of free human interventions, or non-reductive, if they consider causes and interventions as two inter-defined concepts, where interventions are regarded as explicitly not human. I will show that the dilemma between reductive and non-reductive interventionist theories of causality can be overcome in favour of reductive accounts, with regard to what causation is in an anthropological sense, and with regard to the causal explanation of phenomena. Non-reductive accounts, explaining causes based on interventions and defining interventions as special causes (without any reference to human actions) create a dangerous explanatory circularity between cause and intervention and are not able to give a general and explanatory idea of causation. Reductive interventionist theories, by contrast, do not suffer from this circularity.

**KEYWORDS:** Causation; Free Action; Experiment; Interventionist Theory of Causality; Anthropomorphism

**Riassunto** *L'azione libera e le teorie interventiste della causalità* – Intendo discutere il rapporto tra la teoria interventista della causalità e l'azione libera. Gli approcci interventisti alla causalità definiscono la causazione sulla base dell'“intervento”. Queste teorie possono essere riduttive, se spiegano le cause in base all'intervento umano come libero intervento umano, oppure non-riduttive, se considerano cause e interventi come due concetti inter-definiti, dove gli interventi sono considerati come esplicitamente non umani. Intendo mostrare che il dilemma tra teorie interventista della causalità di tipo riduttivo e non-riduttivo può essere superato in favore degli approcci riduttivi, con riferimento a ciò che la causazione è in senso antropologico e con riferimento alla spiegazione causale dei fenomeni. Gli approcci non-riduttivi, spiegando le cause sulla base di interventi e definendo gli interventi come cause speciali (senza alcun riferimento alle azioni umane), creano una pernicioso circolarità esplicativa tra cause e interventi e non sono in grado di dare un'idea generale ed esplicativa della causazione. Le teorie interventiste riduttive, al contrario, non soffrono di questa circolarità.

**KEYWORDS:** Causazione; Azione libera; esperimento; Teoria interventista della causalità; Antropomorfismo

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THE INTERVENTIONIST THEORY OF CAUSALITY, first conjectured by Dinger<sup>1</sup> and Collingwood<sup>2</sup> and deepened by Von Wright,<sup>3</sup> hypothesizes a significant connection between causality and human interventions in nature: the idea of a causal relation between two events is based on its similarity with a productive free action and it arises from human beings' self-conscious reflection on their own goal-directed acting. Not all scholars agree with this view of interventionism and, in recent years, a theoretical dilemma between reductive and non-reductive manipulative accounts has been pointed out. Baumgartner writes:

Interventionist theories of causation are typically subdivided into two categories: *reductive* and *non-reductive* accounts. Reductive theories, as advanced by Collingwood,<sup>4</sup> Gasking,<sup>5</sup> von Wright<sup>6</sup> and Menzies and Price,<sup>7</sup> reduce the notion of causation to an allegedly non-causal notion of intervention or manipulation, while according to non-reductive accounts, [...], such a reduction is not possible. Reductive theories have been broadly criticized for a number of reasons, e.g. for being unacceptably anthropocentric or circular [...]. In consequence, they have only played a marginal role in the causation literature of the second half of the 20th century. Non-reductive variants of interventionist theories, however, have become increasingly popular in recent years. [...] Non-reductive theories come in two groups. The first group is constituted by accounts that analyse the notion of intervention in terms of causation which, in turn, is introduced as a primitive or unanalysed concept [...].<sup>8</sup> The second group comprises theories that maintain a tight conceptual interdependence between the notions of causation and intervention by, very broadly, spelling one of the two notions out in terms of the other and vice versa.<sup>9,10</sup>

Reductive theories<sup>11</sup> reduce the notion of

causation to (and ground it on) a non-causal notion of human intervention: they consider free human action as a "model" to understand causation, both in everyday life and in the analysis of experiments. Conversely, non-reductive accounts either ( $\alpha$ ) analyse interventions by reducing them to the concept of cause considered as fundamental (Pearl's view), or ( $\beta$ ) conceive causation and intervention as two "inter-defined" concepts (Woodward's view). Non-reductive views regard the notion of intervention as explicitly non-human. In the work at hand, I will take into consideration the opposition between reductive accounts and non-reductive theories of type  $\beta$ , because Woodward's works are very important in this field and, I think, they are more convincing than non-reductive theories of type  $\alpha$ . Furthermore, the criticisms raised by Woodward against reductive accounts has given rise to an interesting discussion precisely about the link between causation and free human action. However, I disagree with Baumgartner about the fact that "reductive" theories have played a marginal role in the debate. Von Wright's works and the contributions of Menzies and Price have elicited a complex and fruitful discussion in literature in the last decades; moreover, Woodward's papers are often devoted to discussing reductive theses.

In von Wright's interventionist theory, there is an explicit reference to free action and teleology, which, in my opinion, is very important for understanding causation. The main thesis proposed by von Wright on causality is: to say that  $\langle\langle p \text{ causes } q \rangle\rangle$  is identical to saying that  $\langle\langle \text{by doing } p \text{ we could bring about } q, \text{ and if } p \text{ is not done } q \text{ does not happen} \rangle\rangle$ .<sup>12</sup> Von Wright joins an interventionist definition to a counterfactual one; moreover, it is clear that this definition is not devoted to saying what causation is but to ascertaining how we can find causation in phenomena: it is an epistemological thesis about causation, not an ontological one. According to von Wright, causally explaining an event means describing it as if it "were" the result

of our intentional action. Even though causal relations have an objective ontological status independently of human awareness, “knowledge” of causal relations depends psychologically on our ability to freely make events happen. Therefore, our active possibility of intervening in reality can be considered as the origin of the human concept of cause. Upon the basis of our ability to make events happen we extend, as *translatum*, the inferences regarding our interventions in nature to inferences regarding independent events in reality. Therefore, with this theory von Wright contrives an analogy between human acting and natural phenomena. Causal reasoning involves the isolation of a portion of becoming, the choice of a point of view on the succession of events and the individuation of a means-end relation among the events taken into account. Only a human being can carry out this task, and a human being is able to do it because he is a free agent. There is no need for a formal or a philosophical definition of free will for this kind of theories; in his analogy, von Wright refers to human action in an ostensive way to make a comparison with causation: the human acting is freely making things happen.

It is worth asking why interventionist theories of causation are useful. The theories of causation which follow Hume<sup>13</sup> argued, in general, that under the idea of causation there is nothing but a mere regularity of succession: we say that *p* is the cause of *q* because we observe that (events of the kind) *q* usually follow(s) (events of the kind) *p*. This sort of regularity might be accidental and does not account for the necessity of a causal relation. In order to distinguish regular succession from causation, von Wright calls into question free action and counterfactuals.<sup>14</sup> If causal laws must be “nomic” and account for the “geneticity” of *p* with respect to *q*, they must support counterfactuals. When we formulate counterfactual hypotheses about the real world, we make modal claims about possible worlds devising abductive inferences which hypothesize possible antecedents for

consequents alternative to reality. But, why does the description of events have counterfactual implications? (*Question 1*). When we *explain* how the water in a pot has been artificially brought to the boiling point, it is implicit in our explanation that the water would have remained at its natural temperature if no one had intervened to heat it. Notice that, in this example, counterfactual reasoning and an interventionist approach are linked. Von Wright moreover asks: how it is possible to verify the validity of the counterfactual conditions if they are not real? (*Question 2*).<sup>15</sup> A scientist cannot observe counterfactual conditions, and this is a problem for causal explanations. Therefore, Von Wright writes that we can «interfere with the course of the world, thereby making true something which would not otherwise».<sup>16</sup>

We are not inactive observers without any possibility of intervening in events: manipulative accounts are based upon the perception that our actions (in the position of cause) produce alterations in reality (in the position of effect).<sup>17</sup> Interventionist theory highlights the conceptual core of causation missed by Hume: its “geneticity”. But this account can do that only by virtue of its reference to free action. An event *p* can be considered the “cause” of another event *q*, when *p* is the principle for generation of *q*, i.e. when *p* “makes *q* happen”. On the other hand, counterfactual inferences split a phenomenon into two events and put them in a genetic relationship. By connecting interventionist causation and counterfactuals, von Wright claims that our actions produce perceptible changes in the environment, changes that would have not occurred if our actions would not have been performed.<sup>18</sup> Thus, counterfactual reasoning and an interventionist agency theory of causation seem to be bound together in their deep presuppositions.<sup>19</sup>

The interventionist conception of cause enables us to go beyond the mere succession of events because it consents to precisely determining the “geneticity” of *p* with respect to *q*. Mere observation is not enough to as-

certain this genericity and causality, because counterfactual situations which would be proofs of causal laws are not observable.<sup>20</sup> Thus, the only way to confirm (or falsify) the counterfactual conditions for a causal law is experimentation (answer to *Question 2*). Von Wright was aware of the “experimentalist” character of his theory of causation<sup>21</sup> and experimentation is always a free goal-directed action: the possibility of making or not making the correct intervention in nature to cause a precise effect. Therefore, only free actions enable scientists to interact in a counterfactual way with objective reality and to obtain from nature the answers to the “questions” asked by experiments.<sup>22</sup> When von Wright claims that “*p* causes *q*” is identical to saying that “by doing *p* we could bring about *q*, and if *p* is not done *q* does not happen”, it is fully assumed that our “doing *p*” is free and open to alternative possibilities (not doing, differently doing and so on). Moreover, our free intervening in the world is the deep condition that permits us to formulate counterfactual inferences figuring alternative realities<sup>23</sup> (answer to *Question 1*).

Von Wright’s reductive interventionism has been criticized because of its anthropomorphic character.<sup>24</sup> As a matter of fact, how is it possible to objectively attribute causality to phenomena if causation is conceived of on the basis of human action, and also only from an epistemological point of view?<sup>25</sup> A first step to solving this problem is to distinguish between “agent causation” and “event causation”. When we say that «*p* causes *q*» is identical to saying that «by doing *p* we could bring about *q*», we are not saying that the cause is the human “action” while the effect is a natural “event”. An acceptable theory of causation requires that the cause *p* be an event, as well as the effect *q*, and not an action. Von Wright,<sup>26</sup> aware of this distinction, refers to intentional human action only within an “analogy” which explains the “genericity” of causal relation. The fact that the event *p* has caused the event *q* can be “understood in the same way” in which it is under-

stood that a human agent does *p* to bring about *q*. Actually, *p* produces *q* as an effect independently of whether *p* happens concretely as the result of a human action or not.

In the present work, I will argue that the dilemma between reductive and non-reductive interventionist accounts can be overcome in favour of the reductive views, because the explanatory circularity between causation and intervention, from which non-reductive interventionist theories suffer, is broken by reductive accounts, which analogically explain causes on the basis of free human actions. The operative and conceptual advantage of reductive views, due to their non-circularity, is a novelty in the literature, given that the problem of circularity cause/intervention is always undervalued by Woodward and other non-reductivists.<sup>27</sup> Reductive theories, as I said, are to be considered as analogical and not metaphysical explanations: once we have understood the anthropological and psychological origin of the concept of cause from free action, it is still possible, then, to consider causation as a fundamental concept in explanation and human actions as «causal events among others» satisfying an important *desideratum* for Woodward.<sup>28</sup> Furthermore, after this analysis, I hope that it will be clear why a certain “good” anthropomorphism associated with reductive interventionist theories, as distinct from a “bad” one, is not harmful for scientific objectivity. As a matter of fact, a new way of considering anthropomorphism should eliminate the fear of grounding (epistemologically and not ontologically) the concept of cause in human action. In the ensuing argumentation, I shall discuss some important objections to reductive theories. In particular, I shall analyse Woodward’s criticisms. Finally, I shall propose that reductive accounts enjoy conceptual advantages.

## Two objections to reductive interventionist theories

Menzies and Price<sup>29</sup> proposed a reductive

version of interventionist theory where the relationship between causation and free action is explicitly theorized: agency theory. They discussed and rejected important objections raised in the literature to reductive accounts.<sup>30</sup> I shall consider two of these objections because they are decisive in terms of adequately answering the criticism of the anthropomorphic character of reductive theories: (a) circularity and (b) anthropocentricity.

(a) «Agency theory is circular: saying that to cause an effect means to “bring about” the effect, is to use a causal language to define the cause».<sup>31</sup> Menzies and Price’s response to this logical/linguistic circularity is bound to the human learning of concepts. Just as a person may learn the use of “red” by being shown samples of red, so also a person may learn the use of “causation” by doing one thing and achieving another. Agency theory is not meant to be a logical/linguistic analysis of causation: it fills a more interesting gap. The agency account shows us how causation works in phenomena and how scientific explanations can be grounded in causation. The objection of circularity, instead, can be raised more adequately against non-reductive interventionist accounts,<sup>32</sup> because they explain causes through non-human interventions and then they pretend that interventions can be explained through causes. As my discussion shall make clear this cannot be a satisfactory account of how causation works, because it manifestly suffers from an ontological explanatory circularity.

(b) «Agency theories make causation an anthropocentric phenomenon: interventionist accounts imply that there would be no objective causal relations if there were no human agents, and if human beings would be different causal relationship would also be different». Menzies and Price<sup>33</sup> answer that, just as an object is red in the case

that it would look red to a normal observer under standard conditions, similarly a causal relation exists between two events just in the case that, *if a free agent were present and able*, he *could* bring about the first event as a means to bring about the second. In Menzies and Price’s account, the presence of a free agent is hypothetical: they do not deny at all that if the free agent were not present, the causal relation would continue to exist as it is, and that the presence of the free human agent is only a way to define causation.

Objections (a) and (b) are in charge to “reductive” agency accounts because they raise questions about the anthropomorphic character of those theories which employ free human action as a “model” to understand causation. However, the objection (a) of circularity, in ontological form, is a more serious problem for non-reductive accounts; all reductive accounts, basing the concept of cause on human action, break exactly this explanatory circularity between causes and actions (while non-reductive theories create it). With respect to objection (b), it seems to me that non-reductive accounts avoid anthropocentricity, but they lose even the “interventionist” theory.

The answers given by Menzies and Price<sup>34</sup> to these problems are acceptable, but there are more important reasons to reject these objections. According to reductivists, when we talk about “causes” we are assuming a human point of view and we are considering nature as a “humanized nature”. The salient joint points in the development of phenomena are regarded as similar to productive human actions. From this standpoint, an experiment is designed to find the joint points through which the isolated phenomenon develops and in which the free acting of the experimenter tries to take exactly the place of (specific and pre-existing causal elements of) nature. My main concern is to show that, even though this substitution entails a certain form of anthropomorphism, it does not en-

tail a lack of objectivity. The experimental substitution does not at all entail that nature is a free agent, but only that our theory has selected and isolated, in the holistic network of natural causes, precisely the causal chain that we are looking for. It is evident that reductive interventionist theories *à la* von Wright are not ontological theories about causation but epistemological views which consent to acknowledge and exploit causation in phenomena.

Now I will reply to the objections (a) and (b) in the light of the interpretation of reduction (of causal events to human free actions). Writers like Woodward, Hausman and Baumgartner consider the aforementioned objections to be insurmountable problems for reductive theories. However, these philosophers have overlooked the real sense of reducing causes, in an ostensive (or analogical) way, to human actions.<sup>35</sup> Let me add that the employment of the notion of non-human intervention to explain causation and vice versa, seems much more a “causal theory of intervention” than an “interventionist theory of causality”. Conversely, causation and natural transformation are theorized by von Wright on the basis of human action, but only in an analogical way: causation works *like* free action, i.e. causation is, in a certain way (but not literally), the “acting” of nature. The agency account of causality is a theory which significantly explains causation considering natural becoming “from the standpoint of human free action”.

Von Wright’s intuition can be employed to more radically reject the two objections considered by Menzies and Price. a’) *Avoided circularity*. A reductive theory is not a logical explanation of causality but an *image* of how the concept of cause arises in phylogeny and of how it works in the sciences (and in the experimental study of phenomena). Here it is not to pretend a logical analysis in more primitive terms – an analysis where the expression on the left side of the logical equation (*definiendum*) is required to not appear in the right side (*definiens*) – but only to pro-

vide an analogical indication of how causation works in nature. The logical-linguistic circularity discussed by Menzies and Price, the fact that the expression “to bring about” is semantically similar to the expression “to cause”, is not only not a decisive defect but even an illuminating feature: it sheds light on the fact that the “event effect” *q* is brought about by something which is “like” a human acting: the acting carried out by the “event cause” *p*. According to Price,<sup>36</sup> the origin of causality from agency should be interpreted in an anthropological sense: it simply explains why living organisms, in our epistemic situation, speak and think in a causal way. This answer fits perfectly with the idea that the reference to human free will, in the reductive explanation of cause, is not a conceptual analysis of the elements of causation or a metaphysical expression regarding what cause is, but rather a comparison (with human action) that shows us how causal relationships can be singled out from simple correlational links within phenomena.

An analogical interpretation of agentic causation is also consistent with Menzies and Price’s idea that causation should be identified by ostension and not by conceptual explanation. (b’) *Obvious anthropocentricity*. The reference to human action made by reductivists is not a way to regard natural causation as a human operating with human features, but only a way to accept that scientists necessarily attribute to causation features of their own operative relationship with the external world. Anthropomorphism, in a certain way, is an obvious feature of all human epistemological concepts. The analogical sense of the reduction is a way to consciously accept anthropocentricity without sacrificing objectivity. The objection of anthropocentricity is also generated by the theoretical fear that without humankind the causal chains would not exist and that “different” human beings would observe a different causation. Actually, causal chains, even without humankind, would be perfectly real even though they would be completely indetermi-

nate; with different human beings the causal chains would remain invariant, but they would be considered from different points of view, with different features. “Causation is similar to human action” is only one of these viewpoints. Contrary to what Mackie, Hausman and Woodward suggest, reductive theorists don’t overlook this fact. Further discussion on the problem of anthropocentricity in agency theories will be developed in the following sections.

### ■ Woodward against reduction

With regard to the anthropomorphic character of reductive agency theories, Woodward<sup>37</sup> regards von Wright’s reference to human action as lacking in objectivity. Thus, he puts forward an account where there is no reference to human action. In this account human manipulations are natural events like any other: they qualify or fail to qualify as “interventions” because of their “causal characteristics” and not in virtue of being activities performed by human beings. The specific problem analyzed by Woodward<sup>38</sup> is (b) the anthropocentricity of reductive interventionist theories. According to Woodward, “subjectivists” claim that causal relationships are “projected” onto the world by human beings and are entirely “constituted” by human interests and abilities. From Woodward’s standpoint, the truth values of causal claims, in the reductive view, are dependent on human beings and if human beings were different, truth values for causal claims would also be different. Woodward<sup>39</sup> considers a hypothetical experiment in which an experimenter steps in front of a speeding bus. The writer points out that whether the experimenter will be injured in such an experiment does not depend, either causally or in some other way, on the experimenter’s beliefs or desires.

*Pace* Woodward, I believe that here the sense of subjectivism is deeply misunderstood. In Menzies and Price’s and von Wright’s accounts the fact that the hypothet-

ical experimenter will be injured by the speeding bus does not depend on the beliefs or on the desires of the experimenter, and the truth of this causal claim is not even partly dependent on the experimenter’s beliefs or expectations. A man who steps in front of a speeding bus will be injured for sure and that does not depend on his beliefs or desires. Nevertheless, any causal analysis of this event requires subjective interpretations to choose and to isolate a part of natural becoming and the direction of the causation (of the causal chain). The causal chain in question will be identified on the basis of the interests, the goals and the pre-understanding of the human being who carries out the analysis.

When Woodward claims that «my beliefs will influence my *beliefs* about what the outcome of these experiments will be, but this isn’t to say that they will influence the outcome of the experiments themselves»,<sup>40</sup> he forgets that creating a theory, designing an experiment and regarding an event as the cause of an effect are all activities that “pre-determine” and “prepare” the experimental truth. This truth can only be given within the scope and the cognitive structure of the subject who carries out the experiment from the point of view of *his* research. These activities (that Woodward calls the «experimenter’s or the scientific community’s projective activities») cannot alter the *in se* events or the outcome of experiments. However, even before the experiment, they create the very possibility of conducting experiments and the theoretical framework where causal claims find their sense. With regard to a manipulative system that, according to Woodward,<sup>41</sup> is objective, mind-independent and invariant, and that demonstrates that «a commitment to some version of realism about causation is built into any plausible version of a manipulability theory», von Wright and Menzies and Price do not raise any doubts at all about the full realism of causes.

Reductive interventionism does not raise doubts regarding the fact that the causes – the *same* causes – would exist even if human

beings did not exist or even if these humans had a different cognitive structure.<sup>42</sup> The problem is that without the interests and standpoints of the subject the specific causes would be lost in the complex holistic network of causes. Even the totally invariant causal relationship X-Y can be individuated only through specific and subjective points of view, but this circumstance does not make it less real *in se*. It is uncontroversial that «a commitment to some version of realism about causation is built into any plausible version of a manipulability theory», and I believe that Menzies and Price, as well as von Wright, do not refuse this commitment. Conversely, Woodward seems to force the “subjectivist” position over its meaning, attributing to it the idea that real causation between events would be created by the human mind *ex nihilo*.

Woodward claims that: (e) «the notion of a relationship that will support manipulations would continue to hold even if we do not or cannot manipulate X, or if our beliefs and attitudes were different, or even if we did not exist at all»;<sup>43</sup> (f) «any other view of the matter would involve a bizarre and magical way of thinking, according to which our ability to manipulate X or our practical interest in manipulating X or our beliefs about the results of manipulating X somehow make it the case that a means-end connection comes into existence between X and Y where this connection would not exist, if we did not have the ability or interest or beliefs in question».<sup>44</sup>

However, reductivists regard (e) as true, but also as too simplistic. The sense of the “good” anthropomorphism of the reductive interventionism is that (e’) the mind-independent relationship X(I)-Y is identifiable inside a specific causal chain that only a particular (subjective/objective) scientific theory is able to describe. All of our human beliefs and attitudes are necessary preconditions for the individuation of the causal relationship X(I)-Y: no matter whether we consider the manipulation *I* to be operated by a

human being or by an event, once it is understood that “human action is, in any case, the mental model to identify causation”. Statement (f) indicates unsustainable positions that reductive agency theorists do not endorse: reductivists do not theorize any *creative* power of the subject which would bring into existence means-end connections between X and Y *ex nihilo*. In the case of the nonexistence of humankind, the relationship X(I)-Y would be fully existent, but, contrary to what Woodward thinks, we are able to notice that the manipulation *I* on X is a way to produce Y only because the means-end relation is built into our specific mental profile as free agents who do one thing to achieve another.

The evolutionary perspective, according to Woodward, presents additional evidence that the distinction between causal and correlational relationships has an objective status, which reductivists supposedly would deny. In Woodward’s criticism,<sup>45</sup> what is “really out there”, according to subjectivists, are mere correlations, and the distinction between causal and simply correlational claims is based on facts about us rather than on objective reality. But even in this case, Woodward<sup>46</sup> is attributing to reductivists opinions that they do not endorse.<sup>47</sup> Actually, also in reductivist’s opinion the difference between causal and simply correlational relationships is not created by the subject, and of course, as Woodward puts it, it is the prior existence of an objective distinction between causes and correlations that explains why organisms have different expectations with regard to causal and noncausal relationships. A better way of putting matters is to claim that here we face a *circulus* that cannot be broken: beliefs, attitudes, and expectations are preconditions for searching, isolating and controlling certain real causal chains and not others. Subjectivity and reality meet within the scope of the subject, but under the invariant conditions of objective reality.

In the spirit of a satisfactory subjectivism, not all human projecting should be seen as



«wasteful and gratuitous»,<sup>48</sup> but only that projecting which does not “look” at reality. The discussion proposed by Price is a defence of something that we can call a “good anthropomorphism”, an anthropomorphism which reductive interventionism involves harmlessly. As in the case of indexicals,<sup>49</sup> our whole language works through perspectival asymmetries due to the fact that our knowledge is always knowledge-of-reality-from-a-partial-standpoint. The conceptual oppositions there—here, past-present, foreigner-local and all the “relational” concepts are evidence of the subjective and anthropocentric nature of knowledge. Similarly, the concept of cause seems to Price a “located” concept like many others, a human concept which specifically comes from the fact that we are free agents, capable of intervening successfully in our environment.

I take stance with Price in believing that there is no offence to naturalism in the idea of a “perspectival” causation: on the contrary, it would be extraordinary if our conceptual structures did not reflect human contingencies. With regard to cases far from our human perspective (e.g. the world of quantum mechanics or galaxies far from us), knowledge of *in se* reality depends on our ability to map the aspects of our subjective situation onto those remote circumstances; therefore where perspectivalism does not arrive, objectivist truth remains blind.<sup>50</sup> In this specific respect, subjectivity can be regarded as shedding light on unexplained phenomena and not as a theoretical flaw, whilst the absolute objectivity invoked by Woodward is an impossible abstraction.

### ■ A solution to the reductive/non-reductive theories dilemma and two kinds of anthropomorphism

I have now worked out an argumentation on which it is possible to value and compare reductive and non-reductive interventionist accounts. Reductive agency theories do a better job, at scientific explanation and in em-

ploying the concept of cause, than non-reductive accounts, for several reasons:

- (g) reductive accounts are better able than non-reductive ones to identify causes in phenomena, claiming that “to cause” means to “make happen” in the sense of free action (on the contrary, non-reductive views are founded on an unexplained idea of cause<sup>51</sup>): experiments are projected in order to identify as causal elements those elements which are “responsible” for the events under analysis;<sup>52</sup>
- (h) reductive views, connecting causation to human operating, are not blind with regard to cases far from our perspective, given that knowledge of *in se* reality of those cases depends on our conscious ability to map the aspects of “our subjective situation” onto remote circumstances;<sup>53</sup> conversely, non-reductive accounts, rejecting any form of anthropomorphism, lack even in the possibility to refer to any kind of subjective situation;
- (i) reductive theories, claiming that causes must be conceived on the model of free actions, save the “explanatory function” of theory and do not suffer from the dangerous ontological circularity of non-reductive theories (on the contrary, non-reductive accounts claim that causes should be understood as non-human interventions and interventions as a special kind of causes; but in this way they fail to explain causation “in other words” and don’t give an illuminating analysis of the *definiendum* in its elements).<sup>54</sup>

Finally, Woodward<sup>55</sup> is interested in explaining what it means for a cause X to produce an effect Y for the manipulation *I* on X, only from a “mechanistic” point of view. But, as Strevens points out,<sup>56</sup> the causal arrow (*I*)X-Y must be isolated within the context of a set of variables V and in order to determine whether a manipulation *I* is a genuine inter-

vention on  $X$  for  $Y$ , it is necessary to previously know about the causal pathways that connect the members of  $V$ . That is circular, because in order to understand the causal pathways in  $V$  it is necessary to know the causal network which interrelates the elements of  $V$ .<sup>57</sup> Woodward's "surgical" interventions are simple events: they can be casual and their individuation within phenomena can be arbitrary.

The important point is that  $I$ , as a "switch", is relevant for  $X$  to cause  $Y$  excluding other causal paths.<sup>58</sup> In this form, the interventionist account becomes a simple theory of "indirect causation", and the intervention is only one cause among the others. Von Wright, on the other hand, emphasized the fact that the causal explanation is grounded on the experimental practice and the free acting of the experimenter. That is the ground upon which it is possible to claim that reductive accounts should not be worried by the objections proposed by Woodward, Baumgartner and Hausman: human beings are not simply members of the causal chain, they are the indispensable factor in establishing causal ties.<sup>59</sup> Based on these remarks, it seems to me that it is possible to solve the dilemma between reductive and non-reductive theories: reductive accounts are more concretely useful interventionist theories of causation and more explicative than non-reductive ones. In any case, the reduction must be considered analogical and not metaphysical.

Von Wright's definition «to say that  $p$  causes  $q$ » is identical to saying that «by doing  $p$  we could bring about  $q$ , and if  $p$  is not done  $q$  does not happen» does not tell us what causation is but rather how we conceive of causation, from a human standpoint. The free action is the foundation of causal thinking but, once we understand this truth from an anthropological standpoint, it is still possible, satisfying Woodward's *desideratum*, to eventually regard the cause as the fundamental concept to analyse all events (and human actions could also be considered causal events among others).<sup>60</sup>

From my point of view, anthropomorphism can be regarded as a constitutive aspect of scientific knowledge and of causal reasoning, but, as Woodward rightly points out, it could be harmful for the objectivity of scientific theories. A better way of putting matters is to distinguish good from harmful anthropomorphism, as was convincingly shown by Buzzoni.<sup>61</sup> In a scientific theory, it is clearly necessary to eliminate those naïve features which are due to the specific and one-sided assessments of human subjects but it is nonsense to claim that *our* points of view can be absolutely not anthropomorphic. As I previously recalled, perspectivalism is a transcendental condition of knowledge and the concept of cause can be regarded as a "located" concept originating from human free will.<sup>62</sup> With respect to causation, free acting is not to be regarded as a naïve anthropomorphic feature, but as a form of good anthropomorphism that reductive theories need not fear.

## Conclusions

In this paper, I have discussed the links between an interventionist theory of causation, free action and anthropomorphism. I recalled two important objections to reductive interventionist theories and used a new point of view to reply to these objections. During the discussion, I put forward several arguments in defence of the theoretical advantage of interventionist reductive theories of causation. These considerations are strictly bound to and consistent with a general view which puts the problem of anthropomorphism, in agency theories of causation, under a new light.

As far as I can see, the dilemma between reductive and non-reductive interventionist accounts can be overcome in favour of reductive accounts (more convincing than non-reductive accounts), which anthropologically explain causes on the basis of human interventions; the price that reductive theories have to pay, i.e. a certain kind of anthropo-

morphism, is not an insurmountable problem, because a “good” or constitutive anthropomorphism can be theoretically distinguished from a “bad” one.

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## Notes

<sup>1</sup> Cf. H. DINGLER, *Die Methode der Physik*, Reinhardt, München 1938.

<sup>2</sup> Cf. R.G. COLLINGWOOD, *An Essay on Metaphysics*, Clarendon Press, Oxford 1940.

<sup>3</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*. Cornell University Press, Ithaca, New York 1971; G.H. VON WRIGHT, *Causality and Determinism*. Columbia University Press, New York/London 1974; G.H. VON WRIGHT, *On the Logic and Epistemology of the Causal Relation* (1973), in: E. SOSA, M. TOOLEY (eds.), *Causation*, Oxford University Press, Oxford 1993, pp. 105-124; G.H. VON WRIGHT, *Freedom and Determination*, in: «Acta Philosophica Fennica», vol. XXXI, n. 1, 1980, pp. 5-88.

<sup>4</sup> Cf. R.G. COLLINGWOOD, *An Essay on Metaphysics*, cit.

<sup>5</sup> Cf. D. GASKING, *Causation and Recipes*, in: «Mind», vol. LXIV, n. 256, 1955, pp. 479-487.

<sup>6</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*, cit.

<sup>7</sup> Cf. P. MENZIES, H. PRICE, *Causality as Secondary Quality*, in: «British Journal for the Philosophy of Science», vol. XLIV, n. 2, 1993, pp. 187-203.

<sup>8</sup> Cf., e.g., P. SPIRITES, C. GLYMOUR, R. SCHEINES, *Causation, Prediction, and Search*, MIT Press, Cambridge (MA) 2000, section 3.7.2 and 7.5; J. PEARL, *Causality. Models, Reasoning and Inference*, Cambridge University Press, Cambridge 2000.

<sup>9</sup> Cf., e.g., D.M. HAUSMAN, J. WOODWARD, *Independence, Invariance and the Causal Markov Condition*, in: «British Journal for the Philosophy of Science», vol. L, n. 4, 1999, pp. 521-583; D.M.

HAUSMAN, *Causal Asymmetries*, Cambridge University Press, Cambridge 1998, sections 5.3 and 7.1; J. WOODWARD, *Making Things Happen. A Theory of Causal Explanation*, Oxford University Press, Oxford 2003.

<sup>10</sup> M. BAUMGARTNER, *Interdefining Causation and Intervention*, in: «Dialectica», vol. LXIII, n. 2, 2009, pp. 175-194, here pp. 175-176.

<sup>11</sup> Such as von Wright’s view, recently renewed and extended by Marco Buzzoni, see M. BUZZONI, *The Agency Theory of Causality, Anthropomorphism, and Simultaneity*, in: «International Studies in the Philosophy of Science», vol. XXVIII, n. 4, 2014, pp. 375-395.

<sup>12</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*, cit., p. 70; G.H. VON WRIGHT, *On the Logic and Epistemology of the Causal Relation*, cit., p. 118.

<sup>13</sup> See D. HUME, *A Treatise of Human Nature: Being an Attempt to Introduce the Experimental Method of Reasoning into Moral Subjects*, John Noon, London 1739.

<sup>14</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*, cit., p. 70. In this point of the analysis, I shall briefly consider counterfactuals, which have been abundantly studied with regard to the concept of cause (cf., e.g., J. WOODWARD, *Making Things Happen*, cit.; J. WOODWARD, *Causation and Manipulability*, in: E.N. ZALTA (ed.), *The Stanford Encyclopedia of Philosophy*, Winter Edition, URL: <https://plato.stanford.edu/archives/win2016/entries/causation-mani/>, just because of the reference to counterfactual reasoning made by von Wright in his general definition of causal explanation, cf. *supra*, p. 283. I shall not deepen the discussion on counterfactuals because that would be within the scope of a different research project.

<sup>15</sup> G.H. VON WRIGHT, *Explanation and Understanding*, cit., pp. 71-74.

<sup>16</sup> G.H. VON WRIGHT, *Causality and Determinism*, cit., p. 39.

<sup>17</sup> Menzies and Price answer in agreement with von Wright against Hume’s scepticism; cf. P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit., pp. 194-195.

<sup>18</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*, cit., p. 73.

<sup>19</sup> Cf. G. LICATA, *The Counterfactual Reasoning and the Manipulative Account of Causality: the Origin of Causal Thinking from Free Will*, in: «Giornale di Metafisica», vol. XL, n. 1, 2018, pp. 236-245.

<sup>20</sup> Cf. G. KEILL, *Making Something Happen. Where*

*Causation and Agency Meet*, in: S.G. CARSON, K.K. MIKALSEN (eds.), *Nature and Rational Agency*, Peter Lang, Frankfurt a.M. 2009, pp. 9-28, here pp. 15-16; P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit., p. 188.

<sup>21</sup> Cf. G.H. VON WRIGHT, *Explanation and Understanding*, cit., p. 72 and pp. 81-84; G.H. VON WRIGHT, *Freedom and Determination*, cit., p. 78; M. BUZZONI, *The Agency Theory of Causality, Anthropomorphism, and Simultaneity*, cit., pp. 376-377.

<sup>22</sup> cf. V. KEYSER, *Experimental Effects and Causal Representation*, in: «Synthese», 2017, pp. 1-32, first online 04 December 2017 – doi: 10.1007/s11229.017.1633.3, especially pp. 17-21.

<sup>23</sup> Cf. G. KEILL, *Making Something Happen*, cit., pp. 24-25: «The counterfactual account yields truth conditions for causal statements, but it cannot by itself explain [...] why we are capable of counterfactual reasoning. This is where free agency comes into play. Causation is not directly linked with agency, but in a more roundabout way. And it is not linked conceptually with agency as such, but with libertarian freedom, with our ability to do otherwise in given circumstances. [...] If it is supposed to be literally true that we are able to act thus or otherwise in given circumstances, then the world must contain open possibilities. [...] our experience of choosing our actions is the *ratio cognoscendi* for the real possibility of alternative courses that the world can take».

<sup>24</sup> Cf. J. WOODWARD, *Making Things Happen*, cit., III, § 3.

<sup>25</sup> See Menzies and Price (cf. P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit.) and Woodward (cf. J. WOODWARD, *Making Things Happen*, cit.) for these criticisms; also see Price (cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, in: H. BEEBEE, C. HITCHCOCK, H. PRICE (eds.), *Making a Difference*, Oxford University Press, Oxford 2014, pp. 73-98) and Buzzoni (cf. M. BUZZONI, *The Agency Theory of Causality, Anthropomorphism, and Simultaneity*, cit.) for a reply to these criticisms.

<sup>26</sup> Cf. G.H. VON WRIGHT, *Causality and Determinism*, cit., p. 49.

<sup>27</sup> Some scholars regard the problem of circularity in non-reductive accounts as a very serious flaw (cf. M. STREVENSON, *Review of Woodward "Making Things Happen"*, in: «Philosophy and Phenomenological Research», vol. LXXIV, n. 1, 2007, pp. 233-249, here p. 245).

<sup>28</sup> Cf. J. WOODWARD, *Making Things Happen*, cit.

<sup>29</sup> Cf. P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit.

<sup>30</sup> Cf. J.L. MACKIE, *Review of G. H. von Wright "Causality and Determinism"*, in: «The Journal of Philosophy», vol. LXXIII, n. 8, 1976, pp. 213-218; D.M. HAUSMAN, *Causation and Experimentation*, in: «American Philosophical Quarterly», vol. XXIII, n. 2, 1986, pp. 143-154.

<sup>31</sup> P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit., p. 188, see also pp. 194-195; D.M. HAUSMAN, *Causation and Experimentation*, cit.

<sup>32</sup> Cf. J. WOODWARD, *Making Things Happen*, cit., p. 123.

<sup>33</sup> P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit., pp. 199-200.

<sup>34</sup> Cf. P. MENZIES, H. PRICE, *Causality as Secondary Quality*, cit.

<sup>35</sup> Woodward acknowledges that the “usual” interventionist theories of causation are reductive ones. From my standpoint, only the reductive theories are authentic “interventionist” accounts of causation (cf. J. WOODWARD, *Causation and Manipulability*, cit., in particular the *Introduction*).

<sup>36</sup> Cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 76.

<sup>37</sup> Cf. J. WOODWARD, *Making Things Happen*, cit., pp. 103-104.

<sup>38</sup> Cf. *ivi*, pp. 118-120.

<sup>39</sup> Cf. *ivi*, p. 118.

<sup>40</sup> *Ivi*, p. 119.

<sup>41</sup> Cf. *ivi*, p. 120.

<sup>42</sup> Cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 83.

<sup>43</sup> J. WOODWARD, *Making Things Happen*, cit., p. 120.

<sup>44</sup> *Ibidem*.

<sup>45</sup> *Ivi*, pp. 120-121.

<sup>46</sup> *Ivi*, p. 121.

<sup>47</sup> Cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 83.

<sup>48</sup> *Ivi*, p. 90.

<sup>49</sup> Cf. J. PERRY, *The Problem of the Essential Indexical*, in: «Noûs», vol. XIII, n. 1, 1979, pp. 3-21.

<sup>50</sup> H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 95.

<sup>51</sup> Woodward also acknowledges the theoretical advantage of reducing causal statements to claims that are non-causal, although he renounces this advantage; cf. J. WOODWARD, *Causation and Manipulability*, cit., especially the *Introduction* and the section *Is Circularity a Problem?*.

<sup>52</sup> This connects reductive theories to the Aristo-

telian concept of cause; on this point cf. G. LICATA, *L'analogia φύσις-τέχνη in Aristotele (Fisica B, 3-9) e la teoria interventistica della causalità*, in: «Epistemologia», vol. XXXVIII, n. 2, 2015, pp. 175-194; G. LICATA, *Definizione e significati della φύσις in Aristotele a partire dal confronto con la τέχνη. Il λόγος come apertura alla τέχνη in Fisica B 1-2*, in: R. CALDARONE (a cura di), *Natura della tecnica e tecnica della natura*, Morcelliana, Brescia 2016, pp. 11-29.

<sup>53</sup> H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 95.

<sup>54</sup> Woodward, in his last work, does not deny that his own approach and that of Pearl have a problem with circularity, but he claims that this ontological circularity is harmless (cf. J. WOODWARD, *Causation and Manipulability*, cit., sections 5 and 6; J. PEARL, *Causality*, cit.). Following Strevens, I disagree with Woodward because circularity does harm the explanatory power of non-reductive interventionist accounts (cf. M. STREVEN, *Review of Woodward "Making Things Happen"*, cit., pp. 244-246).

<sup>55</sup> Cf. J. WOODWARD, *Making Things Happen*, cit.,

pp. 126-127.

<sup>56</sup> M. STREVEN, *Review of Woodward "Making Things Happen"*, cit., p. 245.

<sup>57</sup> With regard to this criticism I consider the response given by Woodward to Strevens to be unsatisfactory, but I do not have the opportunity to specifically analyse the whole dialogue between these writers here. Cf. J. WOODWARD, *Response to Strevens*, in: «Philosophy and Phenomenological Research», vol. LXXVII, n. 1, 2008, pp. 193-212, especially pp. 203-204.

<sup>58</sup> Cf. J. WOODWARD, *Causation and Manipulability*, cit., § 4.

<sup>59</sup> Cf. M. BUZZONI, *The Agency Theory of Causality, Anthropomorphism, and Simultaneity*, cit..

<sup>60</sup> In his answer to Woodward's disproof, Price highlights the importance of this Woodward's desideratum. Cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit., p. 91.

<sup>61</sup> Cf. M. BUZZONI, *The Agency Theory of Causality, Anthropomorphism, and Simultaneity*, cit., pp. 378-386.

<sup>62</sup> Cf. H. PRICE, *Causation, Intervention and Agency: Woodward on Menzies and Price*, cit.