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WHICH CAUSALITY? WHOSE EXPLANATION?[1]

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1. *Introduction*

Not all questions for explanation are answered by referring to a cause. Yet many answers to questions like: Why is something the case? Why does this occur? do mention a cause or are phrased as a causal explanation. Salmon seems to suggest that even functional explanations might sometimes be reformulated as a causal one[2]. As an illustration of a functional explanation he mentions the fact that jackrabbits in the southwestern part of the United States have extremely large ears because they constitute an effective mechanism for the temperature regulation these rabbits need in the hot, arid regions they inhabit.[3] Following Salmon's causal account of a functional explanation one could phrase the answer to the question: What is the cause of the long ears of the jackrabbits? as: The hot and arid nature of the habitat where they live.[4] Understood in this way, it is the heat of the area that is the cause of the extremely long ears of the jackrabbits. Yet there are some problems with this kind of a cause. The causal connection between the heat and the long ears is of a different nature than the one between the heat and the rise of the body temperature. The functional explanation even rephrased as a causal one can hardly be understood just in terms of a physical cause and effect. The causal effect of heat in relation to the development of long ears depends on the goal or function they serve for the survival of the jackrabbit under the specific conditions of its habitat.

Aristotle would not have had much of a problem with this kind of cause. He distinguished between four different kinds of causes or answers to why-questions: *causa efficiens*, *causa finalis*, *causa formalis* and *causa materialis*. In the case of the rabbit with the long ears all four causes would probably somehow be applicable. The rabbit as rabbit exists because of the combination of a formal cause — its essence as this specific kind of rabbit — and a material one — its individual existence. The effective cause in relation to the long ears is the

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[2] Cf. Wesley C. Salmon, *Causality and Explanation*. Oxford 1998: Oxford University Press, 75.

[3] *O.c.* 60f.

[4] Following Larry Wright, *Teleological explanations. An etiological analysis of goals and functions*. London 1976: University of California Press, Salmon descibes a functional explanation as 'a *causal* account in which the cause of a feature's presence is the fact that in the past, when it has been present, it has had a certain result or consequence. … the fact that it had such consequences is causally responsible for its coming into being in the present instance.' Salmon, *o.c.* 75.

sun that produces the heat. And the final cause is the survival of the rabbit as a living animal in these specific conditions.

Roughly one can say that since the rise of a new approach in the natural sciences with the beginning of modern times three of the four causes of Aristotle have become more and more discredited. Formal and material cause seem to be simply ignored because they are part of a metaphysics that is no longer adhered to.[5] Final causes are rejected because they seem to imply an intelligent designer, a presupposition which was supposed to be in conflict with the method of scientific explanation. Thus only effective causes as applied in science were left. For this reason even functional explanations were suspect because they seem to depart from what was accepted as scientific methodology. A reformulation in terms of cause and effect would not be of a help because the cause-effect relationship would still not be a regular one as the long ears of the jackrabbits illustrate. Actually, as Salmon admits, a causal account as suggested in this case presupposes the mechanisms of evolution: inheritance and natural selection.[6]

In this paper I want to introduce the view of Herman Dooyeweerd (1894-1977) and its different understanding of causality and scientific explanation. To summarise his view from the outset I mention three points: 1) Different sciences like physics, biology, psychology, logic, history, economics, jurisprudence need different concepts of causality because of the specific kind of explanation they apply in their different fields. 2) Causal relations as part of concrete reality cannot be grasped fully by means of scientific concepts and analysis. 3) The view that limits causal explanation to physical causes presupposes a reduced view of reality that is basically of a prescientific or religious nature (cf. naturalism or scientism over against theism). First I will give a short introduction to the main theories of Dooyeweerd's philosophy. Next I will show how these theories affect the understanding of causality in relation to the three points mentioned.

2. *Summary of Dooyeweerd's philosophy*

2.1 Theory of modal aspects

Dooyeweerd's original field of study was jurisprudence or law. Because of his philosophical leanings he was interested in the foundations of law and therefore studied the question: what is law? In the philosophical literature of the time he found basically three answers: 1) Law should be understood as a social historical phenomenon: it has arisen as a solution to problems in power relationships. 2) Law should be understood as a moral phenomenon: its nature is basically normative and therefore it is based on moral norms. 3) Law should be understood as a concept that as other concepts is ultimately of a logical nature. Neither of these solutions satisfied Dooyeweerd. The first approach

[5] Although one might wonder if the idea of law of nature is somehow related to the formal cause of Aristotle.

[6] *O.c.* p. 75.

does not account for the normative nature of law. The second is not able to distinguish in a satisfying way between legal and moral norms. The third tends to reduce all reality to *a priori* rational constructs. The solution of Dooyeweerd is the assertion that the experience of just and unjust in human life is an irreducible aspect of his experience besides the social, moral and logical aspects.

This picture is, of course, a gross oversimplification, but it helps to understand the background of the first element of Dooyeweerd's philosophy that I want to mention: the theory of modal aspects. It was developed by Dooyeweerd, together with D. H. Th. Vollenhoven, as an elaboration of his study of the idea of law. It tries to account for both a basic diversity in reality and the coherence that can be found within this diversity.

Dooyeweerd distinguishes 15 mutually irreducible aspects of our temporal reality: numerical, spatial, movement, physical and chemical, organic life, psychical feeling, logical analysis, historical, linguistic, social, economic, aesthetic, juridical, moral and the aspect of faith. In spite of the way they are sometimes characterised they do not refer to the concrete 'what' of phenomena but indicate "the different modes of the universal 'how' which determine the aspects of our theoretical view of reality".[7] By this Dooyeweerd means that these 15 modes of being in principle can be found in all things or events we encounter in our world. To maintain this view the distinction is made between subject functions and object functions: a tree, *e.g.*, has subject functions in the numerical, spatial, kinetic, physical and biotic aspects and object functions in the others. It is directly subject to the laws that are typical for the first five aspects and only indirectly to the laws of the other ones, *e.g.*, the laws of economics. One could also say: the tree has active properties in some aspects and only passive ones in the other. To have these 'passive' properties actualized the tree needs the relationship to 'active' properties of other entities in these aspects. A tree is an economic object in relationship to a human person as an economic subject.

This irreducible diversity implies a basic framework for a theoretical approach of reality that is much more nuanced than a scheme that is phrased in terms of material and mental, objective and subjective, or rational and non-rational. Roughly the scheme corresponds with the basic diversity of scientific fields, but the system is open. There might be more or less modal aspects than in the present form of the theory is accounted for. The main criterion is: are there kinds of laws and properties that form a basic unity and cannot be reduced to more basic laws or properties, like Dooyeweerd concluded in relation to the juridical as compared with the logical, the social and the moral.

The theory does not only account for diversity, though. From the beginning Dooyeweerd also has emphasized the "indissoluble interrelationship": "no single aspect stands by itself: every-one refers within and beyond itself to all the others".[8] The coherence between these aspects can be found in the first place

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[7] H. Dooyeweerd, *A New Critique of Theoretical Thought.* Vol. I. Amsterdam/Philadelphia 1953 (NCI): Paris/ Presbyterian and Reformed Publishing Company, 3.

[8] *l.c.*

in the order between them. Although there might be asked questions in some cases, basically it is argued that in the order as given above the earlier ones are presupposed by the later ones: the spatial aspect presupposes the numerical (*e.g.* the number of dimensions), the aspect of organic life presupposes the physical, the kinetic, the spatial and the numerical, *etc.* More complicated is what Dooyeweerd means by 'every-one refers within … itself to all the others'. The idea is that within the structure of each aspect there are elements that refer to other aspects but still have the character of this specific aspect. Magnitude or size is certainly related to the numerical aspect but as such it is a spatial concept. It is an element within the spatial aspect that refers back to the numerical. A very different illustration is accountability in the legal aspect which refers within this aspect according to Dooyeweerd to the moral aspect.[9] This part of the theory of modal aspects is related to the issue of analogical concepts. Dooyeweerd distinguishes in this context between retrocipations which refer back to earlier aspects and anticipations which refer to later aspects. We will come back to this in relation to the concept of causality.

2.2 The theory of entities

Connected with the theory of modal aspects is Dooyeweerd's theory of entities. According to this theory everything (things, living beings, events, processes) can be characterized as to its specific nature by one aspect. For a plant this is the biotic aspect, for an animal the psychic aspect of feeling, for a painting the esthetic aspect.[10] Sometimes Dooyeweerd distinguishes between a qualifying and a foundational aspect as in the case of a family: the qualifying aspect is the ethical aspect of love, the foundational one is the biotic because of the place sexual reproduction has in founding a family. According to Dooyeweerd the human person cannot be characterised in a similar way. Although modal analysis can be applied to the human person, she transcends analysis because of her religious nature, which Dooyeweerd distinguishes as central from the modal aspect of faith.

Asking for the qualifying and foundational aspect of things has a strong heuristic value to account for the specific nature of all kinds of phenomena, especially if the possibility of qualifying object functions is taken into account.[11] But the theory intends more than this. The qualifying aspect is not only the most characteristic aspect of an entity it also determines the way in which the entity functions within the other aspects. In this way it tries to account theoretically for the unity of the entity as a functional whole. Take again the tree as an example. The way it functions within the numerical, spatial, kinetic and physical aspect is determined by its being a living organism: the number of

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[9] *cf. o.c.* 29

[10] Note that in this case an object function or passive property is the qualifying one.

[11] Applied to the analysis of the computer the view that it is completely physical will not easily be defended because the computer — as the name tells — is a humanly designed instrument for calculations and other functions and cannot be understood apart from these functions. Cf. also John R. Searle, *The rediscovery of the mind.* Cambridge 1992: The MIT Press, 211, and his distinction between intrinsic and observer relative features.

leaves and seeds; the spatial form as a whole of roots, trunk, branches; the internal movements of nutritional elements, the specific molecular structures. Something similar could be said in relation to its object functions: economic value, social function to give shade etc. The several aspects of a family should also be understood in relation to its qualifying function. Economic and legal relationships have a different place within a family than they have within a business firm or a government institution and are therefore of a different nature characterised by the qualifying aspect of the institution although they remain economic or legal.

There is another element in this theory that should be mentioned. As in the case of the theory of modal aspects the theory of entities not only tries to account for the specific nature of things but also for their interrelationships. Take again the illustration of a tree. It can be analyzed in terms of its different aspects and the qualifying one. But within the tree there are also structures that are physically qualified as *e.g.* the different atoms and molecules. As such they are of a physical nature but in their specific structure they are determined by their function within the tree as a living organism. Dooyeweerd, here, speaks of an enkaptic relationship: entitary structures of one qualification are in their specific form determined by another entitary structure with a different qualification without them loosing their own qualification. Similar relationships might be found external to the tree. Take a tree that is part of a park environment. The qualifying aspect of the park could be identified as social: it is designed to have a specific function in connection with human relationships and entertainment. The tree might even be grown in a specific way for that reason. Yet it maintains its own qualification. Here too one might speak of an enkaptic relationship. Similar analysis could be applied to all kinds of relationships within society between economic and legal institutions. The important point is that the theory of entities shows that different phenomena have their own distinct nature but at the same time are intrinsically related to other phenomena. 'Things' do not exist 'in themselves' but in relationships. The idea of 'things in themselves' only makes sense as far as the things concerned are conceptually abstracted from concrete reality.

2.3 Theory of religion

Dooyeweerd has developed his philosophical ideas very much in discussion with Neokantian philosophers and Husserl.[12] His spiritual background is in the circles of Dutch Neocalvinism, though. One of the main themes within this movement was the conviction that Christian belief should affect all areas of life. It is the theme of reformation not just of religion but of culture as a whole.[13] Abraham Kuyper had applied this to the pursuit of scientific knowledge by founding the Free University in Amsterdam in 1880. Dooyeweerd and

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[12] His idea of the connection between modal aspects and specific sciences relates to Husserl's idea of regional ontologies. Reflection on M. Heidegger, *Being and time*, might also have played an important role.

[13] *Cf. e.g.* N. Wolterstorff, *Until justice and peace embrace*. Kampen/Grand Rapids 1983: Kok/Eerdmans.

Vollenhoven realised that the ideal of a Christian approach in scholarship could never be realised without a Christian philosophy as its basis. The idea of a Christian philosophy, though, did not fit the common conviction that philosophy as a scientific endeavour should be religiously neutral. For that reason it was important for Dooyeweerd to account for the legitimacy of his Christian approach in philosophy within the wider philosophical community. In his view such a thing as a religiously neutral philosophy does not exist at all. Every philosophical conception somehow presupposes pre-philosophical startingpoints that are ultimately of a religious nature. In his 'transcendental critique of theoretical thought' Dooyeweerd tried to account for this position by philosophical argument. Three elements of this transcendental critique are important in the context of this paper.

1) Dooyeweerd emphatically states the priority of everyday experience over against theoretical or scientific thought. His views of the modal aspects and of the entities both have a theoretical nature. With them we can try to account for the order, unity and diversity we find in reality, but as theories they can never replace our concrete experience of reality, let alone reality itself. Theoretical analysis by its very nature is abstract and therefore limited in its scope. It can give insight and increase our understanding but it should never claim to reconstruct reality as it is given.

2) There is an inner connection between a scientific approach of reality and a basic or religious conviction. A scientific conception implies an understanding of the basic diversity as analyzed in the theory of modal aspects because in principle the basic concepts of a science concern not only its specific field but relate to other fields as well, at least to those that are delimited by earlier aspects. Put differently, scientific conceptions presuppose a philosophical view about diversity and coherence in reality.[14] Now, Dooyeweerd argues that every philosophical conception in this regard has to answer three questions: a) how do the different modal aspects of reality relate to one another? b) where do they find their unity or: how do they relate to the human person as the subject of theoretical analysis? c) what is the ultimate origin of our world from which to understand both ourselves and the world around us? The answers to these questions direct philosophical conceptions as a whole, at the same time they cannot be proven theoretically. They imply a religious position or an ultimate conviction. Therefore, in these questions and in the answers given to them Dooyeweerd finds the inner connection between theoretical or scientific knowledge and religious conviction.

3) In his analysis of Western thought Dooyeweerd distinguishes four basic tendencies that give direction to philosophical and scientific thought, what he calls 'religious groundmotives': a) the Greek motive of form and matter; b) the humanistic motive of nature and freedom or of the science ideal and the personality ideal; c) the biblical groundmotive of creation, fall into sin and redemption through Christ in the communion with the Holy Spirit; d) the scholastic motive of nature and grace that tries to integrate the biblical motive either with the Greek motive of form and matter or the humanistic motive of

[14] The discussion about reductionism is an illustration of this point.

nature and freedom. The Greek and the humanistic motive suffer of an inner dialectic because they absolutize something of creation. The scholastic motive suffers of a dialectic because it tries to combine what is religiously opposed and cannot be integrated in a higher synthesis because the religious conviction is the ultimate in human existence.

3. *Implications for the understanding of causality*

3.1 Different modal concepts of causality

The problem of causality has concerned Dooyeweerd from an early time. In 1928 he published the article 'The juridical problem of causality in the light of the idea of law'.[15] Around 1950 he gave an address to the Royal Dutch Society of Sciences (Koninklijke Nederlandse Academie van Wetenschappen) with the title 'The modal structure of the juridical causal connection'.[16] As a student of law with a philosophical interest, Dooyeweerd was familiar with the problems the idea of causality raised for legal philosophy. The common view was that the concept of causality should be understood without any element of normativity. Causality refers to a factual state of affairs which sharply needs to be distinguished from the application of norms or values. But how then can a cause-effect relationship occur in the area of jurisprudence and law which hardly can be understood apart from normativity? Dooyeweerd responds to this problem by means of his theory of modal aspects both as to their irreducible diversity and as to their inner coherence in terms of retrocipations and anticipations.

First Dooyeweerd argues that a juridical fact like a theft cannot be understood without applying normativity. Essential to a theft is that it is an illegal act. As a 'fact' it is qualified by the juridical aspect. It cannot be understood in terms of just physics and sense-experience. That does not mean that the distinction between fact and norm is abandoned. As a fact the theft is against the norm. At the same time it cannot be understood apart from the norm. This applies not only to illegal facts but also to legal acts like selling and buying. To sell a house means that the legal claim to the house goes from one person to another. Here too is a fact that is not in itself a norm, yet it cannot be understood apart from a norm: legal transfer of a property from one owner to another.

Both legal facts can also illustrate the juridical cause-effect relationship. The act of theft affects the possibility of the legal use of the property by its owner. It causes harm to the latter person. In a similar way the act of selling causes the transfer of the legal use of the property from one person to another. In both cases the cause-effect relationship is real, at the same time it cannot be understood in a physical sense. It can only be understood if taken in a legal sense.

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[15] 'Het juridisch causaliteitsprobleem in het licht der wetsidee', *Anti-revolutionaire Staatkunde* 2. Kampen (1928): Kok, 21-122.

[16] 'De modale structuur van het juridisch oorzakelijkheidsverband', *Mededelingen der KNAW*. Nieuwe reeks, dl 13, Amsterdam 1950, 93-141.

To explain what is the case Dooyeweerd used his theory of modal aspects. The cause-effect relationship as such is typical in the physical aspect. There it is characterized by the nature of the aspect. Thus it can be understood that causality as such is taken in a physical sense even in sciences other than physics. Yet this leads to insoluble antinomies as the illustrations of legal facts have shown. In relation to legal facts causality has to be taken in a legal sense. In terms of the theory of modal aspects: within the juridical aspect causality is a retrocipation to the physical aspect. As such it shows both the irreducibility and the coherence between these aspects.[17]

The implication of this approach of causal connection in the context of jurisprudence and law is that causality has a special meaning in relation to all modal aspects.[18] Different sciences that deal with different modal aspects use a different concept of causality. This explains why in biology a functional explanation if phrased in terms of a cause-effect relationship raises problems if cause is just taken in the sense of a physical cause. The teleological element of a functional explanation is indeed out of place in physics, because it does not relate to what is typical for the physical modal aspect. At the same time it cannot be denied in the field of biology with characteristics of its own like the functional coherence of a living organism. Although the heat of the sun in the hot, arid climate of the habitat of the jackrabbit could be taken as the physical cause of its long ears it only has this effect, as biologists would say, because of the complex mechanism of evolution: chance mutation, inheritance and natural selection. Thus, the physical cause presupposes a biotic setting. As a physical cause it therefore gets a specific meaning. A biotic cause as such is present if we ask for the cause of the birth of a specific jackrabbit: it is the mating of a male and a female jackrabbit resulting in the unification of a male sperm and a female ovum. A psychological cause is at stake if one jackrabbit feels threatened by another and runs away. In this case we have intentional or purposive[19] behaviour of one animal in response to sensorily observed intentional or purposive behaviour of another. In relation to humans the list could be extended following the order of all the modal aspects.

3.2 Causality in a concrete and in a modal scientific sense

If the concept of causality is to be differentiated in relation to the diversity of scientific explanation, how can we account for the concrete experience of causal connections in our actual life? Here the structural limitation of scientific knowledge in relation to our concrete experience of reality becomes important. Indeed, actual causal connections occur between real events that

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[17] The sharp distinction between physical and juridical causality does not mean that there is no relationship. The opposite is true according to Dooyeweerd. In fact in a concrete event juridical causality presupposes causal relationships in all earlier modal aspects. See 'De modale structuur', p. 125f. *Cf.* also H. Dooyeweerd, *A New Critique of Theoretical Thought*. Vol. II. Amsterdam/Philadelphia 1955: Paris/ Presbyterian and Reformed Publishing Company, (NCII), 182, note.

[18] *Cf.* the analysis Dooyeweerd gives of historical causality in *NC II* 251 ff.

[19] Intentional and purposive are not taken here in the sense of human intention or purpose.

are not limited to one modal aspect. In fact they are not an adding up of all the aspects either. The concreteness of reality escapes scientific analysis. A concrete causal connection between actual events can be analyzed in a scientific way by distinguishing between different modal aspects of that causal connection and trying to study one or more of those modal causal connections. The unity of them, though, transcends the scientific analysis of the different aspects. Yet an idea of that unity is always presupposed.[20]

But then the question arises: if science can only study a causal connection in a modal sense, what about the effect of physical causes upon biotic or other phenomena? It is clear that physical causes can effect the functioning of life-processes, and also our ability to feel and to think. Dooyeweerd is very clear in his view that there is no causal connection between different modal aspects. This would deny their irreducibility to one another.[21] How then to account for this causal relationship?

Dooyeweerd himself referred to the coherence between the modal aspects.[22] They are not only irreducible to one another, they are also intrinsically connected by retrocipations and anticipations. Metabolic processes are as such biotically qualified but they clearly have also a physical-chemical aspect. The physical processes retain their physical qualification but in their physical aspect they have a biotic anticipation that relates it to the biotic aspect that characterizes metabolism as a biotic proces. The physical aspect is disclosed to the biotic one. In this way to some extent the unity of the concrete metabolism as to its physical-chemical and biotic aspect can be accounted for in a theoretical way.

Yet the causal connection that we observe between physical events and consequences on a biotic level is not satisfactorily accounted for in this way. Let me use the example of the sap of a plant that soothens the feeling of pain that results from a sunburn. The sap of the plant is in Dooyeweerdian terminology qualified by the biotic aspect. The pain is clearly qualified by the aspect of feeling. How then can there be a causal relationship between the two if causality cannot cross modal boundaries? To account for this we need not only Dooyeweerd's theory of modal aspects but also that of the entitary structures and his idea of the concrete unity of things.

To understand the plant as a concrete unity, the qualification by the biotic aspect is not sufficient. As a whole the plant functions in principle in all the modal aspects, in some as a subject (with active properties) in others as an object (with passive properties). The same holds for the feeling of pain. The difference lies in the qualifying aspect and in the number of aspects in which the two phenomena have active and passive properties. The sap of the plant and the feeling of pain are potentially related to one another by all the modal aspects, sometimes by subject-subjectrelationships (active properties), sometimes by subject-objectrelationships (active and passive properties) and

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[20] *Cf.* H. Dooyeweerd, *A New Critique of Theoretical Thought.* Vol. III. Amsterdam/ Philadelphia 1957: Paris/ Presbyterian and Reformed Publishing Company, (NC III), 61-67.

[21] *NC III* 61f.

[22] *NC III* 62.

sometimes by object-objectrelationships (passive properties). The concrete causal relationship that we observe between the sap of the plant and the feeling of pain because of a sunburn can now theoretically be accounted for by different modal aspects of that causal relation especially on the physical-chemical level because of the physical-chemical qualification of the substance within the plant that affects the physical-chemical substrate of the feeling of pain[23] and on the psychical level of feeling. The causal relationship on the first level is of a subject-subject kind, the causal relationship on the second level is of an object-subject kind.[24] In this theoretical analysis the concrete unity of the entities and of the causal relationship remains presupposed.

By making use of the theory of modal aspects, the theory of entitary structures and the pretheoretical notion of the concrete unity of things and processes, Dooyeweerd is able to account for causal connections between entities of a different modal qualification in such a way that the irreducibility of modal causality is maintained.[25] Of course, as a philosophical theory it does not explain the causal relationships, it only provides a theoretical framework for analysis in which both the specific nature of the entities and the different aspects of the causal relationship can be accounted for.

I would like to add here some short remarks about the implication of this approach for some issues that are discussed in relation to causality.

1. Dooyeweerd's view about the modal nature of causal explanation within the specific sciences implies that the idea of downward causation, *e.g.* of mental causes with physical effects (both in a modal sense), should be rejected because of the irreducibility of the different modal aspects. The example used to illustrate Dooyeweerd's view of causality: the effect of the sap of a plant on the feeling of pain, shows, though, that Dooyeweerd would reject the idea of upward causation for the same reason: physical causes cannot have mental effects (again in a merely modal sense). In both cases Dooyweerd would use the same approach to account for the relationship between *e.g.* the physical and the mental: it requires an approach in terms of both modal aspects and entitary wholes as explained above.

2. In the context of scientific explanation the idea of a 'total set of relevant conditions' is used to describe what explanation involves.[26] To give an explanation of an event means to assemble such a total set. The relevance of Dooyeweerd's theory can be illustrated by the difference it makes if this idea is used in relation to a physical explanation of events that are physically qualified or biotically. For the explanation of a physical event the physical conditions might be all that is necessary for its explanation. A biotically qualified event could also be analyzed in terms of physics. Because of the physically qualified structures present within the event an explanation in terms of physics can give real

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[23] Here the idea of the enkaptic structural whole as a unity of different entitary structures within a concrete entity is presupposed.

[24] Note that passive properties (objectfunctions) can have causal effects on active properties (subjectfunctions)!

[25] *Cf.* De modale structuur, 117f.

[26] *Cf. e.g.* W.C. Salmon, *o.c.* 43f.

insights. Yet in this case even on the physical level the 'total set of relevant conditions' does not just consist of physical conditions. The physical conditions are related to physical structures that are enkaptically integrated within biotically qualified structures. For that reason the physical conditions are not sufficient as a total explanation of the actual condition of the event. The biotic conditions are relevant as well. A total explanation even of the physical conditions themselves in this context requires the reference to biotic (object) functions of the physical structures to be complete.[27] At the same time the biotically qualified event as such requires a biological explanation, not just a physical one. The conception of a new jackrabbit because of the mating of a male and female has a physical-chemical aspect, there are even physically-chemically qualified processes involved, yet the event as such requires a biological explanation in terms of the process that is started by the fusion of the egg-cell and the sperm cell and its embeddedness in the right environment. A similar analysis holds for a physical explanation of a psychically or economically qualified event, for a biological explanation of a psychically or economically qualified event, for the psychological explanation of a moral or esthetic event, *etc.*

3. In this way also the problem how the presence of physical causes in relation to human behaviour can be combined with the recognition of human freedom disappears naturally. There is certainly a physical side to human behaviour. Even physical processes are involved. Yet a physical description or explanation leaves out what is typical for human behaviour. Therefore it cannot be a total description or explanation. The physical aspect and physically qualified structures are real as part of human behaviour. Yet these physical 'parts' never form the 'total set of relevant conditions'. Human behaviour as such is not qualified by the physical aspect. Other aspects and structures with a different qualification have their place as well. In Dooyeweerdian terms: the physical structure is related to entitary structures of a different qualification, in this case of the human act-structure, in which freedom and responsibility are always present. Ultimately human behaviour relates to the human person and, therefore, cannot be fully explained theoretically.

3.3 The religious background of the limitation of causality to a specific modal sense

In his address 'The modal structure of the juridical causal connection' Dooyeweerd posed the question why the intrinsic normative nature of juridical facts as explained earlier is so consistently ignored in legal philosophy and why causality in modern times is almost always taken in the sense of physical causality.[28] To answer this question he referred to two elements in the development of modern thought. 1) The new approach in the natural sciences. Physics in modern times tries to find explanations of physical phenomena not in terms of

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[27] *Cf.* M. Polanyi about the molecular structure of DNA, 'Life's irreducible structure'. In: *Science* 160 (1968), 1308-1312

[28] De modale structuur, 107f.

essences but in terms of functional coherences between phenomena by abstracting from the differences between them.[29] In a sense this is the beginning of a modal approach in scientific research. It has proven to be very fruitful. 2) The science ideal which tries to grasp reality as a whole by means of scientific method. This ideal originated from the personality ideal in which human freedom tries to control both human existence and its conditions in the world. Connected with this basic motivation, the scientific method is not understood anymore in its intrinsic limitations but taken as a total explanation of reality and life. In this way the scientific idea of physical causality is taken as causality as such. The result has been that many phenomena could no longer be understood in their specific nature and also that a conflict arose between scientific explanation and the idea of human freedom and responsibility.[30]

The absolutization of causality in a specific modal sense did not start, though, with physics in modern times. Within theology the problem has been there for a much longer time. If in science physical causality is made absolute as an explanation of reality there is no room left for human freedom and responsibility. But a similar problem did arise in theology: how can human freedom and responsibility be united with the idea of the omnipotence of God? Dooyeweerd discusses the issue in relation to the cosmological proof of the existence of God. God is seen as the ultimate cause in a continuous series of causes.[31] But this view seems to leave no room for human freedom.

The argument goes as follows. Either the idea of God as the ultimate cause is the result of a specific metaphysical position as in the Aristotelian view of potentiality and actuality where God as pure actuality is seen as the unmoved mover. But this approach does not prove anything for those who do not share the metaphysical startingpoint.[32] Or the argument relates to human experience but then the series of causes of which God is the ultimate has to be taken in a specific modal sense. It could be kinetic, biological or even psychological. In all cases, though, there will be no place left for causality in the normative aspects. As such a continuous series of causes leaves no room for a hiatus which could be filled up by another type of cause, especially not one which is of a normative nature, because the latter "implies that the acting subject itself is a final point of reference in the normative aspects of the causal relation".[33] Besides, if God is taken as the ultimate cause this means by definition that the cause is absolute.[34] So the argument leaves no room for human freedom and responsibility.

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[29] *Cf.* the law of gravity in relation to the tides, the movements of the planets, the falling of an apple.

[30] *Cf.* also *NC I*, 188-206, 223-261.

[31] *Cf. NC II*, 38ff.

[32] *NC II*, 39.

[33] *L.c.* 39.

[34] *L.c.* 41. To do fully justice to the mediaeval position Dooyeweerd should also have discussed the distinction and relationship between God as primary cause and secondary causes that are part of the creation.

The error made is that God's being the ultimate cause or origin of reality is taken in a modal sense. For the use of this idea — which Dooyeweerd as such accepts — within a theoretical argument it is necessary that it is understood in a temporal modal sense. But this is not possible and it must lead to insoluble problems. God as the ultimate Origin transcends human theoretical analysis. "For human thought it is absolutely impossible to form a defined concept of causality in the supertemporal fulness of meaning or in the sense of God's creative act".[35] Therefore, every attempt to explain in a theoretical conception the relationship between the way God acts and the way in which creational processes occur will lead to antinomies. Human action already is incapable of being fully understood in a modal functionalistic way because as a person the human being transcends the modal diversity.[36] For God as the Origin of created reality this is even more the case. In a way all modal causality refers to God as the Origin but not as the ultimate cause in a continuous series that is understood in a modal sense. The relationship between the sovereignty of God as the Creator and human responsibility and freedom therefore can not be explained or accounted for in a theoretical system limited as the latter is to the boundaries of temporal reality. Every attempt to transgress these boundaries will lead to insoluble problems. Either God's sovereignty is taken in too limited a sense, or human responsibility and freedom are given no room. There is a boundary here that theoretical analysis cannot transgress because of its inner nature. The attempt to do so is by itself of a religious nature: it is absolutizing a part of the creation by making theoretical reason itself into something absolute.

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[35] *L.c.* 41.

[36] *Cf.* Th. Nagel, *The view from nowhere*. Oxford, 1986: Oxford University Press, 110ff. about the mystery of freedom.