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# An exploration of H.G. Stoker's (1899-1993) contributions to methodology

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## **Abstract**

*Stoker's early exposure to a milieu characterised by a preoccupation with methodology should serve as a backdrop for an appreciation of his theoretical work on methods. It is argued that his work resulted in a methodological perspective that underscores the limited role of method as merely a means to an end. It is a perspective that acknowledges the multiplicity and complementarity of methods, undermines the myth that the method of inductive verification is the scientific method, and rejects methodological monism and scientism. However, the influence of natural scientific and metaphysical rationalism on Stoker manifests itself in his definition of science and of scientific method. Although his intention to disclose the normative dimension of method is welcomed, it is questioned whether the introduction of a family of deontological sciences, including a deontology of methods, would really promote this cause. Finally, a modal analysis of methods as historically qualified artefacts is proposed as an alternative to Stoker's analysis, which is more inclined towards objectivism. In this way, it is hoped that modal norms for methods can be more accurately identified, and that sufficient emphasis can be placed on norms holding also for the design of methods.*

## Opsomming

*Stoker se vroeë blootstelling aan 'n milieu wat deur metodologie in beslag geneem is, moet as agtergrond dien vir 'n waardering van sy teoretiese werk oor metodes. Dit word aangevoer dat sy werk op 'n metodologiese perspektief uitgeloop het wat die beperkte rol van metode as bloot 'n middel tot 'n doel beklemtoon. Dit is 'n perspektief wat die veelheid en komplementariteit van metodes erken, die mite dat die metode van induktiewe verifikasie die wetenskaplike metode is, ondermyn, en metodologiese monisme en sciëntisme verwerp. Die invloed van natuurwetenskaplike en metafisiese rasionalisme op Stoker manifesteer egter in sy definisie van wetenskap en wetenskaplike metode. Alhoewel die ontvouing van die normatiewe dimensie van metodes verwelkom word, word dit bevraagteken of die byvoeging van 'n familie van deontologiese wetenskappe, insluitende 'n deontologie van metodes, werklik ter bevordering van hierdie doel sal wees. Laastens word 'n modale analise van metodes as histories gekwalifiseerde artefakte voorgestel as 'n alternatief op Stoker se analise wat meer na objektivisme geneig is. Die hoop is dat op hierdie manier modale norme vir metodes meer akkuraat geïdentifiseer kan word, en dat voldoende klem geplaas kan word op norme wat geld ook vir die ontwerp van metodes.*

## Keywords

**H.G. Stoker, methodology, scientific method, normative dimension of method, Christian scholarship**

## 1. Introduction

With the aim of furthering the development of Christian scholarship, reformational philosophers have criticised the idea that science should be, and indeed can be, religiously neutral. Much attention has been given to the structural conditions that make theoretical thought possible, the direction giving effect of religious ground motives, the influences of world views and the correct use of the Bible in Christian scholarship. Moreover, strategies, approaches and models for Christian scholarship have been developed, used and scrutinised. There have also been debates on the proper role of, respectively, theology and philosophy in the advancement of Christian scholarship.

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These and other themes have been examined to some extent within the context of the ideal of Christian scholarship – and rightly so. Another area that deserves systematic attention in this regard is methodology. Spykman (1985:77) reminds us that:

Christian scholarship calls not only for choosing self-consciously to stand within a Scripturally-directed philosophical perspective and to rely upon Scripturally-normed presuppositions and principles, but also *to forge Scripturally-informed methods, procedures, and tools of analysis.*<sup>1</sup>

It is no coincidence that these words were written in a booklet following Spykman's academic interchanges during his five-week visit in 1983 to the Potchefstroom University of Christian Higher Education in South Africa. The name of the Calvinist philosopher Hendrik Gerhardus Stoker (1899–1993) is intimately connected to this institution. Stoker had the task of founding the department of philosophy there, where he taught and worked from 1925 until 1969 (Raath, 1994:349, 354). More specifically, he left us with contributions within the field of methodology meriting further reflection (Van der Merwe, 1993:96).

This brings us to the aim of this article, which is to explore and evaluate the contributions Stoker made in methodology. What is it that we can learn from him and where should we perhaps consider taking a different route? It will be argued that Stoker drew on some key features that are appropriate for a reformational methodology. At the same time, some remaining influences of a rationalist tradition need to be discerned, and a few systematic distinctions and concepts reconsidered. The discussion will start with a historical background and then proceed to a survey and evaluation of his methodological contributions.

## 2. A milieu of methodological preoccupation

The intellectual environment in the 19<sup>th</sup> and early 20<sup>th</sup> centuries was one in which methodology was central to the academic agenda. Van Belle's (2014:147) description of a 'nearly universal intense preoccupation with methodology' is quite suited for this period. Some wanted to obtain for their discipline the same success and respectability as the natural sciences had achieved, by following their example. Hence, empirical observation, rigorous experimentation and the verification of hypotheses became the

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1 Emphasis added; the same for all other italicised words or phrases given as quotes, unless otherwise stated.

methodological design of choice (cf. Strauss, 1994:102). This is the tradition of natural scientific rationalism, of which positivism is a part.

In contrast, others emphasised the distinctness of the *Geisteswissenschaften* with reference to the method(s) believed to make this group of disciplines unique. Examples are Droysen's contrast of *Verstehen* ('understanding') with *Erklärung* ('explanation') and Windelband's distinction between the idiographic and nomothetic approaches. Van Belle (2014:147) calls this second tradition, in which methodological issues also occupied centre stage, 'metaphysical rationalism'. From it, anti-positivism emerged as a methodological alternative to positivism.

The preoccupation with methodology was universal in the sense that the central claims of the two major traditions were debated in terms of methodology. These are claims regarding the legitimate subject matter of disciplines, the data that may be admitted as evidence, how disciplines are to be delimited, and when and whether a discipline truly bears the status of being a science. Answers to these questions were often sought in methodology. In this way, the importance of method became exaggerated to such an extent that its proper place and nature became misconstrued (cf. Van Belle, 2014:148). Method became much more than just a means to an end.

### **3. Stoker's early methodological exposure**

When Stoker undertook his doctoral studies in Germany during the early 1920s, interest in methodology was still prominent. In addition to the phenomenological methods of Husserl and Scheler at that stage, there was, for instance, also an interest in the transcendental method of the neo-Kantians. Of special note, however, is the emergence of the experimentally based psychology of consciousness, with one influential school centred in Würzburg and another in Berlin. Stoker is known as a philosopher who worked with the phenomenological method. Perhaps it is not as well known that he had intended to further his studies in experimental psychology as well. Soon after completing his doctoral thesis with Scheler, he planned two additional semesters for such studies at various universities in Europe, mostly in Germany (Beijk & Van der Merwe, 1994:508-511).

The German psychologists<sup>2</sup> Stoker had an interest in (Beijk & Van der Merwe, 1994:510) are associated with the schools in Würzburg and Berlin mentioned above. For these early psychologists, the content of human consciousness was the subject matter of psychology; hence the name 'psychology of consciousness'. Their preferred method was that of introspection. They understood introspection as the inner observation of consciousness that is to be executed under experimental conditions.

Furthermore, according to them, psychology should deal with what is positively given, observable, replicable and controllable.<sup>3</sup> For some, these data would consist of the most basic constitutive elements of consciousness, such as discrete sensations of colour or of sound. For those who were more influenced by holism than by the atomism of the British empiricists, the positively given datum within consciousness comes in the form of a unified whole, such as a form quality or gestalt (Van Belle, 2014:155-171).<sup>4</sup>

Stoker seemed to have accepted from psychology of consciousness the view that laboratory-based experimentation is a valuable scientific method. He considered, for example, establishing a laboratory for an introductory course in experimental psychology at the Potchefstroom University College. To this end, he asked F.J.J. Buytendijk for advice about the equipment required (Beijk & Van der Merwe, 1994:522). Yet Stoker was also aware of the fact that experimentation has its limits, and expressed interest in exactly this issue<sup>5</sup> (Beijk & Van der Merwe, 1994:518).

In addition to the importance of methodology and the (limited) value of the experimental method, another facet of the psychology of consciousness left its mark on Stoker, namely its focus on consciousness. It is worth mentioning a manuscript Stoker (1933) wrote about a decade after his doctoral studies. In this manuscript, he dealt with how consciousness, as well as its structure,

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2 Stoker referred to Wolfgang Köhler, Max Wertheimer, Kurt Koffka and Karl Bühler, all gestalt psychologists, as well as Erich Jaensch and William Stern, both students of Hermann Ebbinghaus. It was Ebbinghaus who showed that cognitive functions, and not only perception and sensations, could be researched experimentally (Van Belle, 2014:158).

3 By implication, whatever was not pliable to their chosen research methodology was excluded in advance from the domain of psychology as a science.

4 The core meaning of the quantitative aspect (viz. discrete multiplicity) is overemphasised in psychic atomism, while psychic holism overextends the part-whole relation found in the aspect of space (see Strauss, 2009:497).

5 Stoker showed interested in Eduard Spranger, a student of Wilhelm Dilthey, and Werner Sombart, a member of the historical school of economics. This suggests that Stoker also had an awareness of the metaphysical rationalist tradition and its critique of scientific rationalism.

functions and contents, ought to be conceived so as to avoid the pitfalls of 'snail house theories'. He wanted to prevent human consciousness from being closed off from reality in a metaphorical 'snail house'. The issue of how things in themselves relate to how they appear in our consciousness was therefore part of the epistemological set-up Stoker started out with. The position he proposed is that things are revealed to us in such a way that the 'primary content' of consciousness is simultaneously immanent in, and transcendent to, consciousness (Stoker, 1933:8-10).

There is also an inner connection between gestalt psychology's tradition of investigating human consciousness and Stoker's phenomenology. Consider for example the title of his doctoral thesis 'Phenomena of conscience: a *psychological-philosophical* study', which was later published as 'The conscience: *forms of appearances* and theories'.<sup>6</sup> Note the description of the study as psychological-philosophical, and the characterisation of the subject of the study as being 'phenomena' and 'forms of appearances'. From this, one can detect a few commonalities between gestalt psychology and Stoker's phenomenological analysis of conscience. These commonalities include an investigation with a (partly) psychological angle of approach, phenomena that are thought to have a form quality or gestalt-like nature, and forms of appearances within consciousness as the subject matter of research.

Considering all of the above, one can say that, early in his career, Stoker was exposed to an intellectual environment in which there was an emphasis on form qualities appearing in human consciousness. The stage was thereby set for Stoker's use of the phenomenological method in his own philosophical undertakings. In addition, those days were marked by a general preoccupation with methodology, so much so that Stoker could hardly imagine the opposite danger of scientific methods being underestimated.<sup>7</sup> Furthermore, he was confronted with the competing methodological claims of two traditions: One arguing for the superiority of a methodological design that emulates the natural sciences, and the other arguing for the uniqueness of a domain surpassing nature and requiring its own method(s). With this as background, we can now better appreciate the methodological contributions that Stoker later made in his career.

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6 The original titles in German read: '*Gewissensphänomene: Eine psychologisch-philosophische Studie*' and '*Das Gewissen: Erscheinungsformen und Theorien*' respectively (Stoker, 1933; Beijl & Van der Merwe, 1994:513-514).

7 As late as the beginning of the second half of the 20th century, Stoker (1961:101) still believed that 'there is little danger for the underestimation of the meaning of scientific method as method'. Feyerabend's book *Against method* was first published in 1975.

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## 4. A survey of methodological contributions

From a survey of Stoker's work, four interrelated areas can be identified in which he made contributions towards a reformational methodology. These are i) his overview of scientific methods, ii) his discussion of several specific methods, iii) his analysis of the nature of scientific method, and iv) his deontology of scientific method (see Stoker, 1961; 1970a; 1970b). The discussion here will follow the same sequence.

### 4.1 Overview of scientific methods

Stoker (1961:52-61) provided an overview of a great variety of scientific methods in his textbook *Principles and methods in science*.<sup>8</sup> Courses dealing with methodology are often aimed at inducting students to the practice of scientific research in a specific field. Stoker's course, however, exposed students to a very large number of methods from a broad range of disciplines. Some of the methods are associated more closely with a particular discipline, while others are very general and common to many fields. This broadness in scope makes Stoker's overview rather special as it lends itself towards a deeper reflection on the theory of methods.

To bring order to his overview, Stoker classified the methods according to four different principles of division.<sup>9</sup> The significance of Stoker's classifications<sup>10</sup> is not their completeness. The classifications are also to some extent dated from today's perspective. Stoker (1961:52) was himself upfront about some of these limitations. Nevertheless, he was able to say, 'To my knowledge there exists no publication that systematically brings scientific methods together in an overview'. Herein lies the value of Stoker's classification: It provides a broad overview of scientific methods, thereby bringing attention to the fact that there is a vast range of methods being used in academia.

Thus, the divisions emphasise the plurality of methods used in scholarship as a fact. In light of this, Stoker believed that it is arbitrary to identify the empirical method of hypothesis verification as *the* scientific method. Why should this method qualify as being scientific, and not the others? Because

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8 The Afrikaans title is *Beginsels en metodes in die wetenskap*. It was the prescribed textbook from 1955 in a compulsory course for all first-degree students at the Potchefstroom University for Christian Higher Education.

9 Stoker only provided a discussion of the classification in Afrikaans. To make it more accessible, an English rendering of Stoker's four divisions is provided in table format as an appendix.

10 Stoker used the term 'divisions' ('*indelings*' in Afrikaans). He (1961:73) gave 'classification' a technical meaning and reserved its use for a certain kind of division only.

Stoker (1961:90) recognised the plurality of methods in scholarship, he regarded the elevation of one of these methods above the others as one-sided and unfair favouritism. In this way, he helped undermine the myth of *the scientific method*.

Stoker's overview of scientific methods therefore points towards a methodological perspective that positively asserts method plurality in science and, correlated to this fact, rejects methodological scientism and monism.<sup>11</sup>

#### **4.2 Discussion of specific methods**

Stoker's (1961:61-101) discussion of certain specific methods brings forth a few additional pointers relevant for the development of a reformational or non-reductionist theory of methods. Included in his discussion are the methods of observation, definition, division, classification, deduction, induction, analysis, synthesis, the inductive method of hypothesis verification and the methods of understanding and explanation. To these can be added the phenomenological or diaphanerotic method (Stoker, 1967:238-243, 307-309; 1970b:341-344), as well as the methods of 'abstracting isolation' and 'relevant selection' (Stoker, 1970b:197-201). Only what is pertinent to the present purposes will be discussed.

Stoker's (1961:61-63) discussion of the method of observation, in the first place, included a focus on the rules according to which observation is to be done. These rules need not be discussed in-depth here. What should be noted is that they are more or less meant to be specific to the method of observation. Stoker mentioned, for example, that what he called the fallacies of 'non-observation' and 'mal-observation' must be avoided by following certain rules applicable to observation. Rules, therefore, are a function of the design of a particular method and stipulate its correct use as intended with its design.<sup>12</sup>

In contrast to rules, the scope of the norms that Stoker discussed elsewhere (1970b:191-194) are clearly meant to apply to all scientific methods. Moreover, a few years later he (1970a) cautioned against confusing rules and norms in the context of methods, thereby affirming a significant difference

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11 Stoker did not use these exact terms. 'Methodological scientism' here refers to the reduction of scientific methods to specifically natural scientific method(s). Methodological monism also entails the negation of the plurality of scientific methods in some way, with the difference that it does not specify the preferred method to be natural scientific in character.

12 Rules may also specify which steps should be taken, as well as in what sequence. See the definition of method below as 'specification of steps (...) in a given order' (Caws, 1967:7:339).



between them. His recognition of this distinction enables the normative dimension of scientific method to be brought into view; a dimension which will be elaborated later.

Second, Stoker (1961:63-66) emphasised the unavoidable role of personal factors in observation. He holds, for instance, that desires, appreciation and enthusiasm should play their rightful role, that scientists' talents and predispositions should be utilised to the optimum, and that observation should be guided by prior knowledge.

Although Stoker did not develop this discussion much further, it does point towards a critique of what Strauss (2001:24) calls the misplaced ideal of objectivity. With Stoker's positive acceptance of the place of the human subject, subjectivity can be recognised as a constitutive element of science, rather than a contaminating one. Moreover, this opens up the possibility of judging concrete instances of subjective actions against normative standards; in other words, the possibility of determining whether an action is norm-conforming or not. Arbitrariness, for example, is an anti-normative form of subjectivity.

Stoker's (1961:65-66) awareness of the influence of world views and perspectives on science and of the role of presuppositions in observation can be seen as a third way in which he opposes the neutrality of scientific methods. He contends that the question of which of the almost infinite observations are to be regarded as scientifically relevant, and which ones are not, is partly determined by these factors. In other words, researchers need some framework to guide them in their selection of observations.

In the fourth place, Stoker's discussion of specific methods brings to light their interconnectedness or complementarity. He asserts (1961:90) that the method of inductive hypothesis verification utilises, within its respective steps, the methods of generalising induction, analogical induction and deduction. In this example, the complementarity of some methods lies in their composite nature, in the sense that these methods are comprised of other simpler methods or include another method as one of their steps.

Another way in which methods are complementary can be shown through an example also taken from his discussion of specific methods: the intimate relation between the method of definition and that of classification. According to Stoker (1961:73), definition can determine the principle of division required for classification, while a class definition is fully dependent on a particular

classification (Stoker, 1961:69). The kind of complementarity described here is one of mutual dependency between two methods, viz. that of classification and definition.

Just like the multiplicity of methods, their complementarity suggests a methodological position contrary to that of methodological scientism and other versions of methodological monism.

### **4.3 An analysis of the nature of method**

Let us explore a third methodological area in which Stoker contributed, namely his analysis of what methods are. According to Stoker:

a method is a responsible and intentionally planned way of human action, with which a pre-determined purpose (the terminal pole) is achieved by manipulating the "subject-matter" concerned according to its nature (the starting pole). (Stoker, 1970b:189)<sup>13</sup>

Venter (1981:502) rightly maintains that Stoker managed to correctly capture the nature of methods. Comparing the correspondence of the etymological meaning of the term 'method' with several definitions of it found in contemporary dictionaries provides strong support for this claim. Caws (1967:7:339), for instance, states that 'the term "method", strictly speaking, "following a way" (from the Greek *μέτρα*, "along" and *ὁδός*, "way") refers to the specification of steps which must be taken in a given order, to achieve a given end'. The phrases 'following a way', 'a planned way of action' and 'specification of steps in a given order' all point towards the same core element of method.

Another facet of method that Stoker legitimately emphasised is its 'middle character' (Venter, 1981:506). The Afrikaans word '*midde*' has the dual connotation of being a means to an end as well as of being situated in-between. According to Stoker, a method links two poles, namely the starting pole and the terminal pole. The terminal pole is the 'given end' (cf. Caws' description) or the pre-determined purpose (cf. Stoker's definition) that one aims at achieving. The starting pole is the subject matter, or within the context of science, the knowable. Venter (1981:504-505) has also described the starting pole as a situation that is worthy of change (the problem) or the situation in which non-actualised possibilities are still locked up.

This definition can be applied to all sorts of methods; from methods for pruning trees and rock climbing, to the methods used in scientific research. A description that is more attuned to scientific method requires only the

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13 See also Stoker (1961:51; 1970b:189).

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qualification that the starting pole of scientific method be more closely specified as the *scientifically* knowable and its terminal pole as *scientific* knowledge. Stoker's (1970b:189-190) further stipulation that a scientific method is a technique does, however, require more critical reflection. We will return to this topic later on. The discussion for now will continue to focus on Stoker's definition of method in general.

Building on the idea of the 'middle character' of methods, Stoker explored the implications of seeing method as positively determined, as well as negatively limited, from both sides simultaneously. Stoker stated the inferences thus drawn as principles and/or norms holding for the choice and use of methods. It is not clear for some of these inferences whether they really are norms or principles. In those instances, they will not be stated as such. Additional comments will also be made, some in order to expand on what Stoker said, and others in a more evaluative way.

Regarding the positive determination of method by its two poles, Stoker stated that in science a method should be suited to what is being investigated, as well as to the kind of knowledge being aimed at. It should be suited to both poles. Without losing sight of the purpose of method, Vollenhoven (2005:95-96) expressed this basic idea of the suitability of method to its subject matter more strongly by saying that:

Method should be discovered in a lawful way, i.e., *it should arise from working with the matter itself*. In fact, that matter remains recalcitrant so long as it is not examined in a manner fitted to its nature (...).

Method [should] *conform itself aboriginally and consistently* to the matter under examination.

Even more than mere method selection, the norm of suitability is thus also a matter of designing and continuously reforming methods in conformity with the nature of the subject matter at hand.

A second inference from the positive determination of method from both poles is the acceptance of a multiplicity of methods in science. Stoker's survey and classifications of methods used in scholarship have already suggested method plurality (see previous section). His analysis of the nature of method also enabled him to root method plurality in a non-reductionist ontology. If scientific methods are to conform to the knowable, and if there is a rich diversity within this knowable, then it follows that a diversity of methods should in principle also be acknowledged. The same goes for a diversity of aims in science requiring different methods suitable for attaining them (Stoker, 1970a).

One should, however, be careful not to jump from the acceptance of method plurality in principle to the declaration that various methods are in principle equal, as Stoker seems to have done. According to Stoker (Stoker, 1970a), 'mutually irreducible methods are in principle equal' and 'the principal equality of mutually irreducible methods deserves full recognition'. Although the God-given diversity within creation can serve as a basis for holding method plurality, the rich diversity of methods themselves was not created by God. As human artefacts, some methods truly are better designed and more suitable than others.<sup>14</sup>

In the third place, Stoker (1970a) inferred the complementarity of methods from the coherence of the knowable, as well as the coherence of the different purposes for which methods are intended. The complementarity of methods is therefore determined from both poles in unison. The idea of complementarity has already emerged from Stoker's discussion of specific methods. In the previous section of this article it was stated that methods can complement each other in the sense that some methods may consist of other methods, and that methods are often interdependent. Stoker's view of complementarity further implies that methods ought not to be used in an isolated fashion. The extent to which the complementarity of methods provides a theoretical basis for multi-method research could also be explored.

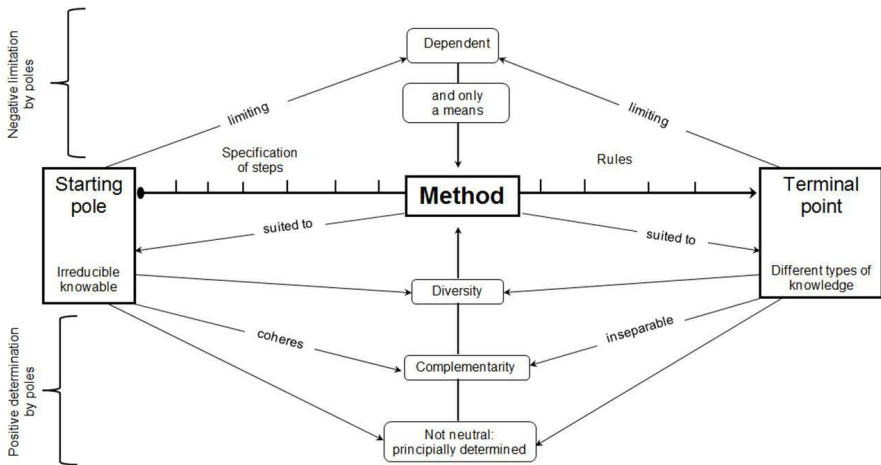
As a fourth implication, Stoker states that methods are not religiously neutral. A method cannot be isolated from its two poles, and is instead partly determined by our presuppositions regarding these two poles. Assuming that, from a reformational perspective, some of these presuppositions are religious in nature, Stoker is justified in rejecting the religious neutrality of methods. Acknowledging the normative dimension of methods (see the next section) is an additional and of course related reason for positing a religious influence on methods.

The four methodological propositions discussed above ensue from the positive determination of method by its starting and terminal poles. A fifth proposition follows from what Stoker (1970a) saw as the 'negative' limitation of method by its two poles. By this he meant that method is dependent on both poles, which implies that the significance attributed to method should never overshadow its purpose or the subject matter to which it is applied. In other words, method is nothing more than a means to an end.

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14 Nevertheless, Stoker's intention here of guarding against an undue favouring of natural scientific and quantitative methods can be appreciated.

The knowable and the purpose of knowing should be decisive, and not the method. This is in sharp contrast to the dominant methodological convictions that Stoker encountered during his early formation as a philosopher in Germany. There, it was the chosen methodology that determined the subject matter of psychology to be investigated, rather than the other way around. Undoubtedly Stoker had this and other instances of overestimating the significance of method in mind when he developed his own methodological views. Figure 1 below summarises the results of Stoker's analysis of the nature of method.



**Figure 1:** A representation of Stoker's analysis of method

#### 4.4 A few critical notes

The implication of method being merely a means to an end can be explored further. If scientific method is solely a means of obtaining scientific knowledge, then method should not occupy a central place in the definition of science or serve as a criterion for demarcating science from non-science. Similarly, method should not serve as the criterion for demarcating the tasks<sup>15</sup> and fields of the various academic disciplines. That is not its proper function.

<sup>15</sup> This point applies to Stoker's view according to which scholarly Bible exegesis is the exclusive prerogative of theology (see Van der Walt, 2016:4).

Still, in Stoker's definition of science, method occupies centre stage. He (1970b:184) held that 'science may be described to be knowledge as such, that is (as much as possible) *technically verified* and (as much as possible) *technically systematised*'. A technique<sup>16</sup> is simply a kind of method. The two characteristics mentioned in the definition, namely verification and systematisation, are thus suggested to be methodical especially in science. In other words, method is seen by Stoker as the distinguishing mark of science,<sup>17</sup> at least in so far as he believed that science can be distinguished from non-science.<sup>18</sup>

Moreover, verification techniques and systematisation reflect something typical of natural scientific rationalism and metaphysical rationalism respectively. These are the two competing traditions that, according to Van Belle, were especially preoccupied with methodological issues. As we have seen, Stoker was initially exposed to their influence. Stoker combined a prominent feature of each tradition in one definition. On this particular point, then, it seems that he did not succeed in throwing off the influence of a heritage in which the significance, place and role of method was overestimated.

In addition, identifying scientific method with technique unduly limits the range of methods that can be considered scientific. Venter (1981:508) correctly observes two conditions for a method to be regarded as a technique. The first condition is an acquired pattern of action or a skill obtained through practice. The second is that the subject matter should be of such a nature that it allows a connection between actions and consequences with relatively little variation. Such predictable regularity is much rarer in the humanities than in the natural sciences. The stress on technique in Stoker's definition, therefore, harbours a predilection for natural scientific methods.

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16 A technique can be defined as a kind of method that ensures a high probability of accomplishing an end whenever there is a skilful execution of the required sequence of actions. Compare also Stoker (1970b:190) and Venter (1981:507-508).

17 Also with the positivist principle of verification, and with Popper's (1974:37) idea of falsifiability, was method taken to serve as the demarcation criterion of science. Verification and falsification are linked respectively to the methods of induction and deduction.

18 Stoker (1961:135-138) held that a 'sharp boundary' cannot be drawn between what is pre-scientific and scientific, but that a distinction between them that is as clear as possible should nonetheless be provided. He rejected several prospective candidates on the basis that they indicate only relative differences between science and non-science. Stoker's choice of method, verification and systematisation, which are not unique to science either (Strauss, 2009:46), but at best only indicate differences in degree, therefore seems equally unsuitable.

Another undesirable consequence of Stoker's (1961:134-138) definition of science in terms of technique, verification and systemisation is the implicit sense in which scientific knowledge is potentially more certain, reliable, true and coherent than non-scientific knowledge. Granted, by elaborating what he meant with the phrase 'as much as possible' in his definition, he emphasised limitations of scientific knowledge. Stoker's intention was definitely not to contend for the superiority of scientific knowledge. He was not an adherent of scientism. But although the phrase 'as much as possible' may suggest an ideal that is not absolutely attainable, it also entails the idea that science aims higher.

#### 4.5 *Deontology of scientific method*

The fourth area in which Stoker (1970b:181-184, 191-195) made methodological contributions is his so-called deontology of scientific method. 'Deontic determinants' for Stoker refers to what humans ought to do in a broad sense, so that deontology entails more than merely moral duties. 'Deontic determinants' meant for Stoker the same as 'norms' in reformational philosophy. In other words, it refers to all the different kinds of laws with a normative character.<sup>19</sup> Accordingly, Stoker (1970b:191-194) identified several norms relevant to method, for example the norms of relevancy (or suitability), efficiency, and economy.<sup>20</sup> He also mentioned lingual, ethical and juridical norms. These norms are clearly modal norms, in the sense that they have their seat in different irreducible law spheres or modalities.

Defining methods as 'responsible ways of human action', as Stoker did, implies a call to respond to given norms holding for methods. Two questions in this regard posed by Stoker (1970b:184) are: 'What method *ought* he [i.e. the scientist] to choose and how *ought* he to apply it?'<sup>21</sup> We could add to the choice and use of method that also their design is subject to a variety of norms. A third question to be asked then is: 'How ought methods to be *designed*?'

Stoker thus opened up the possibility of recognising and exploring the full diversity of methodological norms, as well as the three different ways in which methods are subject to them (viz. the choice, use and design of methods).

19 According to Strauss (2001:23), it is the nine aspects that are listed after the sensitive-psychical aspect that display a normative character. Stoker (1961:166), however, did not accept the historical and social as distinct aspects.

20 Venter (1981:509-512) also added accuracy, completeness, clarity and contextualisation as norms valid for scientific methods.

21 Emphasis in the original.

In this way, he contributed immensely to the disclosure of the normative dimension of methods.

## 5. Systematic considerations

On a more critical note, it is necessary to reflect on Stoker's idea that there should be a family of sciences, called 'deontology', with the purpose of exploring all normative determinations. Stoker's classification of deontics also requires scrutiny, since it may be indicative of an objectivist inclination.

First, regarding Stoker's proposal of deontology as a family of sciences: From a study based on intensive interviews with Stoker, and reviewed by Stoker himself for accuracy (see Stoker Jnr, 1983:5, 21), it is clear that the family of deontological sciences was meant as a new addition to the other disciplines, with which they would be 'intertwined'. Since the special sciences of the humanities, for instance, already have the task of exploring their respective kinds of modal norms (e.g. economics explores economic norms), Stoker's proposal raises the suspicion of duplication.<sup>22</sup>

In order to prevent unnecessarily duplicating the tasks of other disciplines, a new division of tasks could, for argument's sake, be based on the distinction between the norm side and factual side of reality. The deontological sciences are, after all, described as transecting all the other sciences. If the study of all normativity is then accordingly allocated to the deontological sciences, what would that mean for the other disciplines? Would they be non-deontological sciences – in other words, disciplines not concerned with normativity? What, for example, would the purpose for logicians be in investigating factual patterns of thought if this were not also directly related to the study of logical norms (i.e. the laws of logic)? In light of the coherence of the factual and normative sides of reality, the idea of having a distinct domain of deontological sciences does not seem very promising, especially if the intention is to open up the normative dimension of disciplines.

Second, Stoker's (1970b:183) division of norms into general and contingent deontics raises some difficulties. As may be expected, 'general deontics' has

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22 Stoker's idea of transversal sciences is, in my view, a similar instance of an unnecessary duplication of scientific disciplines. He believed that transversal sciences are necessary to deal with questions that all the individual sciences have in common. Philosophy is, however, ideally suited for this purpose if it is seen as an overview science as Stoker himself did. Stoker's proposal of transversal sciences would not only require philosophy to relinquish epistemology, the theory of science and methodology, but would possibly also deprive philosophy of a domain of its own. See Van der Walt (2016:4).



reference to those norms that have some universal scope. As Stoker put it, 'they hold good (*wherever relevantly applicable*) for *all* men, at *all* times and circumstances'. This limited scope of universality should not be identified with the specified universality of type laws,<sup>23</sup> since Stoker does not appear to operate with the distinction between modal laws and type laws. By way of illustration, he mentioned 'general norms (or laws) of thought, language and art, of rights, ethics and religion; those of communities and societies; and those of labour, technique, education and so forth'. This range of examples does not unambiguously point towards either modal laws or type laws.

'Contingent deontics', however, is a misnomer, since it is not the norms themselves that are thought to be contingent. In other words, 'contingent' is not meant by Stoker as an adjective of the norms that are in view, but rather refers to factual reality in its unrepeatability, unpredictability and uniqueness. In a counter-intuitive way, contingent deontics are said to be universal, even though the scope of their validity is also limited, perhaps even more so than with general deontics. Moreover, the fact that the denotations 'general' and 'universal' are synonyms does not help the purpose of clarification.

A difficult question to consider regarding Stoker's proposal of contingent deontics is whether the uniquely individual does not perhaps transcend the limits of science, and therefore of his suggested deontology? Hart, who is sympathetic to Stoker's concern for the particularity of individuals, argued that it does. This is more or less what Hart (1994:569) meant when he stated that 'our knowing of the different must be a knowing that differs from knowing the same'.

Even if we could know the uniquely individual in a scientific way, whether there really is a separate set of norms for the uniquely individual is not clear. Stoker's (1970b:183) case for this is not compelling. The first example of a contingent deontic he gave is a proverb<sup>24</sup> from Ecclesiastes 9:10 which bids us to vigorously seize the opportunities that come from God's hand. Although doing so in obedience to God's law is implied, the instruction does not have anything special to do with contingency. The second example he gave relates to dealing with dilemmas.<sup>25</sup> Neither this example, nor the list of rhetorical questions meant to illustrate factual 'contingencies' in history (see

23 Whereas modal laws hold for all possible entities, so that there is no specification or restriction to their universal validity, type laws only hold for a limited class of entities (Strauss, 2009:79).

24 The proverb is 'Whatever your hand finds to do, do it *with all your might*'.

25 Stoker's (1970b:184) formulation is as follows: 'Whatever carries the greater weight deontically ought to be done.'

Stoker, 1970b:194), entails a set of norms specifically for contingencies.

One gets the impression that the division of norms into general and contingent is based on some confusion between norms, and the unique circumstances or historical contexts ('contingencies') that require different ways of giving positive shape to those norms. Why was there a preference in the Middle Ages for methods used with regards to qualitative and teleological problems? Why is there a preference in modernity for methods regarding quantitative and causal problems? Why did psychology branch off from philosophy at the time it did? To the extent that these questions of Stoker are related to norms holding for methods, they can be addressed with the idea of positivisation.

Third, Stoker's (1970b:191) division of general deontics of scientific method into formal, intrinsic and transcendent norms requires closer scrutiny. What Stoker (1970b:192) called 'formal norms' are related to the 'general "nature" of scientific method'. In other words, they are derived from the definition and the analysis of the nature of method. The whole structure of 'starting pole – means – terminal pole' is involved, hence Stoker's qualification of 'general' in reference to the nature of method. These 'formal norms' reflect a particular methodological perspective that is shaped by the inferences or propositions discussed in the previous section. There it was suggested that the multiplicity and complementarity of methods, as well as the fact that method is only a means or a tool, should rather not be presented as norms.<sup>26</sup>

The second set includes norms that are related to method as a means. Since Stoker (1970b:192, 1961:104) called these norms 'intrinsic' to method and referred to them as methods' own norms, the intention presumably is to relate them to the core or essence of method and not to method's whole structure of 'starting pole – means – terminal pole'. If this interpretation is correct, it would have made more sense for Stoker to have presented intrinsic norms as a subset of formal norms and not as the second main set alongside it.<sup>27</sup>

Stoker's (1970b:192) name and explanation of the third set of norms completes the picture. These norms are seen as external to the core nature of method and are therefore called 'transcendent norms'. They are external to method as a means in the sense that the outcome reached with the application of method is 'deontically loaded'. The emphasis here is thus only on the terminal pole or 'external' part. As Stoker stated: 'But the ends or purposes, *taken by themselves*, are (...) subject to norms.'

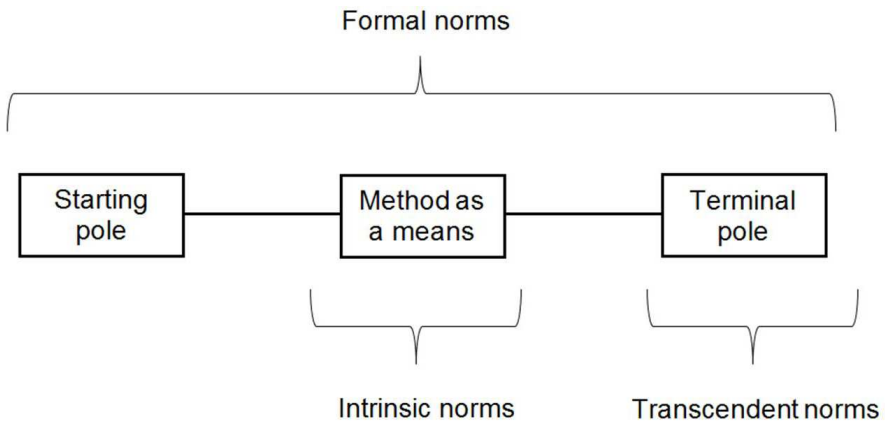
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26 Stoker (1970b:192) presented these inferences as the formal norms of diversity, of complementary correlation and of means respectively.

27 Such an interpretation is especially supported by the fact that Stoker (1970b:192) listed 'the norms of means' as a formal norm.

Being external to the core nature of method, he thought of them as holding for the end results aimed for and not for method as such. The linguistic formulations of the results of our scientific research should, for instance, be 'unambiguous, distinct, precise and economical'. Besides the fact that most of these norms mentioned by Stoker do not have their seat in the sign mode, and are therefore not linguistic norms,<sup>28</sup> they are not even presented as norms for methods. Remarkably enough, Stoker still called them 'linguistic norms of scientific method'.

See figure 2 below for a graphical representation of Stoker's division between formal, intrinsic and transcendent norms.



**Figure 2:** Stoker's formal, intrinsic and transcendent norms

The picture that emerges, albeit vaguely and inconsistently, is an objectivist approach in which the object (in this case, method) and its internal nature is the source of law.<sup>29</sup> The partial manifestation of objectivism may be due to Stoker's (1967:238-243) use of the phenomenological method of

28 Here we see a lack in clarity regarding the entitary and aspectual dimensions of reality due to a fondness for the object. The nature of an object or entity, in this case a sentence that is centrally characterised by the sign mode, incorrectly determines the nature of the other aspectual norms holding for that entity, so that analytic and economic norms are seen as being linguistic norms.

29 See Clouser (2005:247) for a discussion of objectivism and subjectivism as positions in which the source of order is located in the object and the subject respectively. The alternative, which is explored in reformational philosophy, is to acknowledge a distinct law side to reality. Entities and the relations between them are subject to these laws.

*Wesensschau*, or as he later preferred to call it, the 'diaphanerotic method'.<sup>30</sup> The purpose of the method is to pierce through the accidental and changeable to the essential or fixed. The aim is to bracket the knowing subject as far as possible and to allow the 'thing' to reveal itself. The motto is 'to the things themselves' (*zu den Sachen selbst*).

Notwithstanding Stoker's (1970b:417-418) claim<sup>31</sup> to the contrary, this method does not seem to have been successfully disentangled from the presuppositions upon which Scheler and Husserl founded it. The dilemma of either opting for objectivism or subjectivism, as well as the constancy-change and inside-outside oppositions, for instance, is still evident in Stoker's own description of the diaphanerotic method. So is the bracketing of the incidental characteristics of a thing (Stoker, 1967:238-243).

## 6. Methods as historically qualified artefacts

A modal analysis of method could be an alternative approach to an objectivist one that attempts deriving norms from the core nature of objects. Such an analysis would entail a characterisation of method as an entity that, actively or passively, functions in all aspects. The various modal norms, to which methods are subject, can be opened up and identified, as Stoker has already shown to some extent, but without artificially classifying them in inner or outer terms. Examples of modal norms can include the norms of accuracy (analytical), suitability and effectiveness (respectively spatial and physical analogies in the historical aspect), clarity (sign mode), economy (economic), impartiality (jural) and reliability (certitudinal).

As briefly mentioned before, there are norms holding for the design of methods, no less than for their selection and application. These norms exist since the process of devising methods is not simply dictated by sensory instinct. Methods are formed by conscious planning in a normative or anti-normative way. Admittedly, some human actions may be sensory guided, but such action patterns are themselves not methods.<sup>32</sup> The process of forging methods is therefore subject to historical norms valid for human formative power and not simply determined by sensory-psychical laws.

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30 From *dia*, meaning 'through', and *phanerosis* meaning 'the revealed'.

31 As far as I can tell, Stoker did not provide much support for this claim.

32 Nor, for that matter, are any actions identical to the method concretised by them. See also Stoker (1970b:188).

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Being cultural artefacts, the development of which is governed by historical norms, methods' foundational function can be identified as historical. Since methods are tools (metaphorically speaking), the purpose of which is in turn to produce other artefacts, such as theories,<sup>33</sup> method's leading function is historical as well. Such dual qualification of method as historical is also true of some tools (e.g. pliers, theodolites, screwdrivers, glue guns, etc.) that have a historical foundational and leading function (Clouser, 2005:266).

A modal analysis of methods as historically qualified artefacts also needs to examine whether there is a distinct type law for methods. Presuming for the time being that there is one, I would suggest that i) the subject matter and ii) the aim of methods are themselves not part of the universal structure of method, even though they do determine variations within the parameters of this universal structure. This may mean that different type laws need not necessarily be assumed for different sorts of methods, and especially that there is no difference in kind between scientific and non-scientific methods.

The following description aims at capturing the universally shared characteristics of methods and is tentatively proposed as possibly reflecting their type law:

A method is a means to effectuate an objective when suitably applied to a subject matter according to a plan and rules that specify the sequence of distinctive steps or actions to be taken.

Whether a plan and rules, as well as a sequence of actions, are uniquely shared features of methods, can only be determined once they are tested against diverse instances of what we normally regard as methods. Such testing in itself will, however, not yet settle the question of whether there indeed is a distinct type law for method.

## 7. Conclusion

This article attempted to show that there is much to gain from Stoker's theoretical reflections on scientific methods. Stoker's reflections point towards a methodological position that on the one hand embraces method plurality and complementarity. On the other it rejects the neutrality of methods and resists methodological scientism and monism. His analysis of the nature of method in terms of its 'middle character' further supports such a methodological position and even connects it to a non-reductionist ontology.

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33 See Stafleu (1981; 1982) for a development of the thesis that a theory is a logically qualified artefact.

His insistence that method is nothing more than a means to an end and his exploration of the normative dimension of methods is valuable.

At the same time, there is also a need for further reform. As seen in Stoker's view of science and scientific method, he did not fully cast off the heritage that misconstrued method as more than merely a means. In line with his intention, the normative dimension of methods should more explicitly be shown to include the design of methods, in addition to our choice and use of them. It is doubted, however, that the proposal of a family of deontological sciences would be conducive to the disclosure of the normative dimension of reality, and thus also of methods. Furthermore, Stoker's division of deontics into general and contingent indicates some lack of clarity regarding certain systematic considerations and possibly overlooks the concept of positivisation.

Instead of a more objectivist-inclined analysis, a modal analysis of method is suggested in order to do full justice to the normative dimension of methods, both in terms of the correct identification of modal norms, and in the sense that their design is subject to norms. It is exactly insight into the historical qualification of method that accentuates norms holding also for the process of their formation. Finally, a distinct type law for method may need to be postulated. To this end, a description of method, intended to reflect the universal structure of method, was tentatively proposed. Further research in this regard is needed, however.

## 8. Appendix

**Table 1:** First principle of division – scientific methods according to the origin, nature and purpose of science<sup>34</sup>

Level 1	Level 2	Level 3
Origin of science	Methods of problem discovery	
	Methods of problem formulation	
Nature of science	Methods of verification	Grounding methods
		Methods of proof
	Methods of systematisation	Methods according to the relation and coherence of <i>idions</i>
		Methods according to the relation and coherence of concepts, judgements and deductions
Purpose of science	Methods regarding the knowable	Methods that combine both the above-mentioned into theories
		Methods with the aim of knowledge of <i>idions</i>
	Methods regarding knowing	Methods with the aim of knowledge of laws
		Methods of comprehension
		Methods of description
		Methods of explanation
		Methods of evaluation

**Table 2:** Second principle of division – logical and language methods

Level 1	Level 2
Logical methods or methods of thought	Methods of concept formation
	Methods of definition
	Methods of logical analysis
	Methods of logical synthesis
	Methods of immediate deductions
	Methods of mediate deductions
Methods regarding the use of language	Methods of naming
	Methods of formulation

34 In *Principles and methods in science*, Stoker (1961:60) still used the word 'data' ('*gegewens*' in Afrikaans). Later on, he (1967:134; 1970b:337) used '*idion*' as an alternative to 'data', 'objects', '*Gegenstände*', 'phenomena' and 'things'.

**Table 3:** Third principle of division – methods of perceiving, processing and addition

Level 1	Level 2	Level 3
Methods of perceiving ( <i>ontwaring</i> ) the knowable	Methods of (sensorial) perceiving	
	Methods of psycho-introspection	
	Methods of psycho-extrospection	
	Methods of dynamic awareness of resistance	
	Methods of evaluation	
	Methods of intuition	
	Methods of religious faith	
Methods of processing ( <i>verwerking</i> ) the knowable	General methods of processing ( <i>verwerking</i> )	Methods of distinguishing the knowable
		Methods of comparing the knowable
		Methods of selecting the knowable
		Methods of collecting the knowable
		Analysis of the knowable
		Synthesis of the knowable
		Methods regarding visions of unity
	Methods regarding visions of perspective	
	Specific methods of processing ( <i>verwerking</i> )	Empirical methods
		A priori methods
Hermeneutical methods		
	Methods of evaluation	
Methods of addition ( <i>bywerking</i> )	Speculative methods	
	Methods of construction	Analogical constructions Postulatory constructions
	Extrapolation	
	Inter- & intrapolation	



**Table 4:** Fourth principle of division – intra- and inter-scientific methods<sup>35</sup>

Level 1	Level 2	Level 3	
Dialectical methods	Method of discourse		
	Method of unmasking pseudo proofs		
	Method of eliminating antinomies		
	Method regarding hyperdoxical thinking		
Methods of scientific critique	Presuppositional & foundational critique		
	Immanent critique		
	Transcendent critique		
	Transcendental critique		
	Negative & positive critique		
	Formal & material critique		
	Critique of method		
	Essential & incidental critique		
Methods of cooperation and reciprocation	Subject & personal critique		
	Self-critique		
	Methods of delineation		
	Methods of cooperation		
	Methods of reciprocation		
	Methods of struggle against opposing starting points		Eclectic, syncretistic & exheretical methods
			Methods of apologetics
		Methods of elenctics	

35 In *Principles and methods in science*, Stoker (1961:60) still used the word 'paradox', but he later substituted it with 'hyperdox'. According to Stoker (1971:73), a hyperdox is a truth that surpasses human understanding.

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