

Paper Title: Reviving Paradoxes: *Transclassical Systems Theory* as Meta-theory for a Science-Faith Dialogue

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Abstract:

A critical evaluation of the *status questions* of the various proposals of establishing, maintaining and continuing a science-faith dialogue (SFD) cannot fail but to notice that one, if not the major obstacle in the attempt of bringing scientific facts and insights of faith into dialogue rests upon the incompatibility of the methods utilized by the disciplines of concern. This divide cannot be overcome unless both disciplines can be addressed by a mutually acceptable theory, i.e. a meta-theory that is capable of allowing insights of both disciplines as constitutive parts of a comprehensive view of the subject matter claimed by both science and faith.

This paper claims, and hopes to convincingly argue, that on the premises of General Systems Theory (GST), TRANSCCLASSICAL SYSTEMS THEORY (TCST) developed by the Austrian physicist Alfred Locker (1922-2005) is offering this much needed theory. On the basis of moving the designer/observer/perceiver of reality like an access system into the system of concern, i.e. reality, TCST opens to a meta-level of observation in which *real* and *ideal* insights, though appearing as paradoxes in the conventional way of recognition, reveal complementary and even mutually necessary aspects of reality amounting to a glimpse of the *truth*. Thus TCST is able to revive *paradoxes* as intrinsic and needed properties for a successful and mutually stimulating SFD.

In the end TSCT replaces traditional either-or positions, like for example Creation/God-or-Evolution/Big Bang, or Design-or-Natural Selection with a holistic synthesis that allows both views, at the same time stressing their mutual dependence and corrective functions to any exclusivist approach to science and religion. Similarly important is stressing that a SFD on the basis of TCST should have significant practical implications, foremost allowing faith and scientific facts to remain equally valid for all who accept their faith as well as reality.

Key Terms: Science-faith dialogue (SFD), General Systems Theory (GST), Transclassical Systems Theory (TCST), access system, autology, allology, paradoxes, system of First Things (SFT), system of Last Things (SLT), creation, evolution.

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Paper Text:

Introduction

Critical authors agree that the current state of proposed relationships between faith, respectively theology and the sciences, i.e. between insights and truths attributed to divine revelation and the corresponding faith in a personal God and the so-called objective results of a scientific inquiry into the nature of our cosmos remains to be complex, and at times is downright mystifying.¹ Whereas the fundamentalist camps on both sides of the debate continue to argue for the incompatibility of two entirely different modes of knowing, various other and more recent views maintain that faith and science are mutually interlinked and thus supporting domains of equally valid insights into reality. However, the majority of the latter proposals—with notable exceptions—opt for showing how the most recent scientific insights (like for example quantum and string theory, or the neural functions of the brain) correspond to, or allow for propositions of faith (like for example creation, or the consciousness of a divine Spirit), leaving the impression that altogether there is no real difference between insights of faith and facts of science. This in turn creates frequently the impression that there is little if no value in cognition and experiences that remain outside the domain and thus control of a scientifically attainable world.

The following paper² argues that the abovementioned problems to a large extent are rooted in the fact that at present little, if no importance is given to the epistemological foundations of the question of knowing in science and in faith.³ At the basis of the SFD one cannot avoid meeting the nexus between scientific inquiry and faith knowledge—that is the human person—on both sides of the argument in question. It is here where one

¹Among many others, Ted Peters, “Theology and Science. Where are We?” *Zygon* 31/2 (1996): 323-43, and N. S. Gregersen and J. W. Van Huyssteen eds., *Rethinking Theology and the Sciences. Six Models for the Current Dialogue* (Grand Rapids, MI: Eerdmans, 1998).

²This paper is an extensive development of two short papers presented at the 17th International Conference on Systems Research, Informatics and Cybernetics, August 2-7, 2005, Baden-Baden, Germany. Markus Locker, “Of ‘First’ and ‘Last’ Things: A Trans-Classical Approach,” and “Trans-Classical Systems Theory: A New Emerging Paradigm of “Complementarity” of Faith and Science.”

³See for example Gary R. Uremovich, “Epistemology of faith and learning: A systems approach,” *Instituto de Educación Cristiana* (437-00; 26-A/CC): 389-407.

most clearly sees the need for a THEORY that on the one hand is rooted in scientific principles, and on the other hand recognizes that the human person as knowing subject poses the very limits to this theory. Such a theory would need to be a META-THEORY in which the link that unites, and at the same time distinguishes insights of science and faith is already inbuilt. This paper will assert that TRANSCLASSICAL SYSTEMS THEORY (TCST), developed by the Austrian Alfred Locker (1922-2005) on the premises of General Systems Theory (GST), is offering and outlining this meta-theory.⁴ TCST will not only provide the epistemological ground on which a science and faith dialoged can be maintained, but also—and what is most important—show how science and faith can become partners in a dialogue in which both domains of knowing can and will learn from one another. Thus TSCT hopes to be of interest for both, the sciences in offering a way of incorporating truths of faith into concepts of scientific knowing, and theology to accept and truly recognize authentic scientific claims within genuine propositions of faith.⁵

After presenting the fundamentals of TCST this paper will apply TCST to the crucial questions of humanity, on the one hand contemplating on the origin and destiny of the human person as individual and species, and on the other hand seeking answers to our, and the world's development and *becoming*. Although at the outset one might assume that any treatment of these questions from a scientific and theological perspective together, either will result in fundamentally excluding propositions (e.g. *creationism* versus *evolutionism*) or is destined to end up in compromising the integrity of both disciplines through an academically unsound merger (e.g. New Age), it is hoped that TCST can indeed offer a viable *third* view in an inclusive and reconciling manner. TCST will show that contradictory views within one system of reality are necessary, however paradoxical aspects to reach from a fractional to a holistic understanding of all systemic reality.

General Systems Theory

The origin of General Systems Theory (GST) is twofold. On the one hand it was developed out of a critical stance towards the particular sciences' claim of reaching universal insights and truths, like for example physics' or chemistry's claims about the origin of life.⁶ On the other hand at all times modest scientists recognized the inherent limitations of any one discipline and, thus in the hope to enter into a credible dialoged with the humanities, tried to expand the scientific inquiry to where it could reach the

⁴Markus Locker, "Glimpses of Truth: Obituary for Alfred Locker," *Cybernetics and Human Knowing* 12/3 (2005): 103-5; and "Obituary Alfred Locker," *Systems Research and Behavioral Science* 22/6 (Nov/Dec 2005). 571-75.

⁵Markus Locker, "System-Theorie als Theorienbasis für die Theologie. Ein Versuch und Vorschlag." *Zeitschrift des Instituts für Bildung und Wissen IBW Journal* 4 (2004): 16-22.

⁶So in early papers of Alfred Locker, "Der Mensch im Angesicht suggestiver Verführung," *Österreichische Ärztesgesellschaft* 42 (18/1987): 35-38, and "Is AI-research pretentiousness or serious scientific work?," 5th Austrian AI-Meeting (Igl/Tirol, March 1989).

realm of philosophy⁷ and theology.⁸

Along these lines, Classical-, or General Systems Theory as conceptualized by the Austrian biologist, philosopher and polymath Ludwig von Bertalanffy⁹ (1901-1972) recognizes and distinguishes reality—foremost the biological world—as consisting of distinguishable systems. In the most general sense systems are designs set apart from a surrounding environment and characterized by a definitive relationship of its properties.¹⁰ Clearly differentiated from their environment through a conceptual or real border, systems, to a certain degree, constitute self-contained and self-referential¹¹ entities.¹² Given that systems are always intentional reductions of a whole, namely their environment or outer world and therefore different to it (allogology or otherness), they are likewise genuine images (analogies) of this world and in a particular way an essential part of it.¹³ The brilliance of GST rests in the fact that a general systems view of reality allows comprehending the particular and the universal at the same time.

⁷Alfred Locker, “Kybernetik und Systemtheorie als Meta-theoretische Brücken zwischen Einzelwissenschaften und Philosophie,” in *Kybernetik und Systemtheorie. Wissenschaftsgebiete der Zukunft*. ICS-Symposium, Berlin 1991 (Bochum: Institut für Kybernetik und Systemtheorie, 1991), pp. 23-43.

⁸Alfred Locker sketched a brief history of Systems Theory highlighting the roles of thinkers like t J. H. Lambert (1728-1777), Carl Hauptmann (1858-192), Christian v. Ehrenfels (1859-1932) and Othmar Spann (1878-1950). Cf. Alfred Locker, “Allgemeine Systemtheorie- Mit Ausblick auf Ihre Weiterentwicklung zu einer Transklassischen System-Theorie,“ (Unfinished manuscript for a seminar course to be given at the Technical University of Vienna, 2002).

⁹Ludwig v. Bertalanffy’s major works in this area are: *Theoretische Biologie*, vol. 1 & 2 (Berlin: Bornträger, 1932/40); *Robots, Men and Minds* (New York: Braziller, 1967); *General Systems Theory. Foundations, Development, Applications* (New York: Braziller, 1968); *The Organismic Psychology and Systems Theory* (Worcester, 1968); *Perspectives on General Systems Theory. Scientific-Philosophical Studies*, E. Taschdjian, eds., (Braziller: New York, 1975); *A Systems View of Men* (Boulder: P. A. LaViolette, 1981) and *Perspectives on General Systems Theory. Scientific-Philosophical Studies*, E. E. Taschdjian, ed., (Braziller: New York: 1975). See also Mark Davidson, *QuErDenken! Leben und Werk Ludwig von Bertalanffys* (Frankfurt am Main: Peter Lang, 2005).

¹⁰David J. Krieger, *Einführung in die allgemeine Systemtheorie*, UTB 1904 (München: W. Fink, 1996) and “Religion and System of Meaning,” (to be published). The author stresses, for example, the fact that the development of *religion* is a most genuine human systems event.

¹¹This point is developed later in greater clarity as in the conception of *Trans-classical Systems Theory* one cannot speak of a *self* of any system that has a definitive origin. Cf. Alfred Locker, “On the Origin of Systems and the Role of Freedom Therein,” in R.F. Ericson, ed. *Improving the Human Condition. Quality and Stability in Social Systems*, Proc. 25th Anniversary SGRS-Meeting (New York: Springer, 1979), 95-103.

¹²For example Alfred Locker, “Über Entstehung und Entwicklung formaler Systeme,“ *Nova Acta Leopoldina* NF 42/218 (1975): 489-503.

¹³It is therefore not coincidental that the first encounter of systems theory and theology happened in view of a systems understanding of creation.

In GST, what systems do is best understood by studying their properties or elements in their movements and relations to one another, on the one hand constituting their self-reference, and on the other hand their influence on their environment and other systems within it.¹⁴ However, even the recognition of all possible systems relations will never account for all that the system is or does, i.e. its *Ganzheit*, or for the illusory assumption that a perfect or complete system can in form and function be fully identical with its environment.¹⁵

Thus all systems, theoretically conceived or practically designed, remain partial excerpts of the reality of their environment from which they are distinguished.¹⁶ Most systems, like for example language, by nature interact and communicate with their environment. Any such open system that comes, or is brought into existence through a deliberate design alters the environment by its presence. Open systems actively communicate and in even transform their environment.¹⁷ As a consequence, Ludwig von Bertalanffy understood GST as unifying individual disciplines in view of a new vision of humanity versus a materialist oriented technology.¹⁸

¹⁴In his description of GST Alfred Locker critically evaluated the concept of auto-poiesis as misleading as system, designer and environment can never be separated. This whatever is generated by the systems is merely a sub-system of its origin. Alfred Locker, "Metatheoretische Kritik des Radikalen Konstruktivismus und der Autopoiesis-Theorie," in H. R. Fischer, ed., *Die Wirklichkeit des Konstruktivismus. Zur Auseinandersetzung um ein neues Paradigma*, C.Auer Systeme (Heidelberg:1995), pp. 329-347.

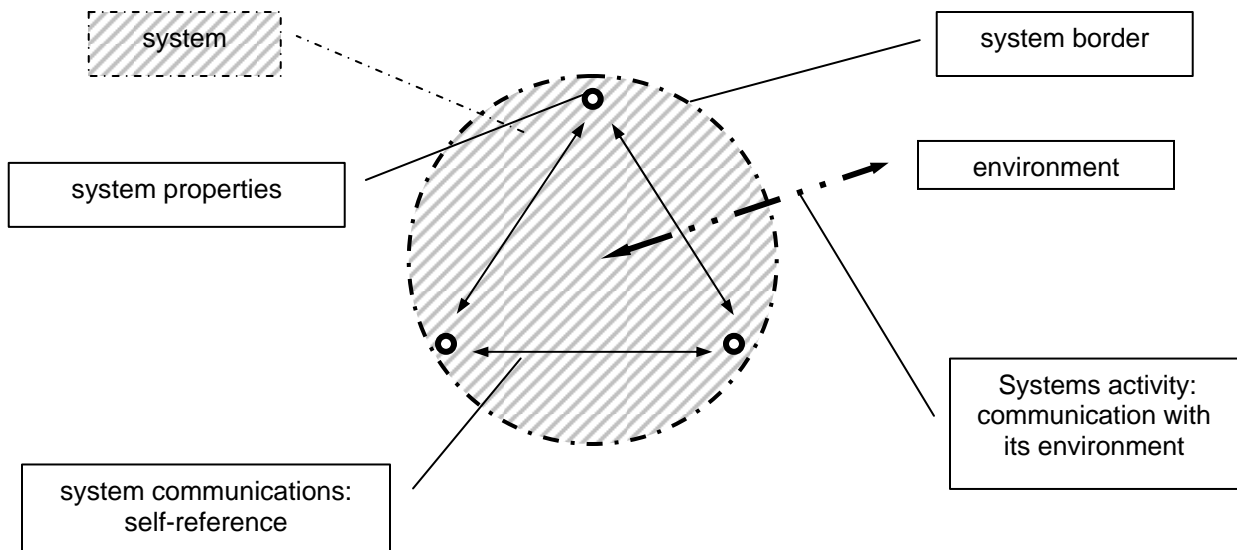
¹⁵Markus Locker, "A.I. and Ethics: A Language Philosophical Question & Systems Theoretical Reply," in Iva Smit et.al, eds., *Cognitive, Emotive and Ethical Aspects of Decision Making in Humans and in Artificial Elements*, vol. III (Windsor Ontario, Canada: IIAS, 2005): 63-68.

¹⁶Alfred Locker, "Selbstorganisation – systemtheoretisch und meta-theoretisch betrachtet," in W. Gitt, ed. *Am Anfang war die Information* (Resch: München, 1982): 145-61; "Systemtheoretische Aspekte von Selbstorganisation und Autologie. Vorstoß zu einer Theorie," in W. Niegel and P. Molzberger, eds. *Selbstorganisation* (Berlin/New York: Springer, 1992).

¹⁷An application of this systems property has led to the paper of Markus Locker, "Scripture and Trans-Science: The Parables as Systems of the Kingdom," *The Loyola Schools Review. School of Humanities IV* (2005): 59-84.

¹⁸Davidson, *QuæErDenken*, 89ff.

Figure 1: Classical System: properties and communication



Trans-classical Systems Theory

Properties and Presuppositions

As one of the last students of Ludwig von Bertalanffy, Alfred Locker realized soon that the greatest downside of GST is its enduring attempt to portray the complexity of reality foremost through formal and abstract systems.¹⁹ Thus he reached the conclusion that even though GST is a genuine and valid attempt to describe all of reality it has, similar to the sciences,²⁰ limits intrinsic to the deceptive assumption that reality can be methodically formalized.²¹ Trans-Classical Systems Theory (TCST) foremost recognizes in a critical manner that systems must be understood in view of their systemic *nature*. This means that all object properties (G from the German *Gegenstand*) of a system have to be seen together with the necessary presuppositions (V for *Voraussetzungen*)²² a

¹⁹Alfred Locker, "The Present Status of Classical Systems Theory, 25 Years after Ludwig von Bertalanffy's Decease," in George Lasker, gen. ed., *Advances in Artificial Intelligence and Engineering Cybernetics*, vol. V (Windsor: IIAS, 1999): 8-16.

²⁰This insight causes Alfred Locker and others to present critical views of Luhmann's celebrated adaptation of GST to his social systems theory. Alfred Locker, "Angriff auf eine ganzheitliche Welt-Auffassung. Zurückweisung des Luhmannschen Ansatzes einer Systemtheorie," *Zeitschrift für Ganzheitsforschung* NF 43 (1999).

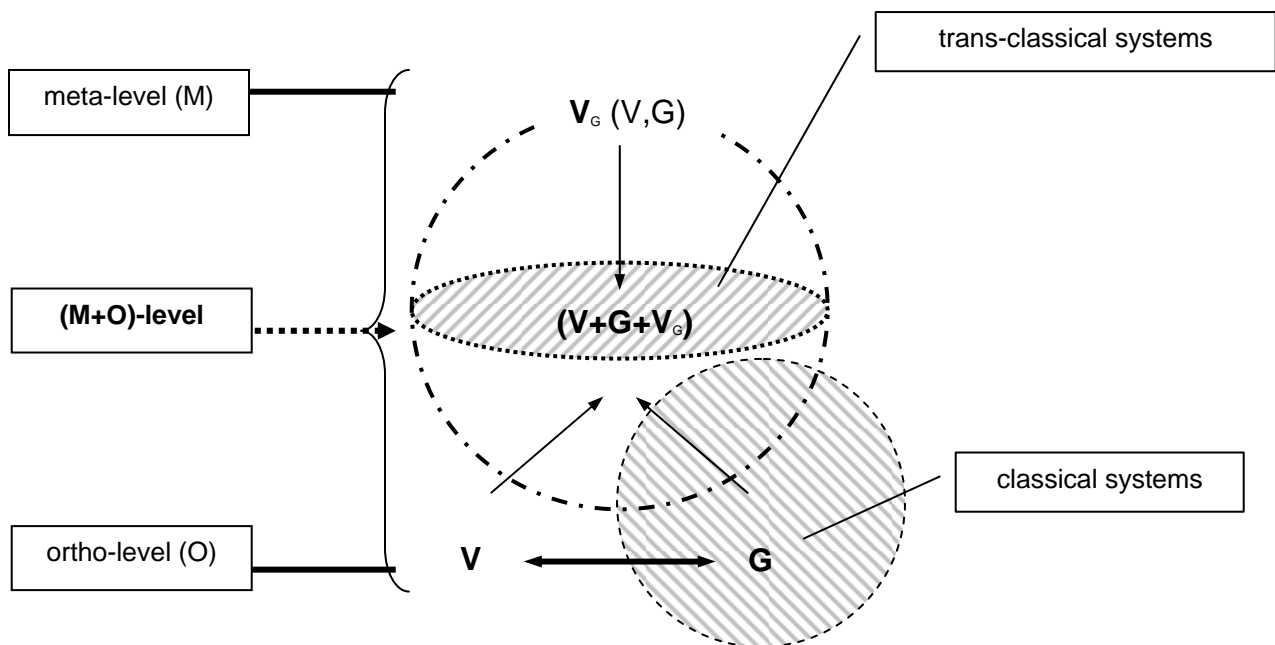
²¹Alfred Locker, "Recent Approach to Transclassical Systems-Theory. The Paradoxical Unity of Science with Non- and Super-Science," in Georg Lasker gen. ed. *Advances in Systems Research and Cybernetics*, vol. III (Windsor: IIAS, 1998): 11-16.

²²Since this nomenclature is found throughout Alfred Locker's writings, carrying a certain sense that through a translation into the English language might be lost, the author of this paper will continue to use the German abbreviations 'G' and 'V'.

system (and ultimately its designer) already must have consciously or unconsciously formulated even before the system in concern is conceived. Thus a true system can never be fully explained by its properties alone, but has to be considered and illustrated in conjunction of properties and their presuppositions, that together articulate the *systems theory* the designer already holds prior to designing a system.

This premise however necessitates that TCST abandons the mere formal level of systems description, i.e. the so-called ortho-, or formal level in favor of reaching a meta-level from which a certain holistic view (ortho- plus meta level) of a system can be obtained.²³ On this level, observing and describing a system fuses with knowing and understanding it.

Figure 2: Trans-classical Systems View = *Ganzheit*



Alfred Locker continues to explain that even viewing all discernable object properties of a system (e.g. *hierarchy*, *heterarchy*, *structure* and *function*) together with its presuppositions does not, or not yet, provide for a complete perception of the whole system. Any existing system is always more than the sum of its parts and obtains a *Gestalt* or *Ganzheit* that TCST likewise will have to take into consideration. Herby the first system paradoxes appear, as in relationship to the Gestalt of a system some formal

²³Alfred Locker, "Schöpfungs- und Evolutions-Problematik in system-theoretisch klassischer und transklassischer Sicht. Der Mensch im Widerspruch der Außen- und Innen-Beobachtung sowie der Mitgestaltung von Ursprung und Ziel," in A. J. Bucher and D. S. Peters, eds., *Evolution im Diskurs: Grenzgesprache zwischen Naturwissenschaft, Philosophie und Theologie*, Eichstätter Studien NF XXXIX (Regensburg: Verlag Friedrich Pustet, 1998): 217-250. Likewise "Beobachten und Betrachten: Von der Kybernetik 2. Ordnung zur Kybernetik n-ter Ordnung," (Unpublished lecture delivered in Berlin 2003).

system properties will obtain more than one, or even formally contradictory roles or functions within a system.²⁴

Systems Designer and Systems Access

Pursuing the question of the designer-system relationship, TCST recognizes that the designer of any system in holding its theory acquires much more than the role of a systems observer, and in fact cannot observe his system purely objectively. Notwithstanding the fact that any designer of a system will necessarily attempt to objectify the system in concern, and on the basis of the above premises of TCST, it must be recognized that through the process of design, the designer has already become an intrinsic and inseparable part of his system and as such participates or partakes in the system's activities.²⁵

Hereby TCST assumes that the system also influences and to a certain degree changes the designer as providing him with an ever-deeper insight into the reality of the designed system, hereby solving what a formal scientific view of reality can never do, i.e. bringing opposing clippings of reality (*Realität*) to a unified picture of truth (*Wirklichkeit*).²⁶ As a final point TCST returns to the general premise that any systems view of reality is only an excerpt, or imperfect part of it, and never shows all of reality.²⁷ This insight, however, will not lead to frustration, but encourages the designer/perceiver to constantly seek to modify his view of the system hoping for the possibility of perfecting it or its description. Looking at a system in this way will allow for the conclusion that all true systems by nature are in flux and transform themselves (like in an ongoing metamorphosis) towards a goal intrinsic to a particular system and its designer.²⁸ In this sense one can say that Alfred Locker's TCST has reached the conclusion that any genuine systems theory cannot avoid the question of the human being as ultimate systems designer, and *being* human within all systems in concern.

²⁴ Alfred Locker, "'Synologie' und 'Chaologie' oder die widersprüchliche Einheit von Ganzheit, Gestaltung und System. Vom Beobachter zum Schauen und wieder retour;" in G. Tichy, H. Matis and F. Scheuch, *Wege zur Ganzheit*. Festschrift for J. Hans Pichler (Berlin: Duncker, 1996): 71-101.

²⁵ Alfred Locker, "Horizontale und vertikale Relationalität des Menschen. Differenz und Einheit jenseits der Beobachter-Perspektive," in Festschrift for H. Wessel (Berlin 1999).

²⁶ Alfred Locker, "Der Mensch: Nicht unbeteiligter Zuschauer, sondern Mitgestalter am Weltgeschehen. Die Bedeutung von Meditation und Ekstase als Transklassche Mittel dazu," *Gnostika* 2 (1998): 34-42.

²⁷ Alfred Locker, "Hamann und die Naturwissenschaft von heute. Vorweggenommene Kritik der Allgemeinen System-Theorie," in *Die Gegenwärtigkeit Johann Georg Hamanns*. Acta des achten Internationalen Hamann-Kolloquiums and der Martin-Luther-Universität Halle-Wittenberg (Frankfurt am Main: Peter Lang, 2002): 533-550.

²⁸ Alfred Locker and N. A. Coulter, "An Outline of Teleogenic Systems Theory. *Prog. Sybern.Syst.Res.* 2 (1975): 156-64. Also as application to the biblical system of the New Jerusalem in Markus Locker, "Das Buch der Offenbarung im Verständnis der Sprachphilosophie," *Zeitschrift für Ganzheitsforschung* 46 (2002): 115-29.

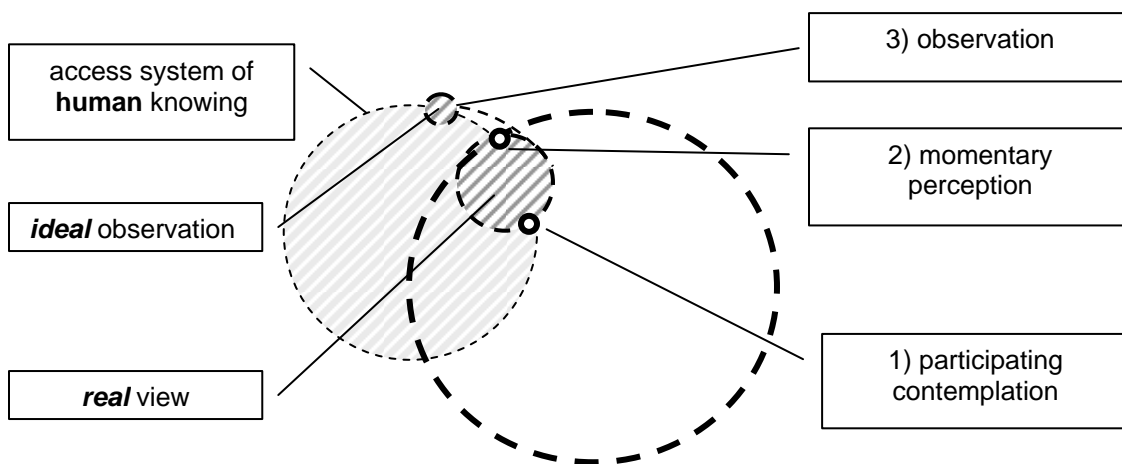
Systems Analogy - Allology

Alfred Locker undoubtedly understood that a trans-classical systems view does not bring more objectivity to the observation of systems and reality, but ultimately shows that any designer in designing or describing a system enters this system and becomes a genuine part of it. Thus all perceived or actually designed systems at the same time attain sameness (analogy) and otherness (allology) to their designer. Here TCST agrees with the philosophical movement proceeding from a phenomenology presupposing a transcended self that comes to pure insights of things (early Husserl) to a phenomenology of existence in which all knowing is always a knowing of the human person rooted in the world (Heidegger).

Access System

While TCST acknowledges the aforementioned philosophical insight it does, however, not move away from its original epistemological ground. In order to keep the unity of scientific observation and theory, and philosophical knowing, TCST affirms GST postulate that ultimately the designer of a system can and must likewise be understood as a system. Indeed, all systems of reality are comprehended through a human person having the status of an *access system* that interfaces with the system in concern. This access system also constitutes a transclassical system, containing paradoxes and obviously being subject to change. Whenever the observer enters into the system in concern he alters this system and himself. Thus in TCST, both the access system and the system in concern are changing and open systems that mutually interact with-, and depend on one another.

Figure 3: Access System and Systems Views



Real and Ideal Systems View

Through the access system all systems of concern can be viewed from three distinguishable, yet interrelated vantage points. 1) As indicated above, the only *real* systems perspective is assumed when the designer of a system recognizes that he is

actually not observing the system of concern objectively, but from a position within the system.²⁹ 2) From there the perceiver of a system, in realizing his inescapable subjectivity, will attempt to withdraw to the border of the system, allowing the system to truly show what it is.³⁰ Since, however, the designer has already influenced the system, it will again require his presence, and ultimately the designer will constantly have to oscillate between inner and border views of the system. 3) Taken together, these views allow for an *ideal* third perspective that would appear as an objective look at the system in question.

Systems Complementarity and Systems Paradoxes

In due course, representing and participating in the access system, the observer can differentiate three perspectives: 1) An objective systems description, 2) an intuitive perception of the system, and 3) a subjective contemplation of it. TCST consequently stresses that all three perspectives are necessary aspects and only together, however preserving their uniqueness and dissimilarities, describe in a holistic and comprehensive way the system of concern. Only in this sense of complementarity, i.e. unity that preserves differences (cf. the concept of *hypostatic* union) these conceptual viewpoints can be brought into the accord proposed by TCST (perhaps similar to Gadamer's vision of a playful fusion of epistemological horizons).

TCST and A Science-Faith Conversation

Embracing the Paradoxes of the Origin (*First Things*)

As an initial step in arguing a SFD on the basis of TCST, this paper will continue by outlining a systems view of the paradoxes of the system of First Things (SFT), i.e. the origin of the cosmos, in a threefold manner³¹. First, the SFT is *quasi*-formally described in the hope of showing the fruitful interrelation of all variants of its description. Second, the infrastructure of the properties of the SFT is presented by demonstrating that within TCST systems properties and their presuppositions exist side-by-side in a relationship of complementarity. Thirdly, it will be shown that TCST proposes a new *order* of systems, in which systems can be accessed by all possible perspectives of human knowing that together form the access system of the SFT. Finally, a transclassical systems view of SFT will attempt to account for all possible insights, envisioning hereby a new systems theory or systems philosophy of the SFT.

²⁹For this point largely following Markus Locker, "Systems Theory and the Conundrum of *ens*: Thoughts and Aphorisms," *Foundations of Science* (2006), in press.

³⁰Markus Locker, "The *Systems* Position of "Non-Intelligence" for an Ethical A.I.: Emmanuel Levinas and "Beyond *Language*" in *Cognitive, Emotive and Ethical Aspects of Decision Making in Humans and Artificial Intelligence*, vol. IV, edited by Iva Smit, et. al. (Windsor Ontario, Canada: IIAS, 2005): 73-78.

³¹ The following section is attributed to the last and unpublished paper of Alfred Locker, "Schöpfung und Evolution. Auferstehung und Ewiges Leben. Fundamentale Topoi des Christlichen Glaubens und gleichzeitig Fälle für eine Anwendung der Transklassischen Systemtheorie," (Vienna, 2005).

In relationship to the above mentioned systems' views, a systems description of First Things, i.e. SFT will consider three basic perspectives of the *origin* of the cosmos: 1) the world created by God *ex nihilo* as basic tenet of Christian Faith 2) a world eternally present and existing in eternity (Plato), and 3) a world that at a specific point in time emerged, or generated itself.

1) Systems-theoretically, the conception of *creatio ex nihilo*, or creation out of nothing can be understood in assuming that before a system is designed, its theory, or the system in theory must already exist as potentiality. When the system is actualized, the system's potentiality constitutes the environment of the system to which the system acquires at the same time analogy or sameness, and allology or otherness. Thus one can perceive of the paradox that the creation of the cosmos points back to a creator and at the same time to that what the world is not, i.e. nothing.

2) A view of an eternal world can be based on the assumption that anything that is, at the same time is not only that as what it appears at this moment, but has the disposition or potential to transform itself into something else, that is the other of itself. Thus all temporary appearances of reality are but *icons* of the whole that is the *truth* or the *Ganzheit* of the world existing in eternity.

3) With regard to the concept of a self-generated world, TCST again stresses that a system stands in analogy and at the same time allology to its designer. Thus the fact that a system has no apparent analogy outside of it allows for the initial hypothesis, i.e. contemporary theories of origin, of having generated *itself*. However, TCTS will emphasize that the *self* of this system, not only precedes the system through the existing self of the designer and the designer's notion of this self of the system, but most likely is found in that what appears to be in contradistinction to it (cf. nos. 1 & 2).

The infrastructure displayed by the properties of SFT characterizes this system as truly belonging into the realm of TCST. As transclassical system, SFT is not primarily manifested by quantifiable properties open to scientific inquiry and therefore excluding formal oppositions, but SFT reveals its formal objects always together with their intuitively reached presuppositions. This then leads to a necessary systems view of the 3rd order in which seen from a *meta*-level of systems observation all objective and intuitive properties of SFT form one and the same system. This system obtains a Gestalt that obliterates the final barrier of all perception, i.e. the ontological difference that for Heidegger poses the unbridgeable separation of Being and being.

In conceptually uniting all attainable systems' views, TCST conceives of a systems theory that can (though in transclassical terms) account for the differences of a scientific and faith description of SFT not primarily by pointing to alleged similarities but by viewing paradoxes as necessary elements of a holistic systems theory. In view of SFT such theory foremost has to recon with the paradox that an inside view of the system reveals that outside of SFT there exists an immutable creator, while an outside view of the systems asserts that creation continues within the scientific observation of evolution.

This systems tension, however, demonstrates that any theory of the fundamental questions of humanity will need to be kept dynamically alive as dialogue and conversation between human partners, perhaps defying all attempts to mold it into the form of classical logic.

TCST could then suggest to a scientific approach to reality to reach the awareness that the human person finds an origin and goal in unity and difference to the person's biological life. In the way systems cannot assume complete sameness with their environment, and likewise cannot set their own goals, the human person stands in unity and difference to the creator. What separates the human person from the creator is the difference that Greek philosophy calls mortality and the Judeo-Christian faith experiences as the *Fall* from an original state of perfection through the reality of *sin*. What however likens the human person to God is an immortal *idea* or indwelling Grace that destines humanity toward the creator.

In due course a transclassical systems view of SFT will have to seek complementary notions of the experience of the access system in a self-created and evolving world. That, for example, would mean for theology the critical appreciation of the scientific phenomenon of evolution in complementarity to the doctrines of creation and Grace. A world truly created by God and the human person must evolve as a world after the *Fall*, however, toward a goal that is not simply definable by objectively describing systems properties, but that rests in the true nature of the system. Thus in TCST a theory of evolution must find a place for experiences of beauty/truth/good and Grace perhaps directing this world to its fulfillment and salvation.

Ironically, where one can best see complementarity at work is in the use of the concept of nothing. Whereas the Christian faith insists on a world created out of nothing, it fervently refuses to accept the nothing that reluctant philosophers and agnostic scientists postulate at the end of our temporary existence. To be sure, TCST feels truly confident in seeing nothing at the same time as object and presupposition of the SFT.

Embracing the Paradoxes of the End (*System of Last Things*)

The concluding remarks on SFT have already pointed to its analogy to the system of Last Things (SLT), i.e. the end or goal of this world. In view of the fact that the scientific conclusion of the nothing as perhaps a lasting equilibrium of energy remains clearly distinguished from religious postulates, TCST initially reflects on concepts of Last Things specific to the language of faith, like for example, *a* self-conscious life everlasting and the resurrection of the human person.

Methodologically proceeding from the notion of a self that precedes any created self, one must assume that a self, i.e. us being self-conscious, has also to be found in SLT. This self, however, must transcend the self of our concrete *real* experience to a *true* self. Thus, what this true self is can only be imagined in view of a self that at the same time is all what the real self is, together with what it was not. This *Self* is an eternal self, and at once all that we, ourselves, ever were. A *Self* seen in this way, however, remains largely

hidden from scientific language, and can only be envisioned through analogies to genuine experiences of our own selves.

For example, one can suggest that this eternal self will always be seen as, or actually assume the form of what it is in truth. The flawed will be the perfect, the unattractive will be the beautiful and we will be what a beloved beholder makes of us, i.e. children to our parents, parents to our children, and loved one's to the beloved.

The ideas of systems analogy and allology demonstrate further that in SLT eternal life does not only imply a *Self*, but a fundamental and essential difference from the conception of material change, or re-birth. As the eternal *Self* is a true self, it must be thought of in terms of human freedom and choice. Thus the eternal *Self* remains free to choose the *Gestalt* of its appearance. This highest form of human freedom can only be described within the notions of freedom from sin and salvation, excluding therefore a view that sees the human person's temporal existence as repeatedly causing another defined form of being. Equally, one cannot assume any outer border to the system of eternity, thus SLT gives no room for human death leading to a new birth into the same system.

In view of the notion of the resurrection a systems view of Last Things implies the acceptance of the paradox of understanding death as the separation of the mortal body from the immortal soul as accounting for the fact of the border of reality and truth. However understanding that this border will finally collapse, this difference will be overcome through a unity in which an eternal *Self* and eternal person/identity reassume a definitive unity.

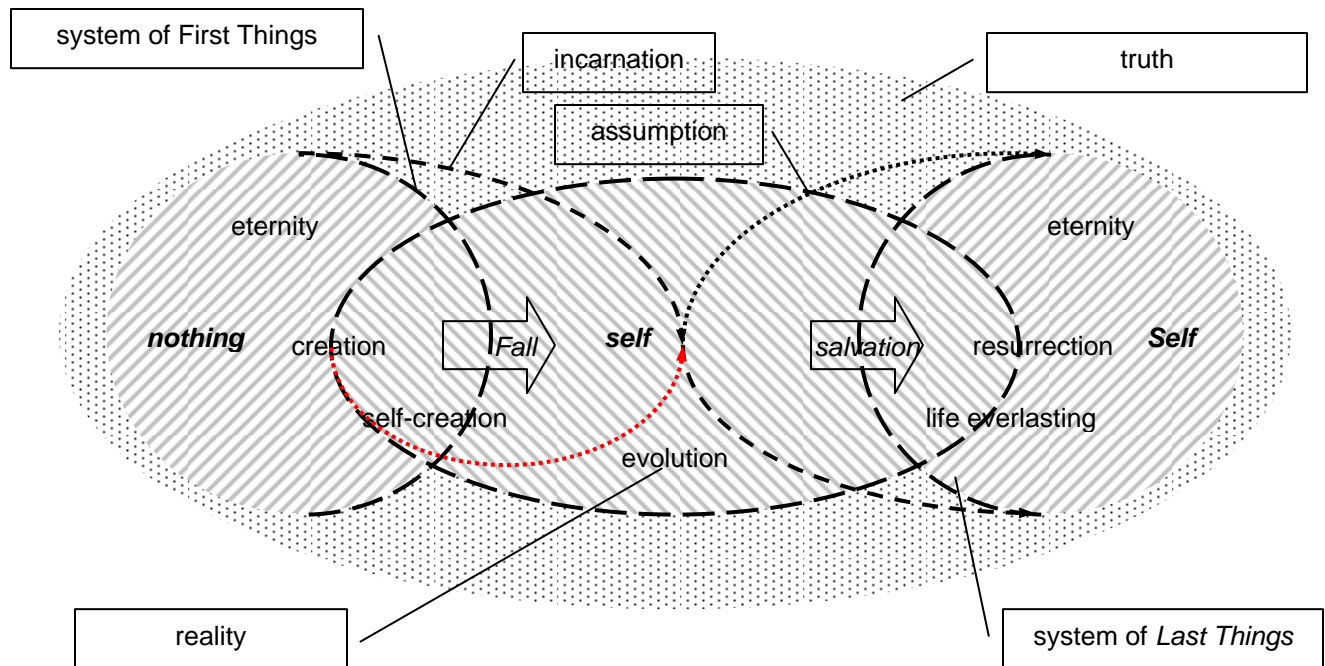
This then suggests viewing the death of this cosmos likewise not as an end or simply a transmutation into another form of energy, but as a breaking down of the border of reality, perhaps leading to an altogether new, and redeemed, world.³²

The very need for such a holistic view of faith in terms of an objective description has been recognized in the truths of Christian Faith, like the Incarnation of Christ and perhaps the Catholic doctrine of the Assumption of Mary the Mother of God. In both instances, the language of the Christian faith attempted to bridge the conceptual divide of mystical knowing and a rational description of reality. However, especially here we see that without a meta-theoretical frame, these propositions of faith are in danger to be equally lost to a purely scientifically perceived world or to a naïve understood faith.³³

³²John Polkinghorne offers valuable insights towards possibilities to understand concepts like the Resurrection in terms of a scientific worldview. John Polkinghorne, *Science and Theology* (Minneapolis: London, SPCK, 1998).

³³The notion of miracle plays here a crucial role, and indeed is in need of a truly comprehensive treatment.

Figure 4: Systems of *First Things* – reality – *Last Things*



An Evolutionary Epistemology

Evolution a Process yet in Eternity

Crudely understanding the evolution-creation problematic as the scientific claim of a discernable and autonomous process of development in opposition to the postulation of an eternal, yet created universe of final design³⁴, one will have to recognize the fact that in human experience these two viewpoints of reality belong together on the basis of being rooted in the unity of the **G** and **V** properties of the human access system. As presupposition of the observation of an evolutionary process it has to be accepted that the human person itself evolves. This is indeed true for some of our human properties, like e.g. the physical body, knowledge, and perhaps intelligence. Thus in analogy to the human person, one can and must perceive of an evolution of the world, and us in the world.

What however remains to be recognized is that this perception of the system of the world does not fully account for man's contemplation of what the human person is.³⁵ What the human person is in truth, neither is limited to any temporal state of the human person or humanity, nor found in degrees of knowledge but perhaps can be called the

³⁴Cardinal Christoph Schönborn, "Finding Design in Nature," New York Times, July 7, 2005.

³⁵John Paul II, "Message on Evolution to the Pontifical Academy of Sciences" (October 23, 1996).

essence of the human person. This essence, the other side of the actual being “human, is experienced as human consciousness,” i.e. being eternal and unchanging.³⁶

The Paradox of Freedom

The paradox of an eternal yet evolving human person in a reciprocal way can lead to new insights into the system of the cosmos, especially with regard to questions of chance vis-à-vis design and the temporality or finality of the evolutionary process. The human person can accept the paradoxes of his own evolution by contemplating on the one presupposition (theology) or property (sciences) unique to the human person, i.e. human freedom and free choice.³⁷ To a limited degree the human person can willfully manipulate his development, while at the same time remaining to be subjected to external influences like the human body and *milieu* that somehow leave human growth and development to a chance.

Complementarity of Design and Chance as Allological and Analogical Concepts of Human Freedom

From the point of view of theology, and perhaps to a limited degree the sciences, physical nature is the *other*, of either God, or the human person.³⁸ Thus both disciplines cannot see the conception of freedom as inherent to animals or so called inanimate objects. Yet the world and its creatures evolve, change and adapt.

Theology, in line with TCST understands freedom as systems presupposition that is not merited to the system but present, or given prior to it. If nature evolves, and freedom is not part of nature’s properties, then evolution, i.e. development of nature without free choice, must have an a priori presence in nature laid out by its designer that is God [cf. Thomas’ primary mover]. However, unless subscribing to the doctrine of predestination, the notion of design alone does not account for the human experience of random happenstances and chance-like developments often rendering the human person helpless and unable to freely choose, and often warranting instant solutions to adapt to these situations.

Moderate science, likewise understanding freedom as property of the human person, cannot follow the abovementioned assumption, because when (human) freedom is absent from the system of nature, nothing else remains. Thus every *genésis* that happens within the system must be an evolution in response to systems’ inherent events. Accordingly the

³⁶Hans Michael Baumgartner, “Die innere Unmöglichkeit einer evolutionären Erklärung der menschlichen Vernunft,” in R. Spämann et. al. Eds., *Evolutionstheorie und menschliches Selbstverständnis*, CIVITAS Resultate, vol. 6 (Weinheim: Acta humaniora, 1984): 55-72.

³⁷O. Gingerich, “There Design and Purpose in the Universe?” in John F. Haught. ed. *Science and Religion in Search of Cosmic Purpose* (Washington: Georgetown University Press, 2005), pp. 112-32.

³⁸Wolfhart Pannenberg writes, “When he introduced the principle of inertia in his natural philosophy, René Descartes insisted that God's immutability renders it impossible for God to intervene in the creation. He reduced the idea of God to a deistic notion by speaking of motion exclusively as a property of bodies,” in “Problems between Science and Theology in the Course of their Modern History,” *Zygon* 41 (1/2006): 105.

evolution of living creatures is their systems response to the evolution of the world, which is the response to what the world is as an evolving system. This line of argument however is circular, and can only theorize about limited systems-inherent events without any consideration of the nature or the *Gestalt* of the world as a whole. Likewise in this approach to evolution the theory of ontogenesis, as developing system of ever-increasing complexities remains vastly hypothetical.³⁹

Stopping at this very limited view of the problem can however already present an idea of the contribution of TCST to a faith and science dialogue on perhaps three levels. 1) TCST will suggest to both, theology and the sciences, to reconsider the question of the relationship of freedom and nature.⁴⁰ Can evolution really be understood from a viewpoint in which nature and human freedom are opposites?

2) This, then will call theology to think further in the direction of how the design of the world can be seen as God perhaps permitting all creatures to evolve in response to the world in adhering to their creaturely nature. Such idea of course needs careful consideration as not to laps into gnosticism, pantheism or even panentheism, but perhaps offers the opportunity to see that nature and its creatures are constantly permitted to choose to be beautiful, amazing and inspiring to the human beholder.⁴¹

Because nature initially is seen as the complete other to its human access system, theology must and does accept that it is in need of scientific concepts that explain the evolution of the world and especially the human person. Thus theology will have to avoid “isms,” like creationism not so much in view of the creation of the world, but foremost in view of the creation of the human person. Indeed when the world came into being humanity could not have been a presupposition that was realized only later and at one specific point in time in the course of history, but humanity was inherent to the world, when it was created. That means the concepts of phylo- and ontogenesis are necessary complementary views to the doctrine of the creation of man.

3) If science in line with these arguments allows subjectivity to forge a link between chance and freedom, then it perhaps can fill the objective gaps in its evolutionary theories. Science is then invited to understand that the notion of *creation ex nihilo* can become a scientifically valid factor as all objective systems properties have likewise presuppositions that can and do stand in paradoxical opposition to them (cf.

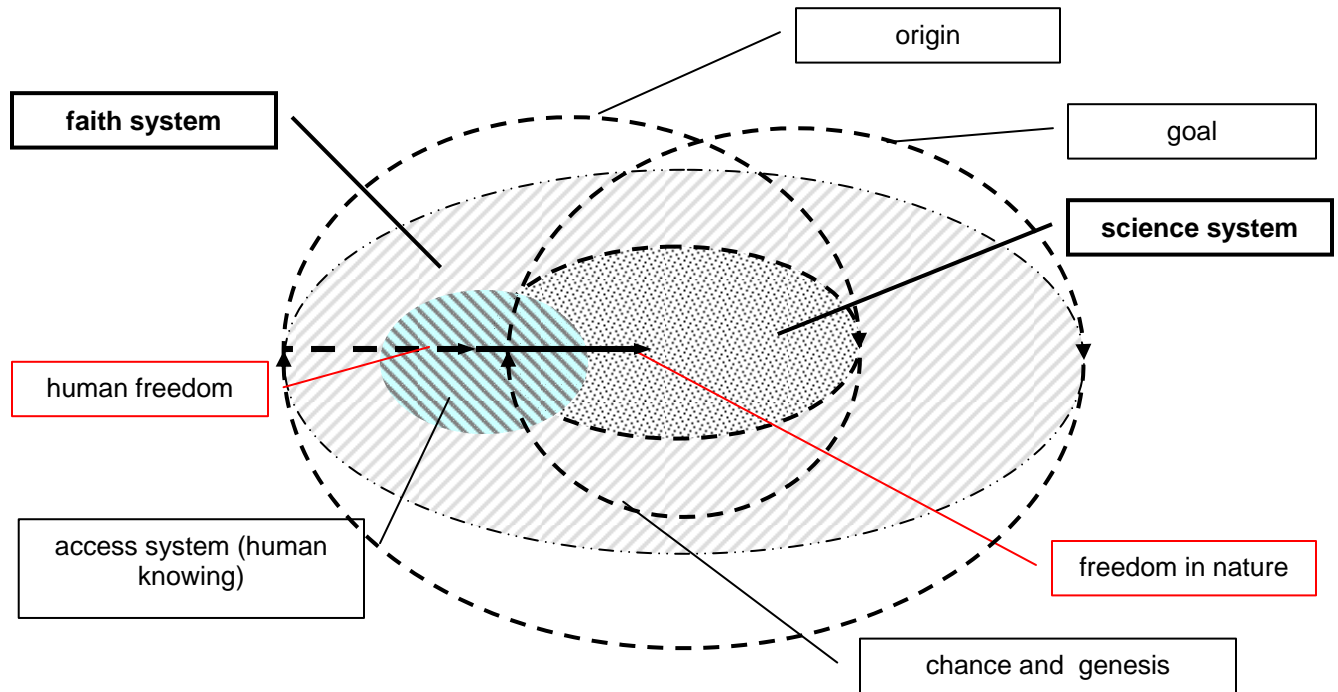
³⁹ Alfred Locker, “Goethe als Überwinder Darwins. ‘Vollendetes Schauen,’ defekter Natursicht entgegengestellt,” *Integral* (Wien) 7/5 (1982): 3-35; “K. Snell: Blick auf das wahre Wesen der Evolution,” *Neue Ordnung* 10 (1986): 11-4; “Neue Phänomenologie” in der Sicht der Transklassischen System-Theorie,” *EWE* 15 (in press).

⁴⁰The need for such reevaluation was expressed by renowned experts in physics and theology; Karl Rawer and Karl Rahner, “Weltall-Erde-Mensch,” in Franz Böckle et. al. eds., *Christlicher Glaube in moderner Gesellschaft*, vol. 3 (Freiburg: Herder, 1981) : 47ff

⁴¹Jitse van der Meer, “Alfred Locker's Critique of Evolutionary Thought: the engagement of evolutionary thought and Christian mysticism mediated by systems philosophy (9. May 2005, Redeemer University College, Lancaster, Ontario, Canada L9K 1J4).

Polkinghorne). In due course, if the property of humanity is freedom, and freedom is not found in nature, than the sciences are invited to see freedom as complementary presupposition to an evolution believed to be an unguided process.⁴²

Figure 5: Human Freedom – Complementary Faith and Science Systems



No Conclusion: Paradoxes Remain

As already indicated above, understanding SFT, SLT, creation and evolution in terms of TCST remains an open-ended endeavor, as these systems—inasmuch as one can speak of such—have no outer border and as a result remain largely unsystematizable. In addition, one has to recognize that the notion of systems analogy and allology also applies to systems like SFT and SLT. Thus any analogy of SFT and SLT to reality is not an explanation of reality, but accounts for the remaining paradoxes of truth.

A convincing evolutionary epistemology likewise must admit that in the end any discussion of the question of evolution will force the theorist to take, or admit a position toward the claims of a systems view of evolution, perhaps not in view of their plausibility, but with regard to their ethical consequences. This paper then admits to argue from the point of view of faith in which it is hoped that science is inspired by insights of faith and thereupon appreciates theology as needed complement, and TCST as

⁴²Polkinghorne, *Science and Theology*, 79.

the appropriate *meta*-theory leading to a renewed scientific task of understanding the world.

In the end this paper will have given no answers to existing problems, but perhaps has shown how TCST as conceived by Alfred Locker seeks to prepare the ground for a dialogue wherein one does not have to wage war over prepositional truths, or seek refuge in relativism, but in which contradictions and oppositions remain united as necessary and needed elements of a complementary access of reality, finally leading to the truth.

Figures

Figure 1: Classical System: properties and communication

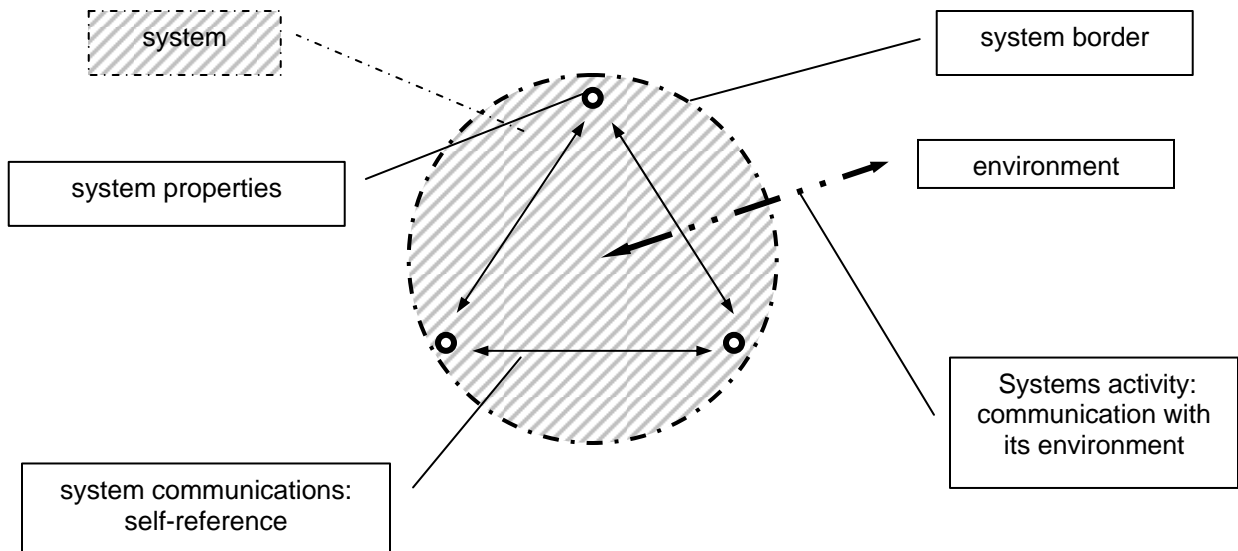


Figure 2: Trans-classical Systems View = *Ganzheit*

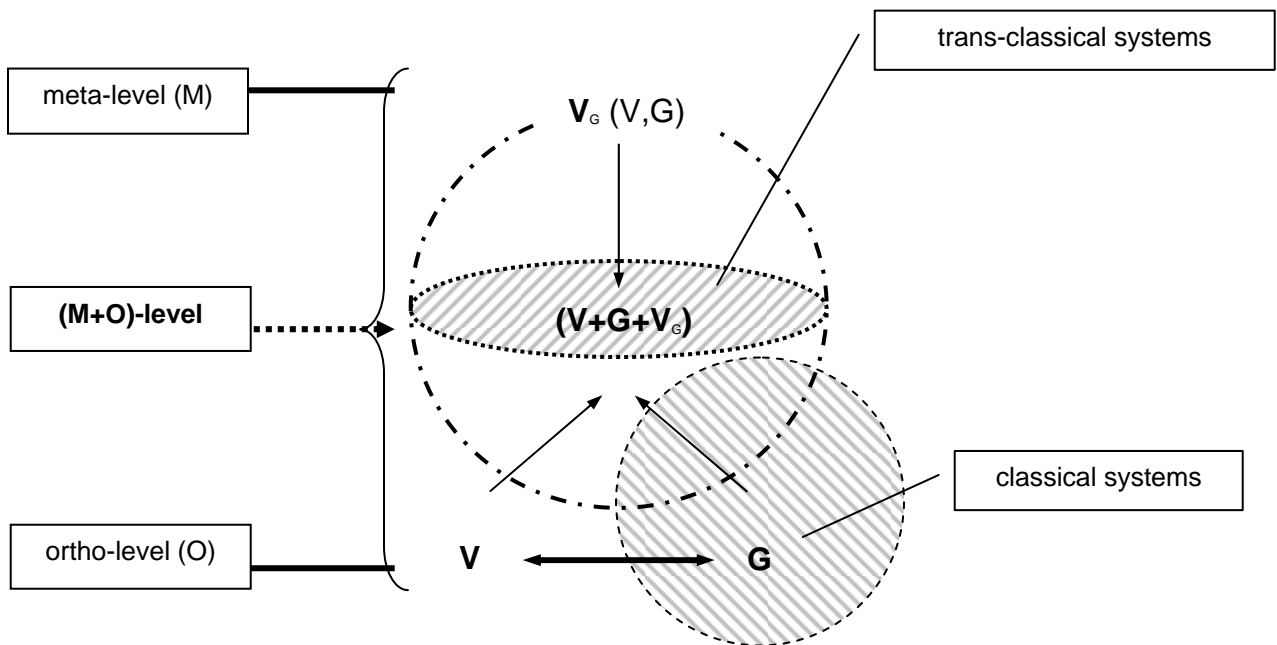


Figure 3: Access System and Systems Views

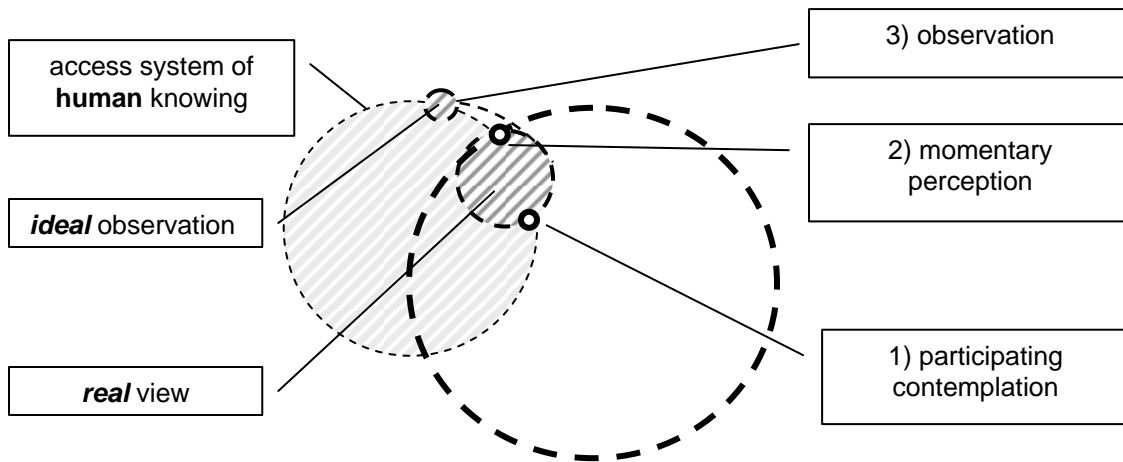


Figure 4: Systems of *First Things* – reality – *Last Things*

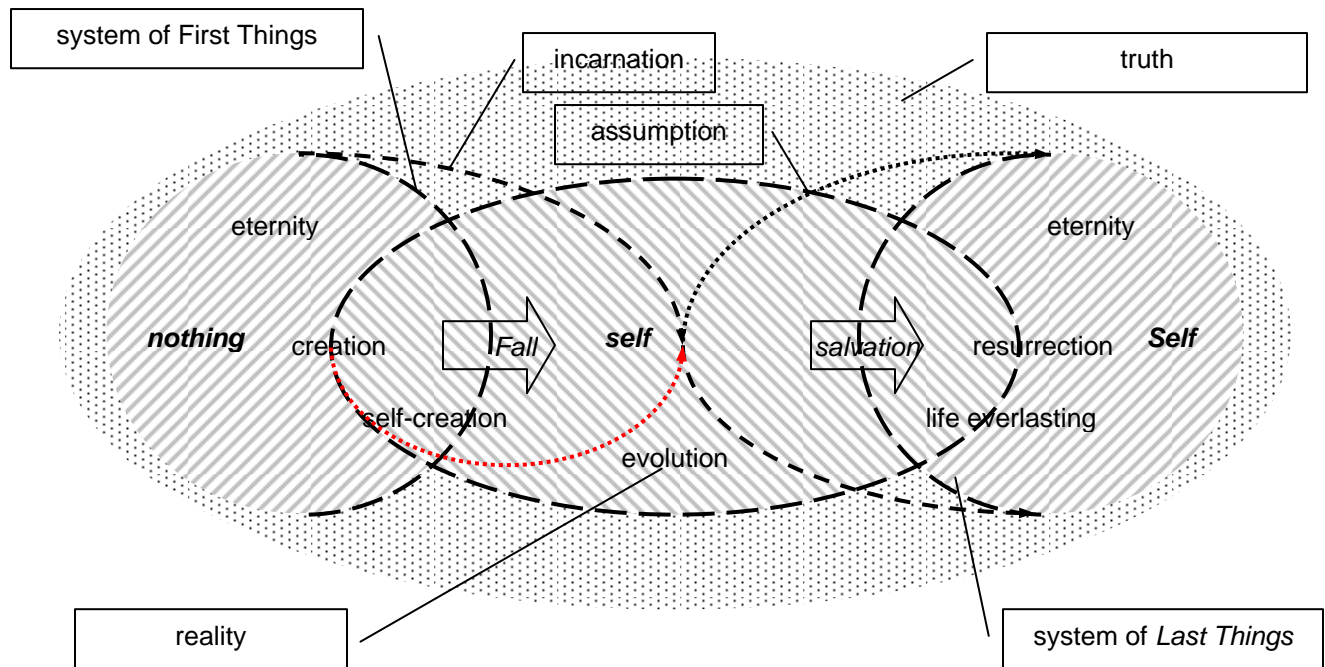


Figure 5: Human Freedom – Complementary Faith and Science Systems

