Theory and Empiricism of Religious Evolution (THERE). Aspects of a Research Program

Paper presented at the conference “Evolution and Trenscendence”,
Catholic Academy of Berlin, June 18-21, 2018

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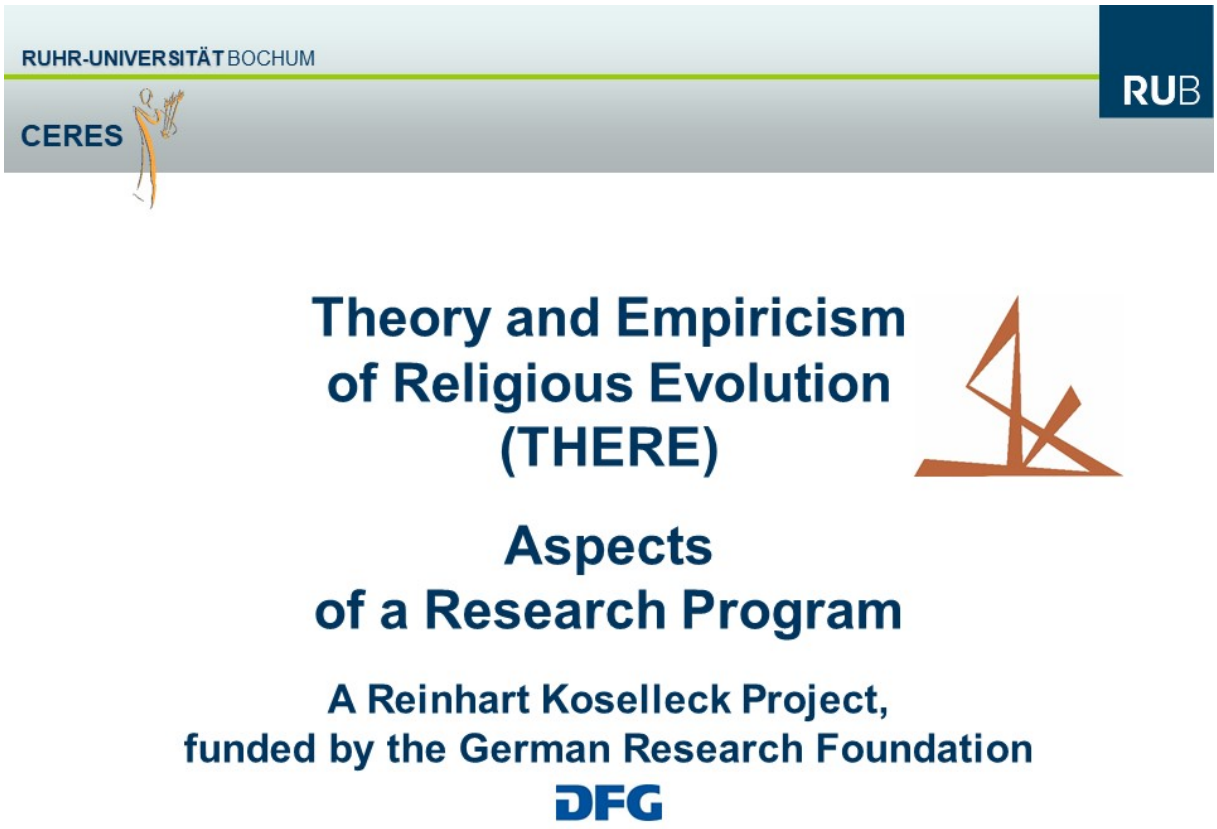

In the following, I will outline some aspects of a research program on a theory and empiricism of religious evolution, in short: THERE. This work is generously supported by the German Research Foundation with a Reinhart Koselleck project.

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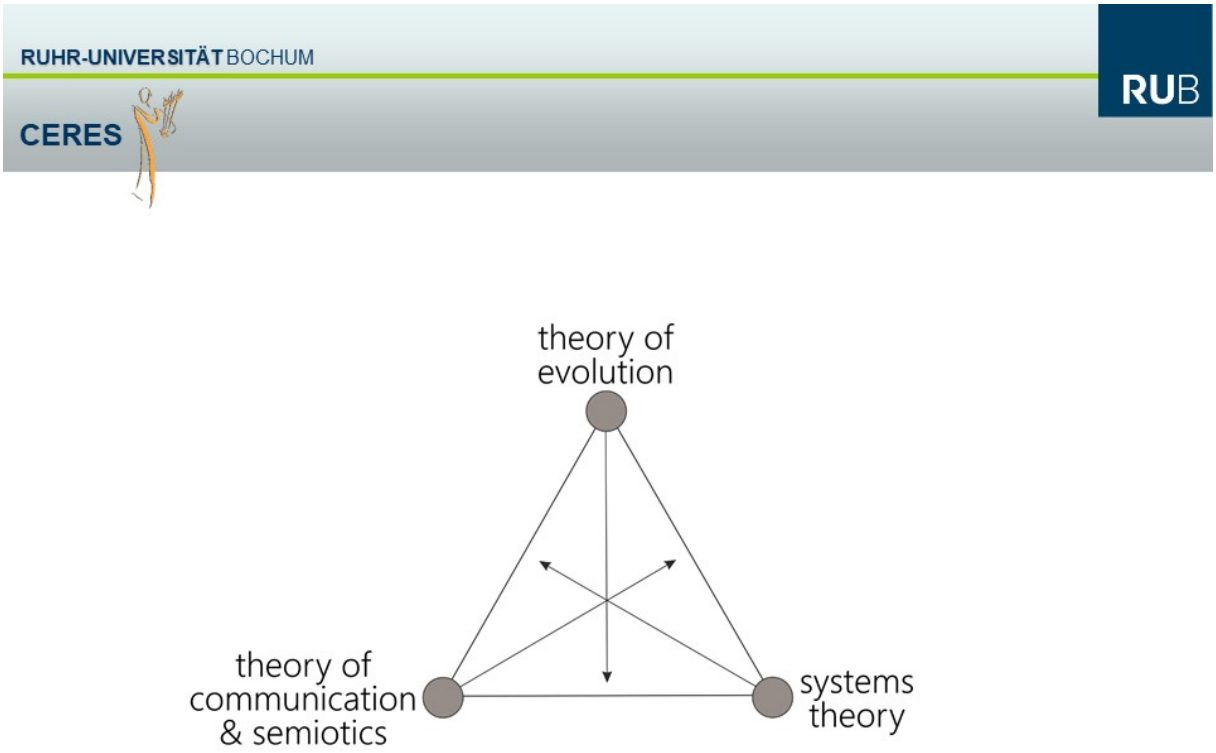

The research program consists of triangulating the theory of evolution with systems theory and a theory of communication which is itself informed by semiotics. Thus, knowledge can be gained that would not be acquired by applying only one of the three theories. I start with some aspects of the general theory of evolution, followed by considerations on systems theory of religion. Thirdly, I will focus on a theory of communication that is informed by semiotics. In the fourth and final part of my talk, I will outline some aspects of a theory of religious evolution.

1 Starting Point

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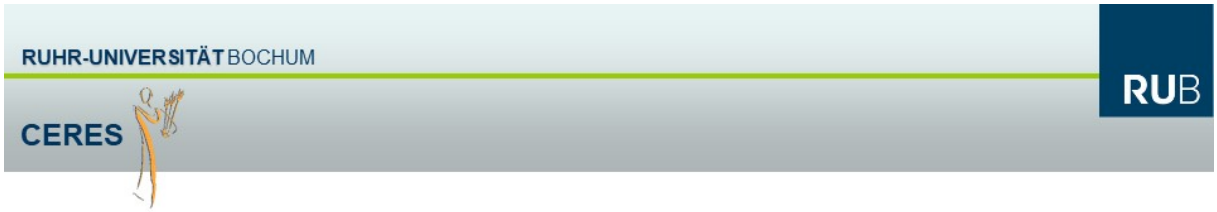

1. Starting point

From a social scientific perspective, religious evolution is *primarily* a co-evolution to societal evolution that proceeds as communication and is a co-evolution to mental, organic, and physical evolution.

3

My starting point consists of the argument that – from a social scientific perspective – religious evolution is *primarily* a co-evolution to societal evolution that proceeds as communication and is a co-evolution to mental, organic, and physical evolution.

This argument consists of two aspects that relate to each other. The first aspect refers to religion as a genuine social entity, in Durkheim's term, un *fait social*, a social fact.[1] Religion is a certain form of making sense, more exactly, a special form of communication that is differentiated from mental processes of individuals. "What happens in the heads of the uncountable individuals can never build up 'religion'—except through communication."[2] Imagination,

[1] Émile Durkheim, *The Rules of Sociological Method* (New York, London, Toronto, Sydney: The Free Press, 1982), Edited with an Introduction by Steven Lukes. Translated by W. D. Halls. First American edition.

[2] Niklas Luhmann, "Religion als Kommunikation," in *Religion als Kommunikation*, ed. Hartmann Tyrell, Volkhard Krech and Hubert Knoblauch, Religion in der Gesellschaft 4 (Würzburg: Ergon, 1998), 137.

experiences, and actions of individual persons can only become religion through a certain utterance that generates follow-up operations of communication. Whatever else religion might mean as a mental phenomenon, phenomena *ascribed as religious* are a matter of communication.

The starting argument has a second aspect. To repeat the argument: From a social scientific perspective, religious evolution is *primarily* a co-evolution to societal evolution that proceeds as communication and is a co-evolution to mental, organic, and physical evolution.

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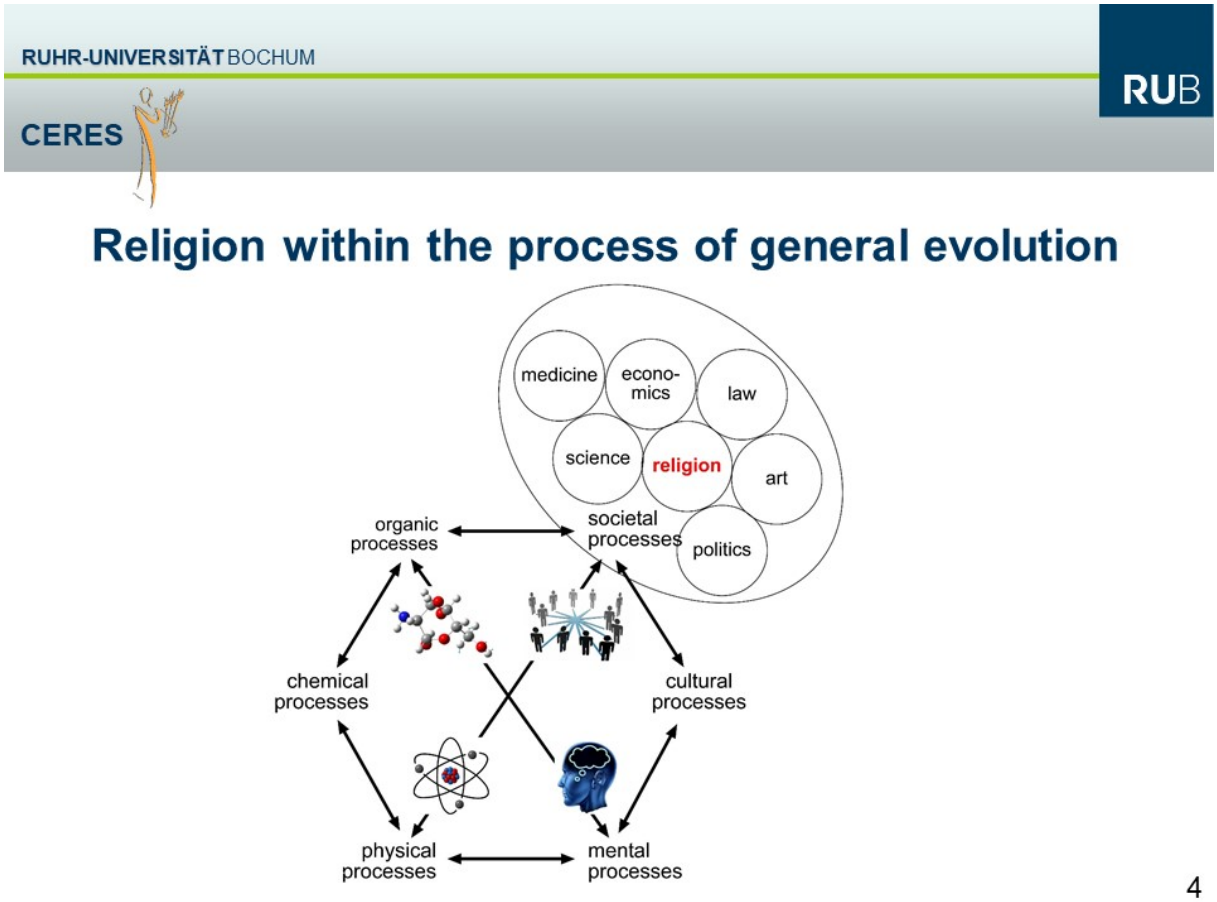

The second aspect of this argument states that societal evolution and its internal differentiation including religion differentiates itself from mental, organic, and physical evolution as its environment. Already Émile Durkheim argued that the social sphere is distinct from mental phenomena. I quote from his *Rules of Sociological Method*: "[…] there is between psychology and sociology the same break in continuity as there is between biology and the physical and chemical sciences. Consequently every time a social phenomenon is directly explained by

a psychological phenomenon, we may rest assured that the explanation is false."[3]

If we want to take the general theory of evolution seriously, we have to follow its basic assumptions, among them the differentiation of variation, selection, and stabilization. However, how can we take the general theory of evolution seriously regarding religious evolution? In order to contribute to answering this question, it is important to consider that evolution is a metaphor. It is not only a metaphor in applying it to socio-cultural processes, but also in the domain of biology. A metaphor is not only a more or less helpless attempt to cope with the unknown, but an essential feature to disclose unidentified parts of reality. At the linguistic level, metaphors draw analogies between different semantic domains. At the ontological level, they establish analogies between different domains of reality. Every working scientific model has to rely to a certain extent on metaphors. I think we have to take the general theory of evolution seriously in this sense, namely to realize unidentified parts also of the socio-cultural reality including religion through applying adequate metaphors. At the same time, metaphors are and the concept of metaphor itself is auto-implicative and recursive.[4] This means: A metaphor can only be explained metaphorically, e.g., in the case of the concept of metaphor, as the "transmission" of a meaning from one domain to another. Thus, I would like to take the general theory of evolution seriously in a metaphorical way, i.e., to treat evolution as an absolute metaphor in the sense of Hans Blumenberg[5] and to apply it to religious evolution metaphorically.

[3] Durkheim, *Rules*, 129.

[4] Paul Ricœur, *The Rule of Metaphor: The Creation of Meaning in Language* (London, New York: Routledge & Kegan Paul, 1978), Translated from the French by Robert Czerny with Kathleen McLaughlin and John Costello, 338–39.

[5] Hans Blumenberg, *Paradigms for a Metaphorology,* Signale (Ithaca, NY: Cornell University Press, 2010), Translated from the German with an afterword by Robert Savage. Ebook edition.

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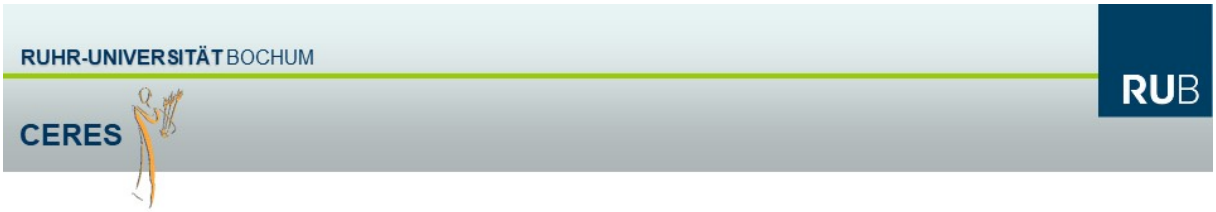

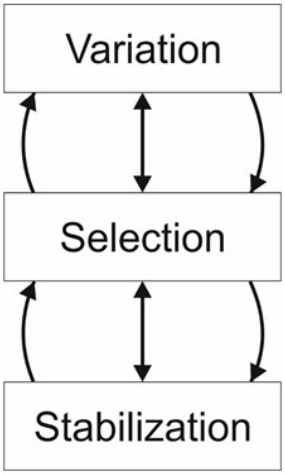

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According to the general theory of evolution, the distinction between variation, selection, and retention or stabilization is a main principle in any evolutionary process, whatever it covers. This triple distinction is substrate-neutral, as claimed, e.g., by Daniel Dennett in 1995.[6] Therefore, it can be applied to many domains outside of biology. I agree with Robert Bellah who states that evolution is "a process that includes everything from single-cell organisms to contemporary human society and culture".[7] However, this does not mean that religion is nothing more than a natural phenomenon, as claimed by Daniel Dennett in 2006.[8] If the theory of evolution is substrate-neutral in general and thus can be applied to different domains, it does not mean that the different domains are identical from the perspective of the general theory of evolution. On the contrary, the general theory of evolution is only then substrate-*neutral*, if the

[6] Daniel C. Dennett, *Darwin's Dangerous Idea: Evolution and the Meanings of Life,* Penguin Science (London: Penguin Books, 1995), 58.
[7] Robert N. Bellah, *Religion in Human Evolution: From the Paleolithic to the Axial Age* (Cambridge, MA: Belknap Press of Harvard University Press, 2011), 44.
[8] Daniel C. Dennett, *Breaking the Spell: Religion as a Natural Phenomenon* (New York: Viking, 2006).

domains that the general theory of evolution is applied to, are and remain different from each other, while only sharing some structural features.

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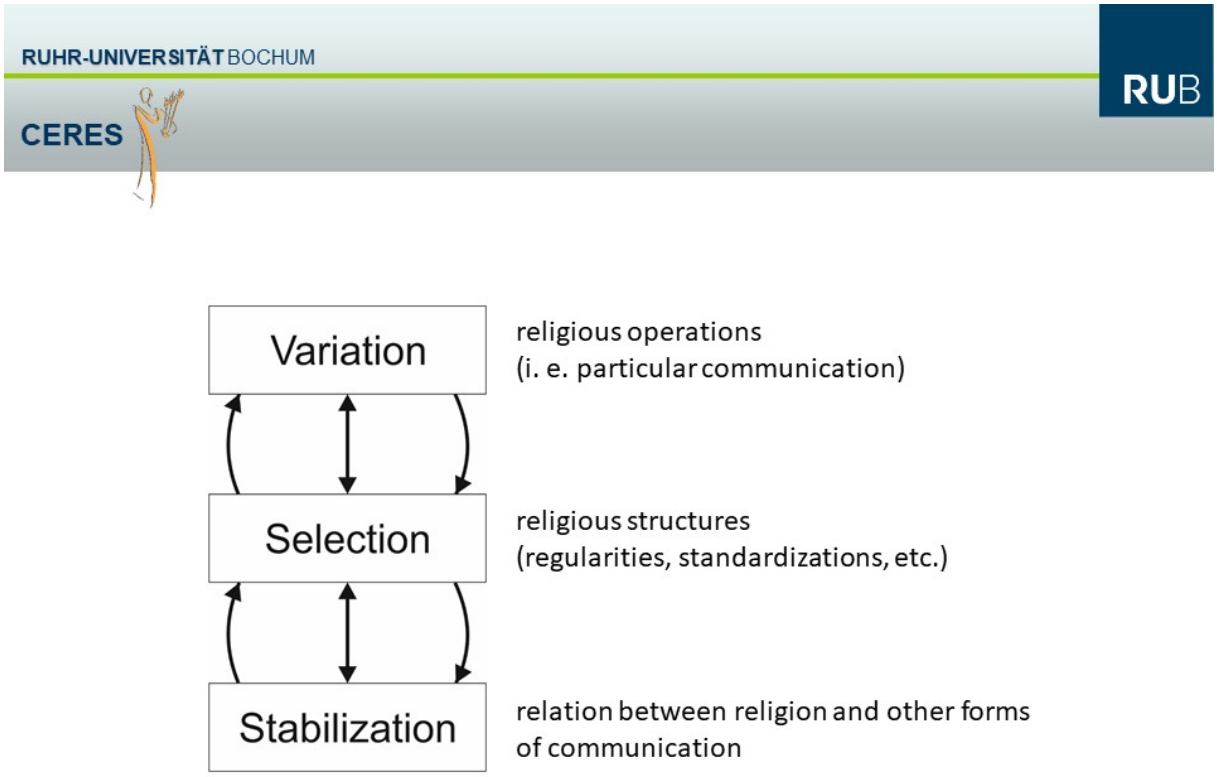

My approach to the theory of religious evolution also draws on the three evolutionary mechanisms of variation, selection, and (re)stabilization. However, in contrast to the biological usage of the theory of evolution, the theory of religious evolution refers variation to religious operations (i. e. single communicative events), selection to religious structures (regularities, standardizations, etc.), and restabilization to the relation between religion and other forms of communication.

However, there is an obstacle to applying the evolutionary assumption of the distinction of variation, selection, and stabilization. This obstacle consists of the fact that evolutionary theory "assumes stability ([i.e.] the state of being restabilized) with the idea of variation."[9] Stabilization therefore is the evolutionary

[9] Niklas Luhmann, *A Systems Theory of Religion*, ed. André Kieserling, Cultural Memory in the Present (Stanford: Stanford University Press, 2013); Translated by David A. Brenner with Adrian Hermann. Ebook edition, 151.This also applies for cases when dealing with the plural: Considering the term, in the field of religious studies, for instance, one occasionally resorts

condition from which variation can occur. In other words: Religion needs a stable state of differentiating itself from its environment in order to be able to produce variations via the mechanism of selection. I think that systems theory helps to understand the relation between variation, selection, and (re)stabilization, as I try to show in the following.

2 Religious evolution in the perspective of systems theory

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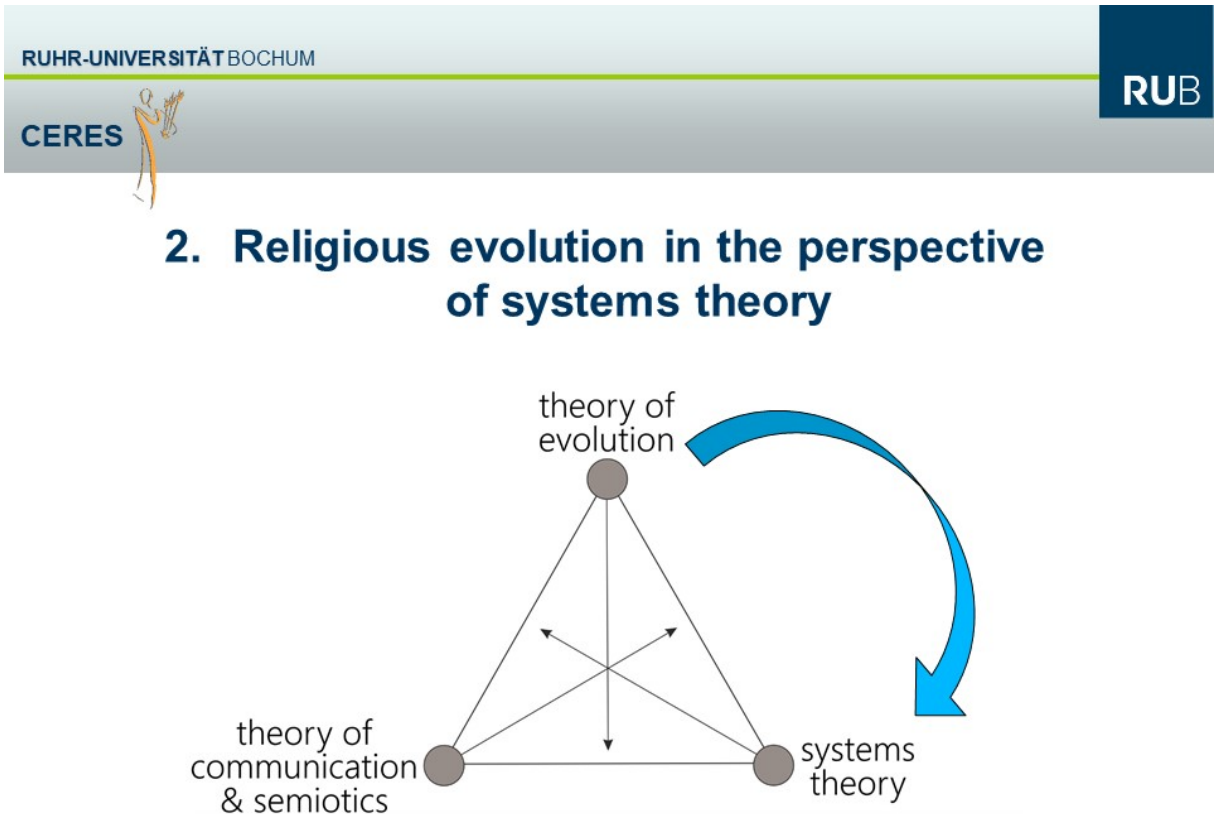

I connect the triple distinction of variation, selection and stabilization with systems theory in the second part of my talk. The main reason why I believe that systems theory can be helpful in solving the above mentioned problem, is the assumption, central to systems theory, that the distinction between system and environment is only represented *within* the system itself.[10] That means: A system is autologic, or, in Niklas Luhmann's term: autopoietic, and relies on an impredicative procedure in the sense that the definition of an element of a set

to using the plural "religions" (cf. as overview Figl 2003). However, epistemically, the plural requires the singular to designate varying religions and to compare them regarding equal/unequal.

[10] Luhmann, *A Systems Theory of Religion*, 151.

depends on the set that, in turn, is dependent on the element to be defined.[11] A system only emerges and reproduces itself through its own operations of distinctions, and these distinctions vary and are regulated through selection. Thus, a stable system and its varying operations are coordinated by system-internal selection.

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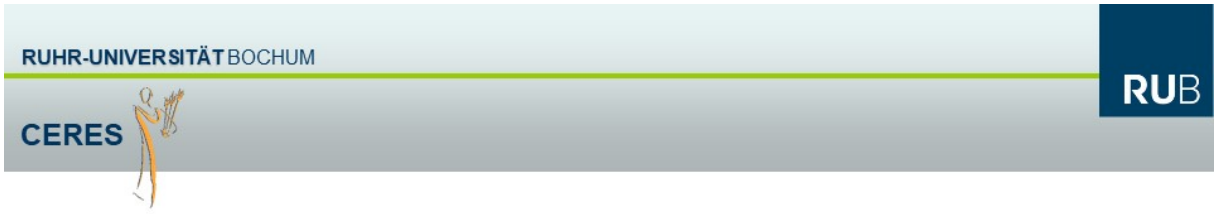

Systems theory treats religion not only as a genuine social fact, but as a special subsystem of the functionally differentiated society. From this perspective, religion copes with otherwise undetermined contingency on the basis of a code in the shape of the distinction between transcendence and immanence. Religion

[11] The impredicative procedure is not a tautology, or a "vicious-circle principle", as Bertrand Russell, "Mathematical Logic as Based on the Theory of Types," *American Journal of Mathematics* 30, no. 3 (1908): 237, argues, but a centering process of gaining insight: "[E]very successful application of an impredicative model is an abductive act of discovery"; Stephen W. Kercel and Donald C. Mikulecky, "Why Do People Behave Religiously?," *Evolution and Cognition* 10, no. 1 (2004): 103.

consists both of the function of coping with contingency and of the code transcendent/immanent. Neither the function nor the code alone would be sufficient to conceptualize religion and to identify it empirically.

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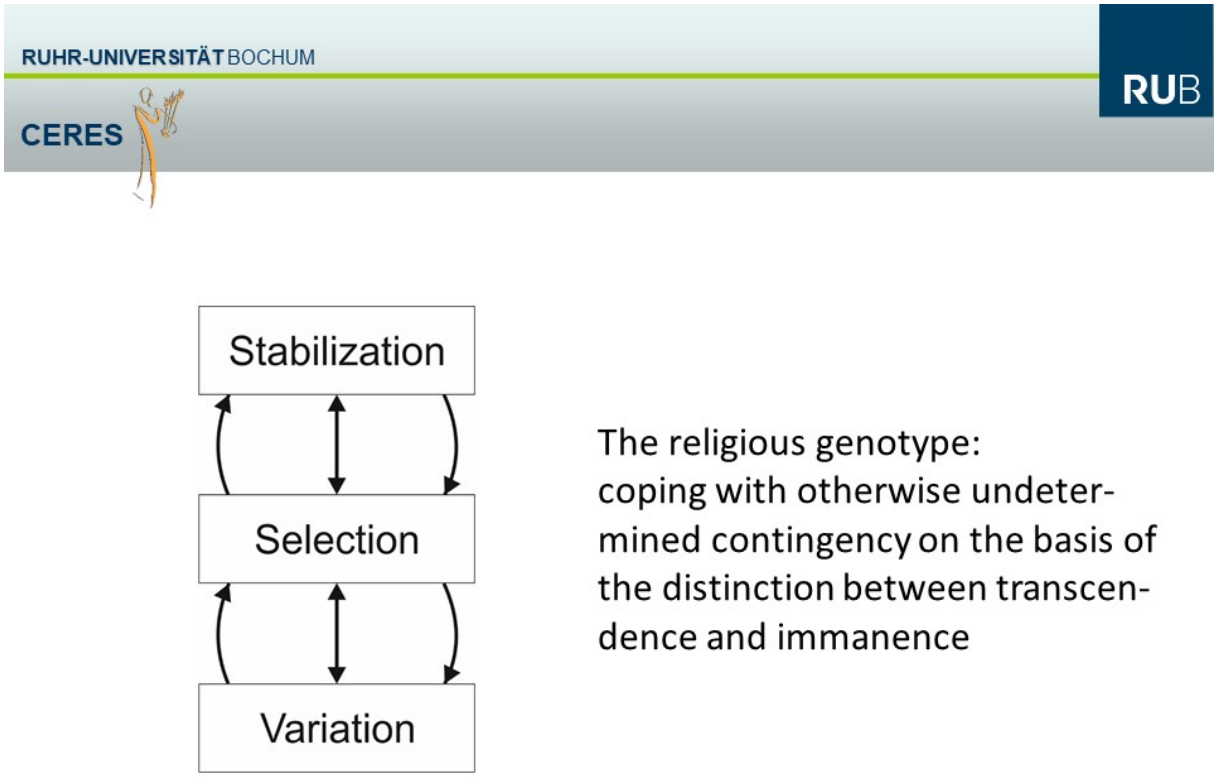

At the same time, systems theory is able to deal with the oscillation of variation, selection, and stabilization. As I said before, variation needs the state of stabilization, from which variation can happen. That is why the stabilized state of religion is the starting point for the reconstruction of religious evolution. Thus, the research program has to be conducted as a retrospective genealogy, starting from today and unfolding historical layers.

My understanding of religion as coping with otherwise undetermined contingency on the basis of the distinction between transcendence and immanence can be regared as the genotype of religious evolution – analogous to the genetic equipment of an organism in biology. Different religions then are phenotypes as varying realizations of the genotype. Phenotypes are under the joint

influences of genetic and environmental factors.[12] With respect to religious evolution, the relation between potential and its realization comes into play, in addition. We can only identify the potential *for* religion through the realization *of* religion.

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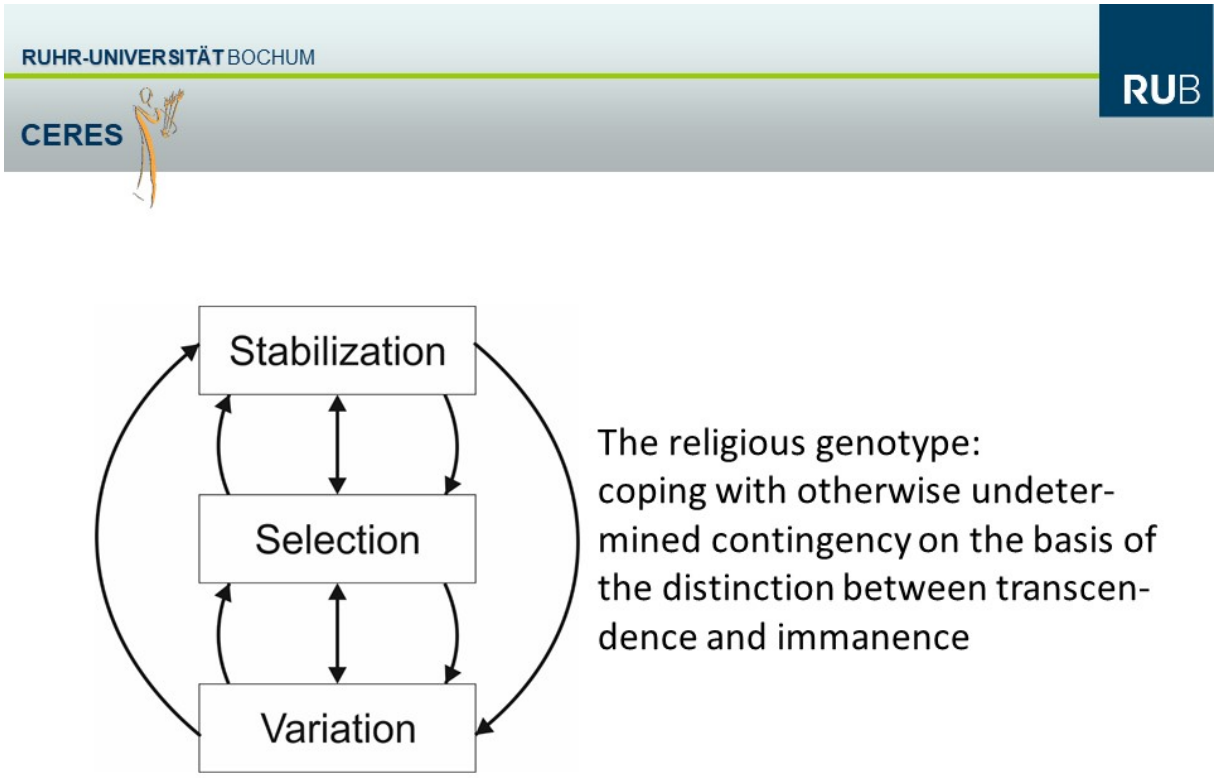

The relation between genotype and phenotypes is recursive, and it's mediated by selection. On the one hand, in phylogeny, i.e., in the evolution of a species, nature selects pathways of the development of an individual organism (i.e. at the ontogenetic level) that lead to certain results in the sexually mature phenotype, as the developmental and comparative psychologist Michael Tomasello explains.[13] On the other hand, "[o]n the side of generating phenotypic variation, […] the organism indeed participates in its own evolution, and does so with a bias related to its long history of variation and selection", as outlined by

[12] William J. Etges, "No Boundaries: Genomes, Organisms, and Ecological Interactions Responsible for Divergence and Reproductive Isolation," *The Journal of Heredity* 105, Supplement 1 (2014).
[13] Michael Tomasello, *The Cultural Origins of Human Cognition* (Cambridge, MA, London: Harvard University Press, 1999), 49.

the evolutionary biologists Marc Kirschner and John Gerhart.[14] Applied to the theory of religious evolution, this means that the genotype of religion not only selects the pathways of possible variations, but it also means that varying religions have an impact on the stabilization of the genotype.

Systems theory helps to understand the recursive relationship between the religious genotype and religious phenotypes as well between variation, selection, and (re)stabilization, namely by considering the threefold reference of religion as a societal sub-system.

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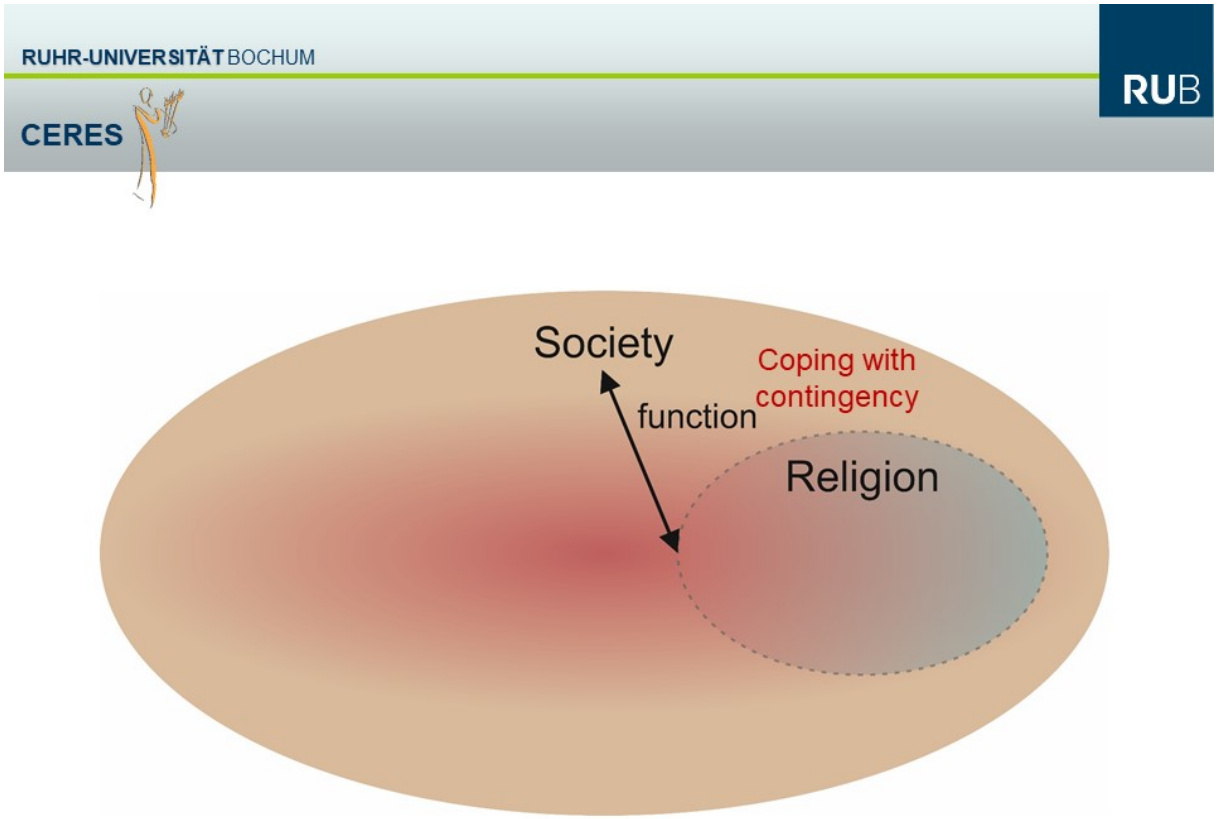

First, religion is a societal function, namely coping with otherwise undetermined contingency. However, religion couldn't serve as a societal function, if it wouldn't differentiate itself from its environment as a system.

[14] Marc Kirschner and John Gerhart, *The Plausibility of Life: Resolving Darwin's Dilemma* (New Haven: Yale University Press, 2005), Illustrated by John Norton, 252–53.

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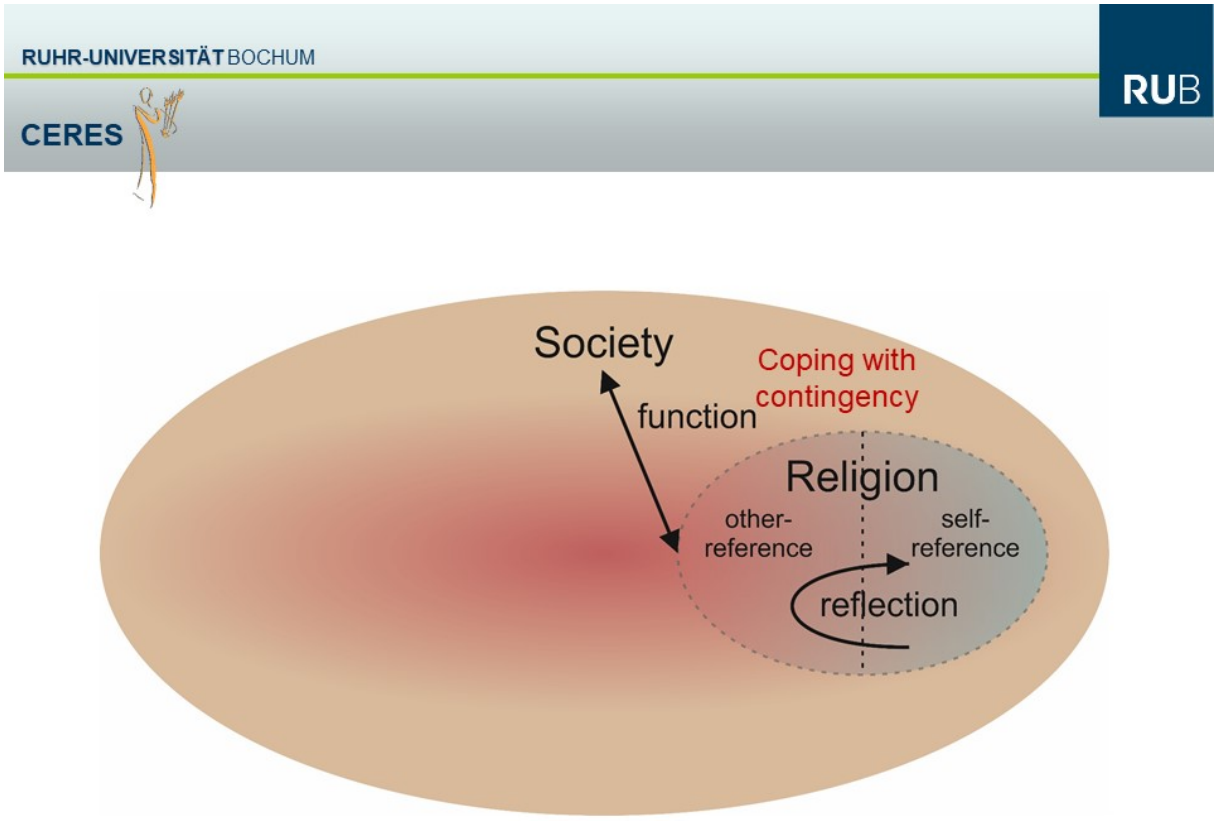

Thus, it secondly has to build *eigenstructures* in the shape of a system reference, which internally distinguishes between system and environment and mediates self-reference and other-reference by means of a special code.

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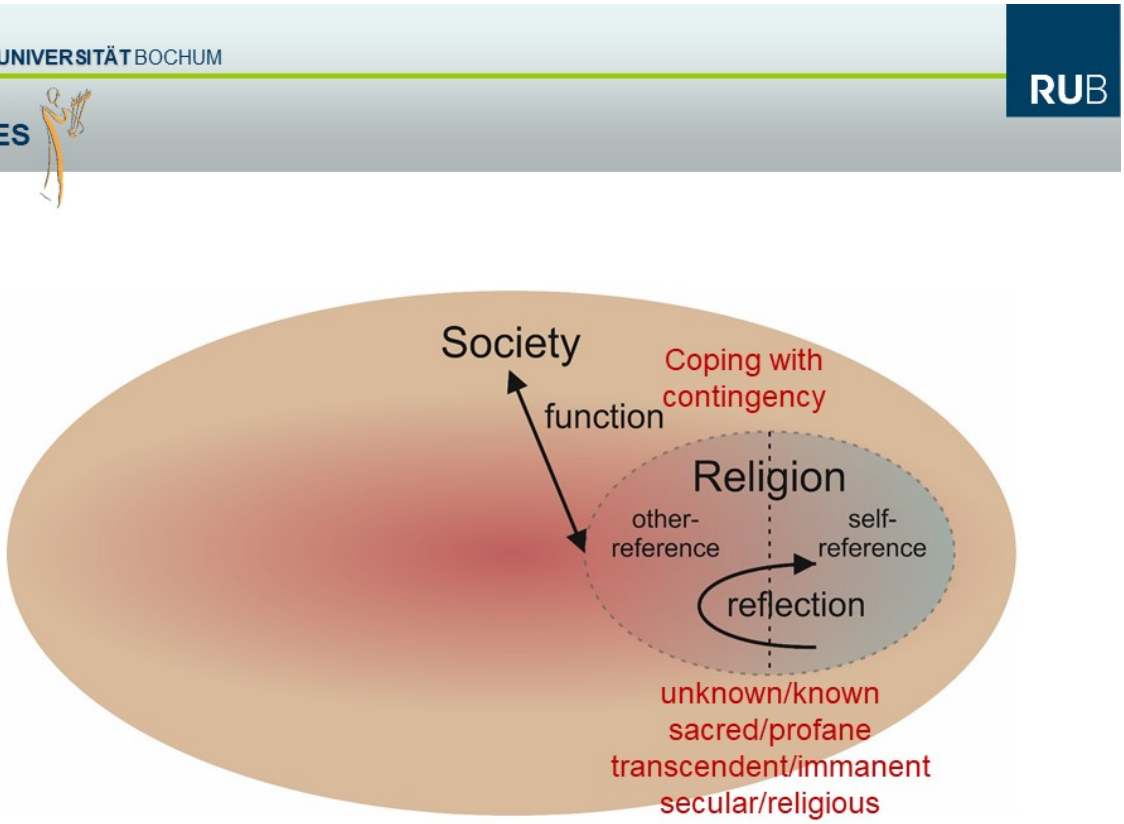

Over the course of evolution, religion experiments with different codes. It presumably starts with the distinction between unknown and known in pre-history, as well as between sacred and profane in early civilizations. Both distinctions bear the potential for the distinction between transcendence and immanence that has been established since axial cultures. The distinction between secular and religious in modern times reflects the state of religion in a functionally differentiated society. Thus, the different codes mirror the process of religion's emergence as a stable societal sub-system.

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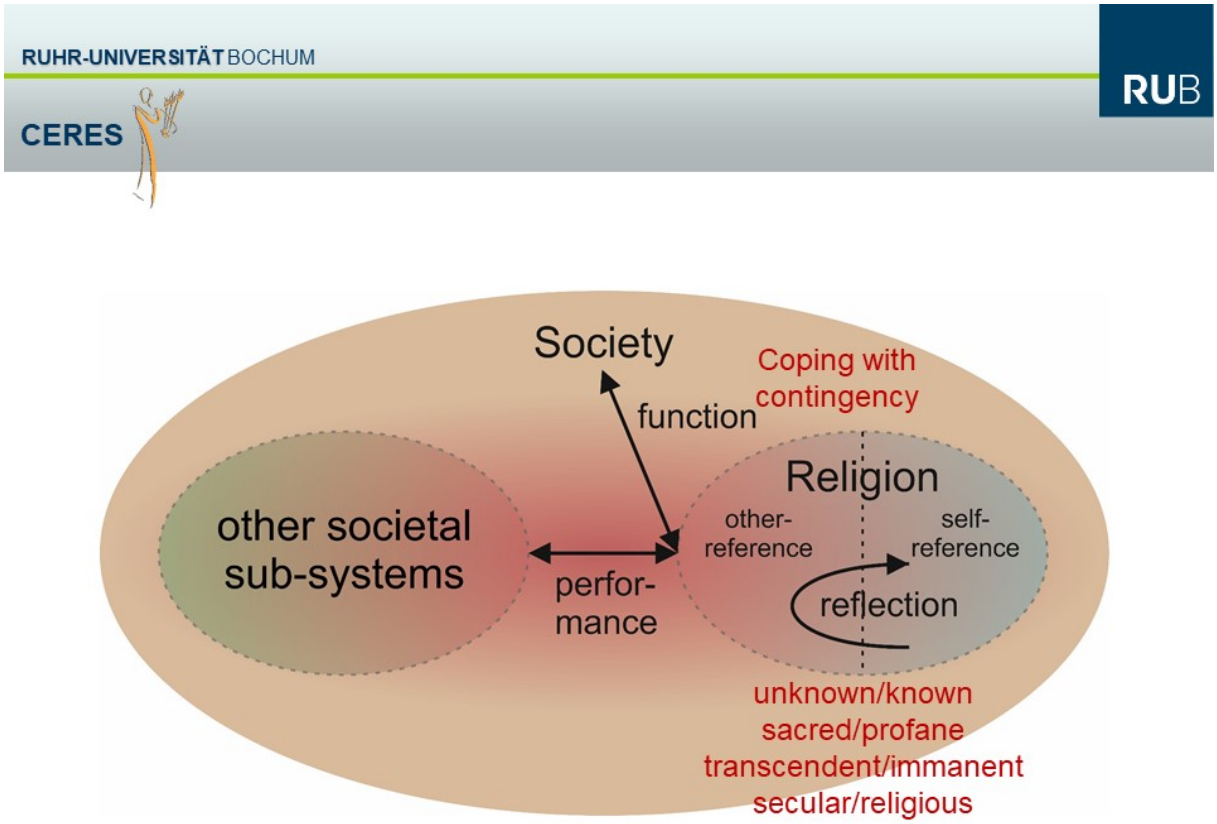

The third kind of reference consists of performances in the sense of “services” for other societal sub-systems.

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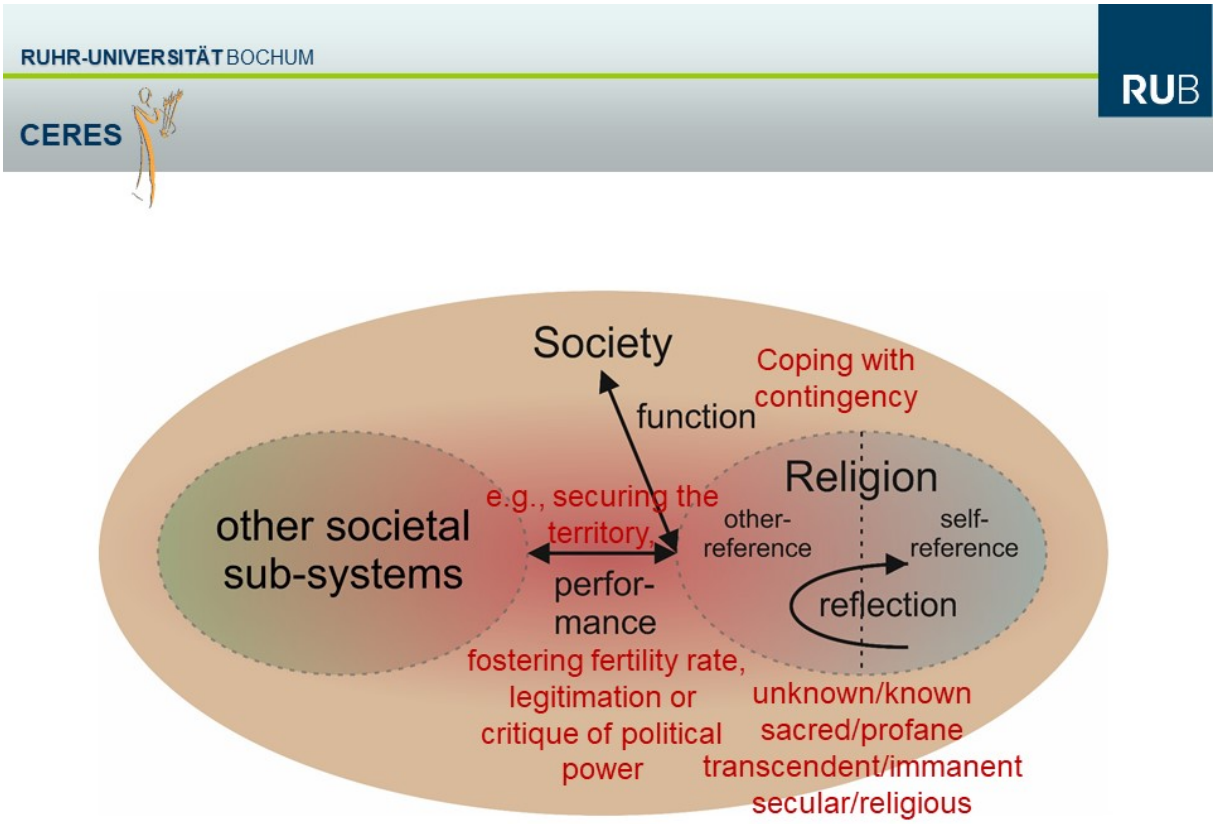

Securing the territory in pre-historic times[15], fostering fertility rate, or the legitimation and critique of political power, respectively, are examples of services of religion for other societal sub-systems. Religion might also provide services for physiological processes, e.g., the release of endorphins[16] and the messenger dopamine.[17] It is, however, important to consider that all these services are only to be observed from outside religion, i.e., from religion's environment. It is hardly imaginable that, during a religious ritual, a religious expert would say: "Now we perform this ritual in order to trigger the release of endorphins in our brains." This interpretation of a religious ritual is only possible from outside of religion.

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[15] Ina Wunn and Davina Grojnowski, *Ancestors, Territoriality, and Gods: A Natural History of Religion* (Dordrecht, Heidelberg, New York: Springer, 2016).

[16] Robin Ian MacDonald Dunbar, Louise Barrett and John Lycett, *Evolutionary Psychology: A Beginner's Guide. Human Behaviour, Evolution, and the Mind* (Oxford: Oneworld, 2005), 166.

[17] Fred H. Previc, "The Role of the Extrapersonal Brain Systems in Religious Activity," *Consciousness and Cognition* 15, no. 3 (2006); Edward Osborne Wilson, *The Meaning of Human Existence* (New York: Liveright Publishing Corporation, 2014), Ebook edition, 89.

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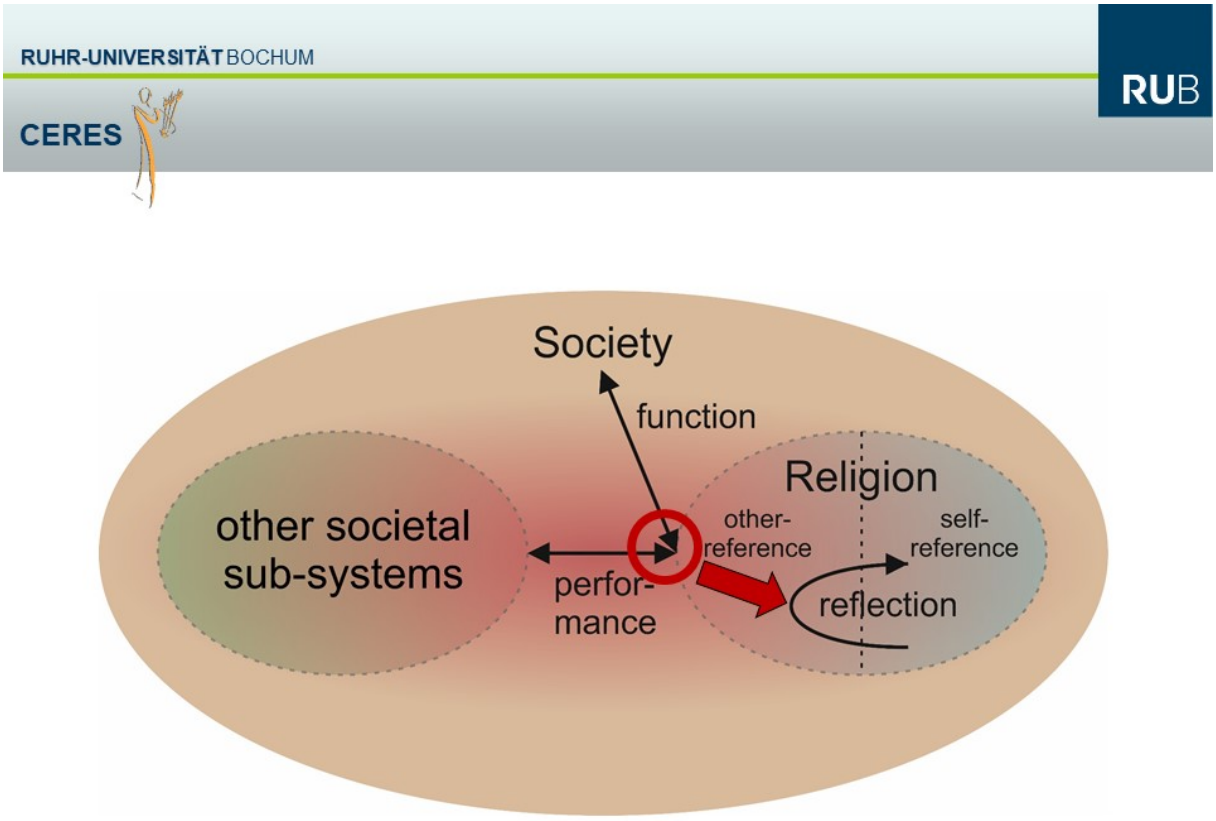

Nevertheless, religion internally observes its impact both at the societal level and with regard to other societal sub-systems. This explains why and how selection within the religious system mediates between stabilization and variation. There is a discussion among scholars specializing in the evolution of religion whether religion is adaptive to its environment or a byproduct of evolution. It's probably both. However, from the perspective of systems theory, religion cannot control its success with regard to general evolution, since it has no access to its environment. The unspecific environment of every system "contains no information. The environment is as it is", as Heinz von Foerster argues.[18] Thus, religion can only *offer* its way of making sense. Whether it will be accepted or not, is a question of the societal and mental environment.

[18] Heinz von Foerster, *Observing Systems*, 2nd ed., Systems Inquiry Series (Seaside, CA: Intersystems Publications, 1984), 263.

3 The theory of religious evolution from the perspective of a semiotically informed theory of communication

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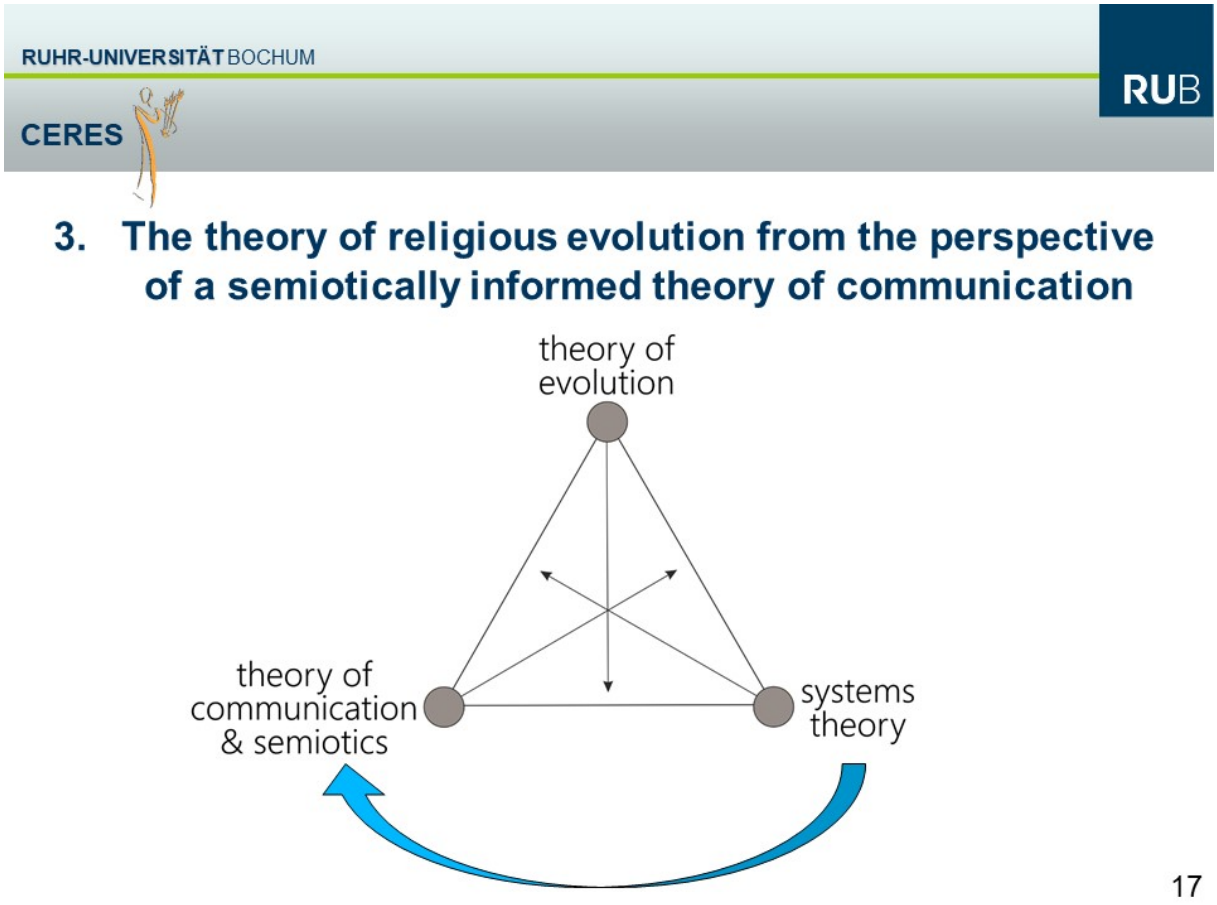

In the third part of my talk, I turn to the understanding of religion as communication. The reason for treating religion as communication is simple: If something is being *ascribed as religious*, this event is a part of communication. However, I don't restrict religious communication to verbal communication; it may also cover mutually perceived perception.

Semiotics comes into play because it helps to understand how communication proceeds *systemically*, as I try to show in the following. Communication is based on the activation of sign processes, and sign processes provide the elementary syntax of communication.

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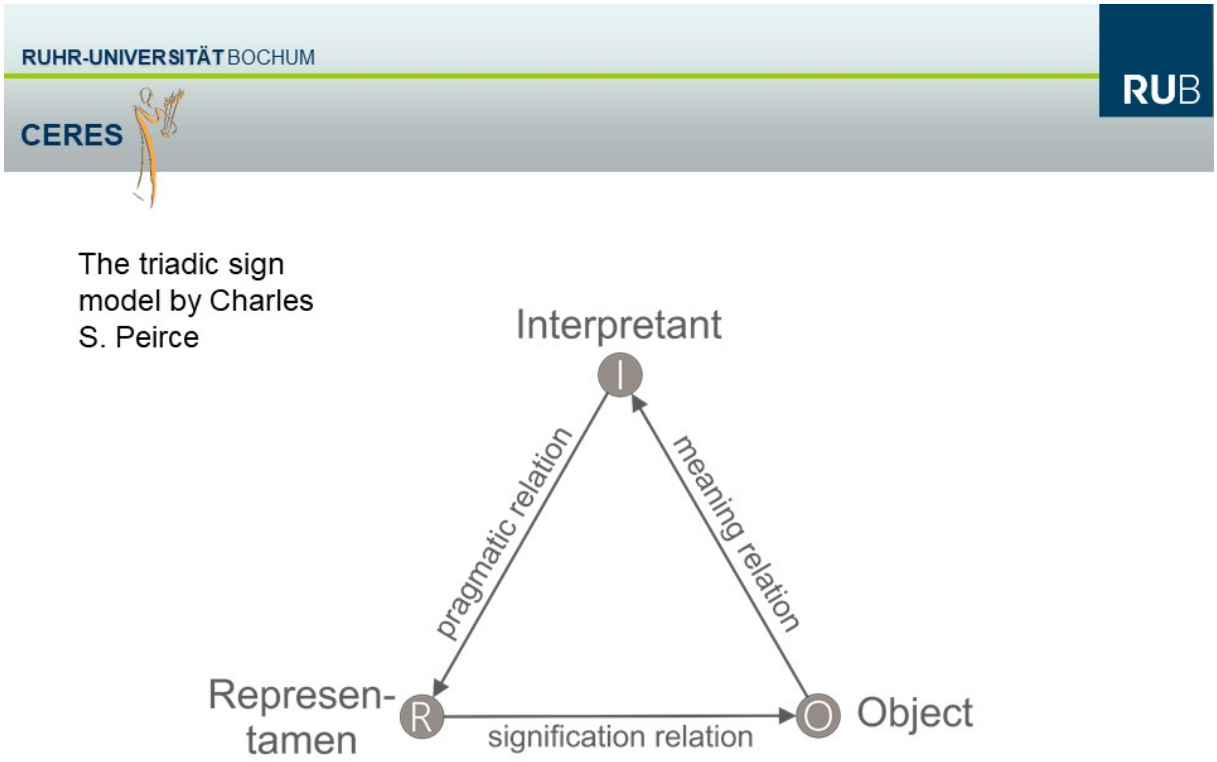

According to Charles Sanders Peirce, a sign always consists of three aspects, namely

- a *representamen* (R) as the sign vehicle;
- an *object* (O) that a sign refers to;
- and an *interpretant* (I) that draws a relation between the representamen and the object.

The Peircean sign model can be summarized with the following sentence: “a sign stands for an object in some respect to some interpretant.”[19] In addition, Peirce emphasizes the permanent referential character of signs: “the meaning of a sign is the sign it has to be translated into.”[20]

[19] Richard J. Parmentier, *Signs in Society: Studies in Semiotic Anthropology,* Advances in Semiotics (Bloomington: Indiana University Press, 1994), 16.
[20] Charles Sanders Peirce, *The Collected Papers of Charles Sanders Peirce,* Past Masters (Charlottesville, VA: InteLex Corporation, 1994), Vols. 1-6 edited by Charles Hartshorne and Paul Weiss; vols. 7-8 edited by Arthur W. Burks. Electronic edition of the print edition 1958–1966, edited by John Deely, CP 4.132.

In terms of systems theory, an intepretant is a processor of a system. This means: The interpretant regulates the processes in a system. The newer systems theory knows that a system consists of at least two processors.

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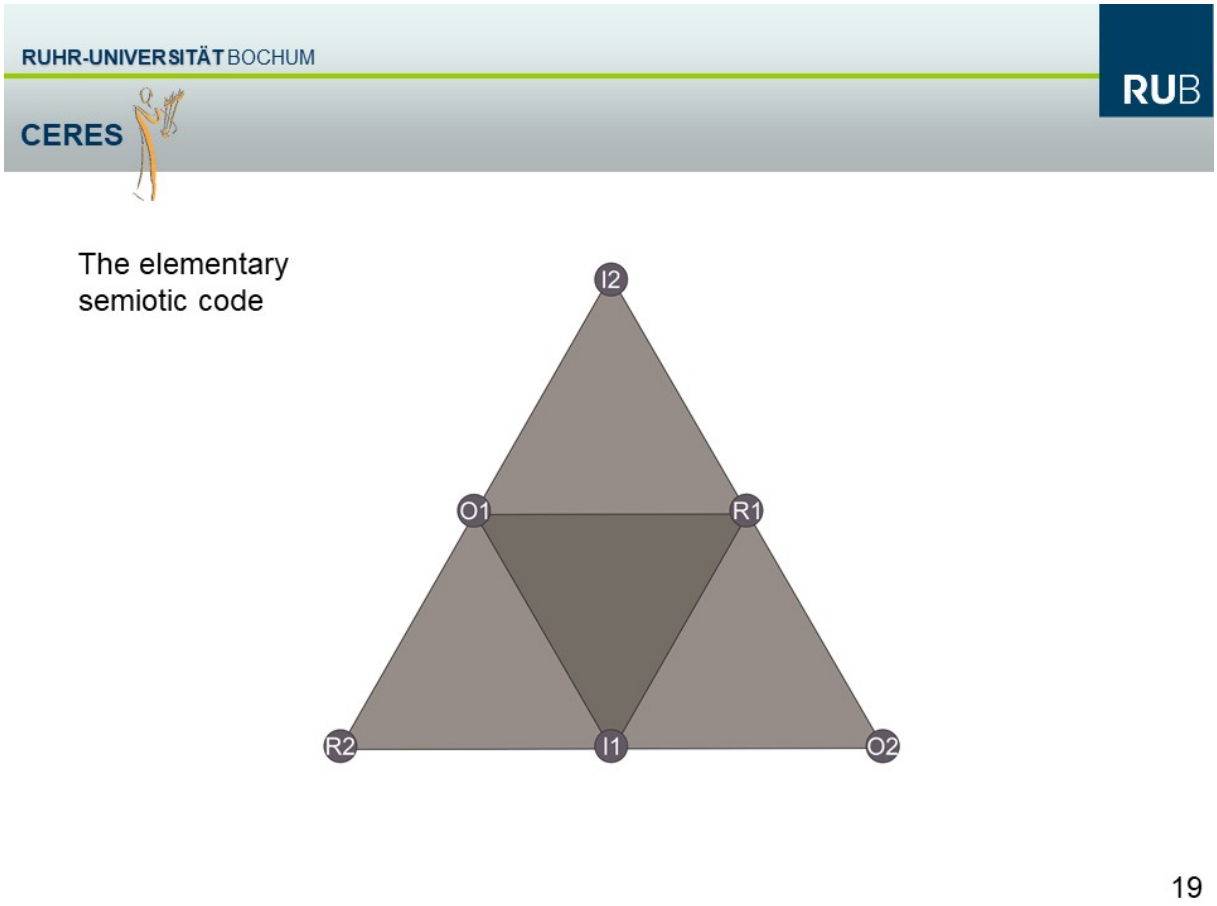

If we combine this insight with the sign concept of Peirce, the elementary semiotic system consists of a double triad of representamen, object and interpretant. This double triad constitutes the general semiotic code – independent from any semantic and pragmatic specification.

At the same time, the elementary semiotic system establishes the internal distinction between self-referential system and other-referential environment, as we have learned from systems theory.

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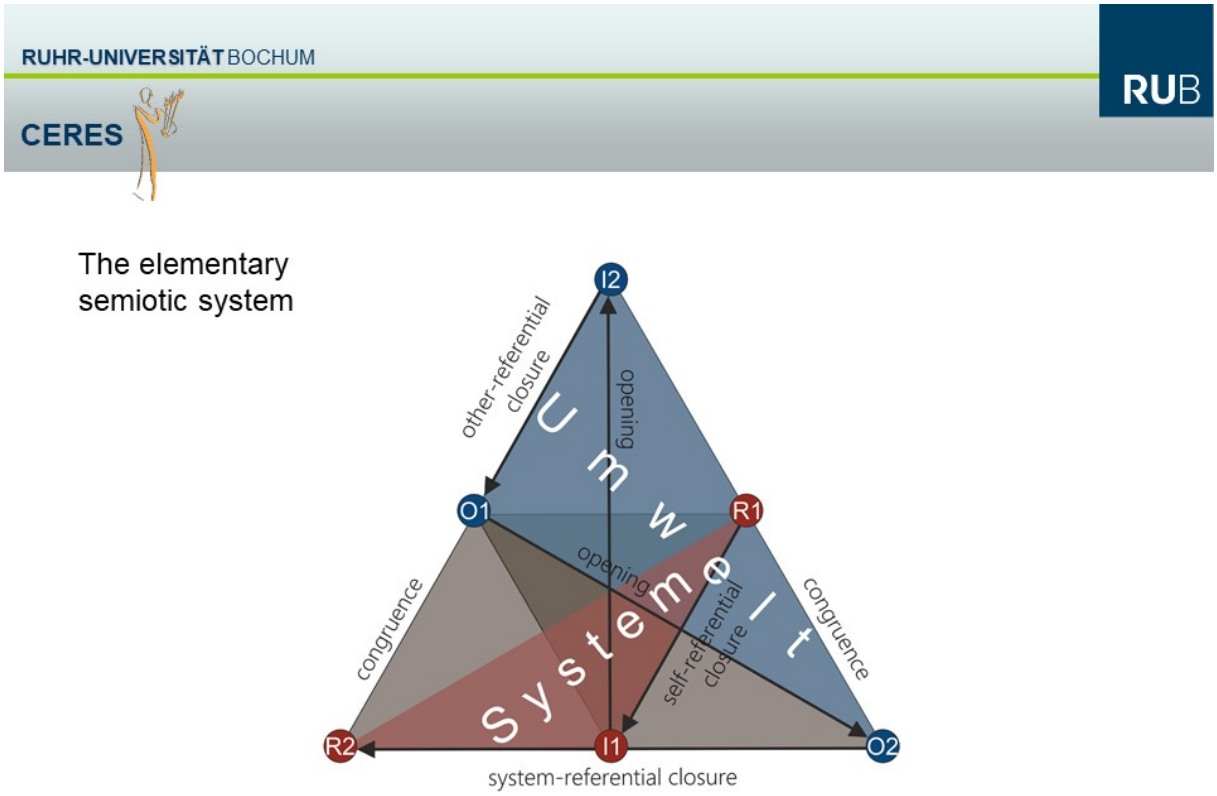

However, the system-internal distinction of system and environment does not equal the distinction between the two sign triads, but interleaves them with each other. Thus, a semiotic system – as any system – constitutes itself *as* the distinction between system and environment based on the general semiotic code of two times a representamen, a sign object, and an interpretant. Like organisms, semiotic systems do not passively adapt to conditions in their environment, but actively construct and modify environmental conditions that may influence other environmental sources of selection.[21]

Against the backdrop of these general considerations on semiotics, the question of what constitutes a complete religious sign as the elementary unit of religion is to be dealt with. The general semiotic code must be specified so that religion can distinguish itself – and can be distinguished – from other forms of

[21] Richard C. Lewontin, "Gene, Organism and Environment," in *Evolution from Molecules to Men*, ed. D. S. Bendall (Cambridge: Cambridge University Press, 1983); Richard C. Lewontin, *The Triple Helix: Gene, Organism, and Environment* (Cambridge, MA: Harvard University Press, 2000) This relation between system and its own environment is today called niche construction; cf. Kevin N. Laland, Blake Matthews, and Marcus W. Feldman, "An Introduction to Niche Construction Theory," *Evolutionary Ecology* 30, no. 2 (2016).

semiosis and fulfill its societal function of ultimately coping with undetermined contingency. In its differentiated form, religion is based on the code transcendent/immanent in order to proceed systemically, to distinguish itself from other social subsystems, and to fulfill its societal function of ultimately coping with undetermined contingency. In accordance with the assumption that the religious code *in nuce* comprises all that is necessary for religious communication (as is the case with the genetic code for organic development), the binary distinction together with its mediating unity must be found in the religious code. Taking the distincions between self-reference and other-reference as well as between transcendence and immanence, including their unity, into consideration, the complete religious sign as the smallest religious system can be modeled as follows:

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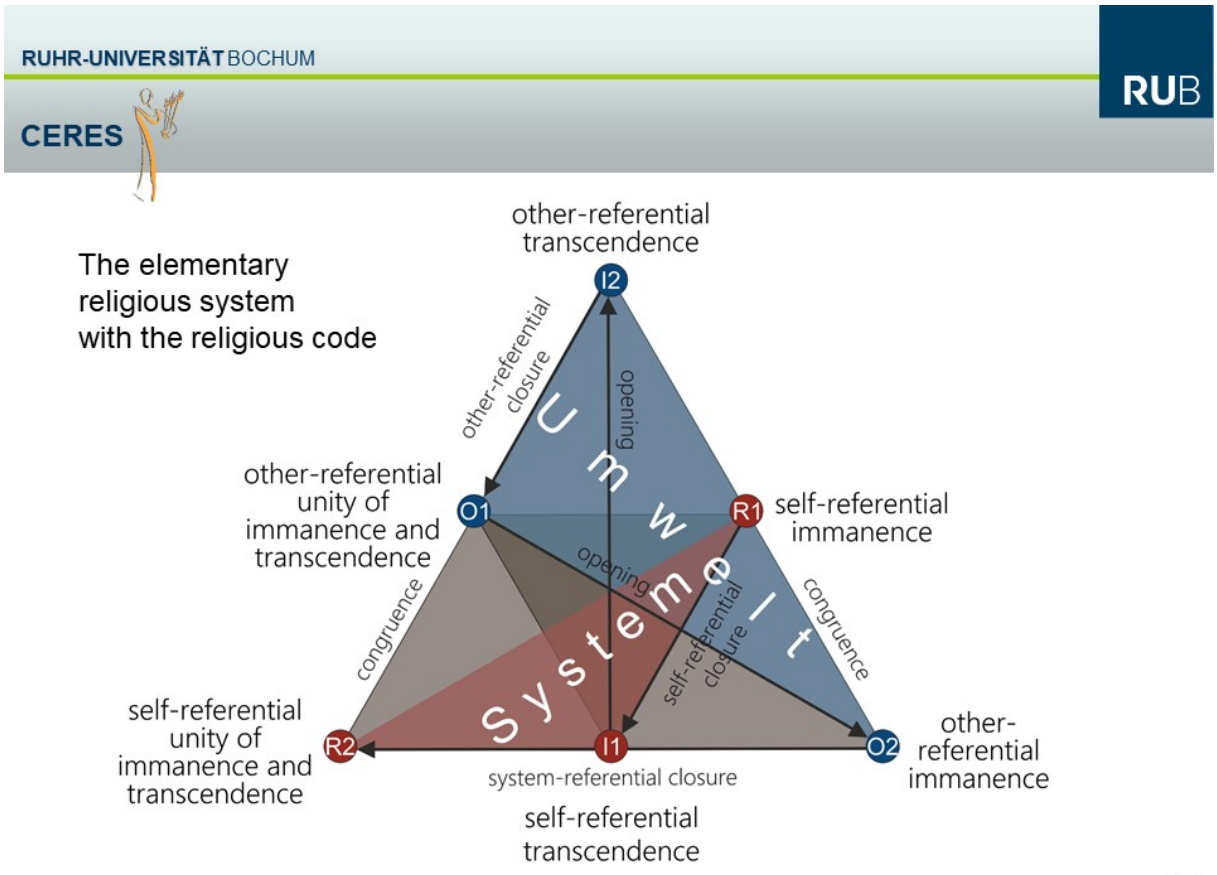


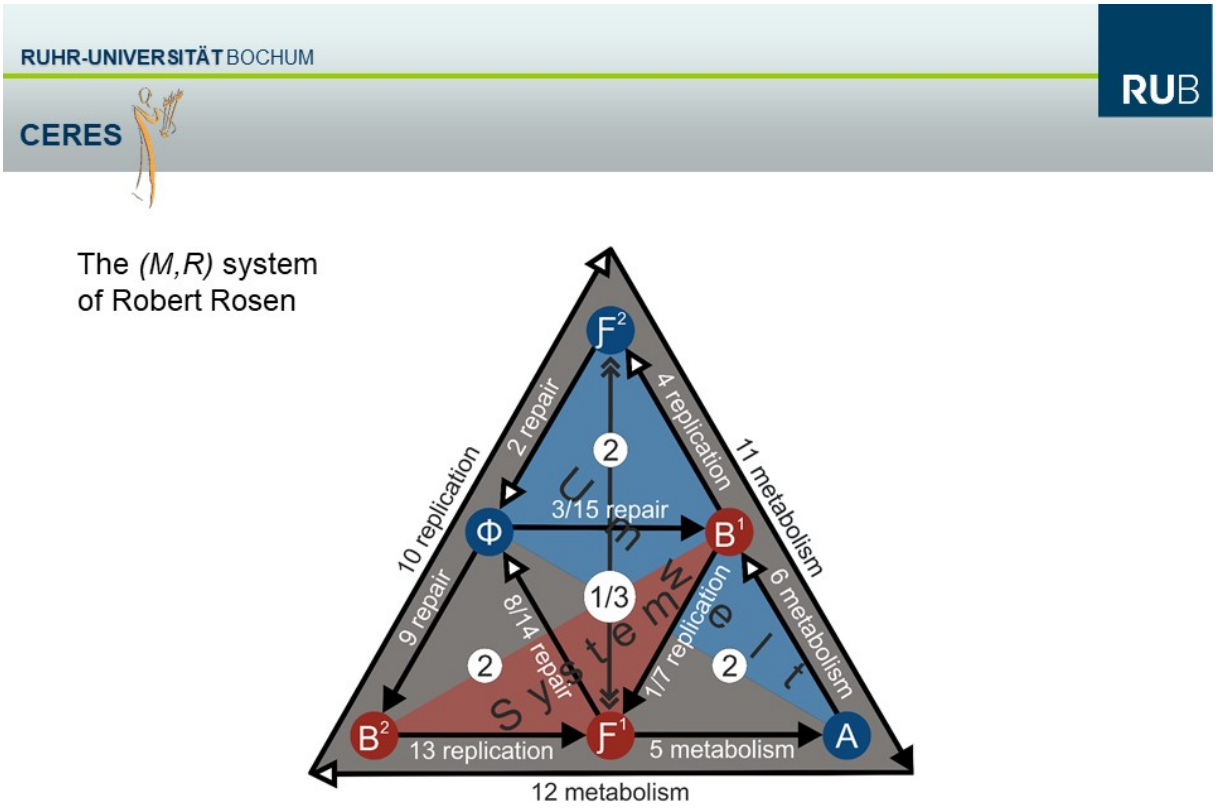
Religious semiosis always starts at the representamen of a previous sign form (R^1) and proceeds within the oscillation of closing and opening. As the religious system is in the process of being formed, the representamen R^1 has the value of immanence. However, it only becomes an immanent sign component

through the closure in the direction of self-referential transcendence at the position of I^1, since designating something as immanent only makes sense in connection with transcendence. The first processor I^1 interprets the representamen R^1 as being immanent. The self-referential closure based on the code transcendent/immanent is the first system-constitutive distinction. If, as a result, the sign system is determined to be religious, the opening to the next state of the system must also be based on the religious code. It occurs, however, in the direction of the value of other-referential transcendence. This is the first step of the emergence of religious information in the sense of "a difference which makes a difference", as Gregory Bateson defines information.[22] This is where the forming religious sign system takes the path to the other-referential unity of transcendence and immanence. This process is analogous to genotypes evolving sensitivities to the environmental conditions that they construct.[23] The sign object O^1 has the value of the other-referential unity of transcendence and immanence, because on the one hand, it is interpreted in the perspective of transcendence by I^2, but on the other hand, it opens towards other-referential immanence that is positioned at O^2. This act of re-opening completes the second step of the emergence of religious information. Eventually, the other-referential immanence at the semiotic position of O^2 is transferred to the self-referential unity of transcendence and immanence at the position of R^2.

[22] Gregory Bateson, *Steps to an Ecology of Mind: Collected Essays in Anthropology, Psychiatry, Evolution, and Epistemology* (Northvale, NJ, London: Jason Aronson Inc., 1987), 276, 321 et pass..

[23] Emma Wolinsky and Eric Libby, "Evolution of Regulated Phenotypic Expression during a Transition to Multicellularity," *Evolutionary Ecology* 30, no. 2 (2016).

22.Slide:



22

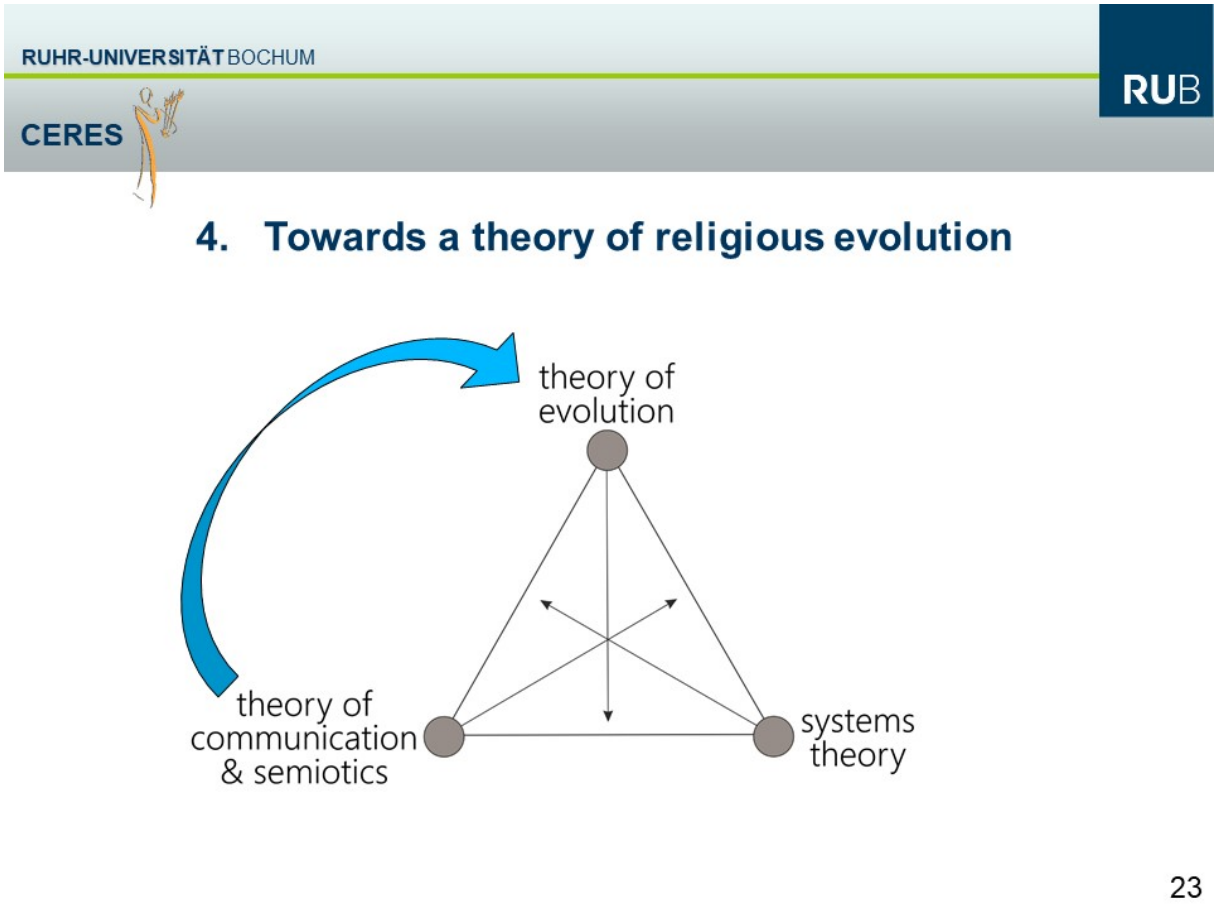
Due to time restrictions I can only hint at the observation that there is an isomorphy, a structural analogy between the general semiotic code and the basic religious system as modeled here on the one hand and the so called *(M,R)*-system developed by the theoretical biologist Robert Rosen on the other hand.[24] This model explains how enzymes (*M*), RNA (*R*), and functional, duplicating DNA (β-mapping) interact. Thus, there is a structural analogy between organic and religious processes at the micro-level.

Finally, I would like to turn to religious evolution at the meso- and macro-level.

[24] Robert Rosen, *Life Itself: A Comprehensive Inquiry into the Nature, Origin, and Fabrication of Life,* Complexity in Ecological Systems Series (New York: Columbia University Press, 1991).

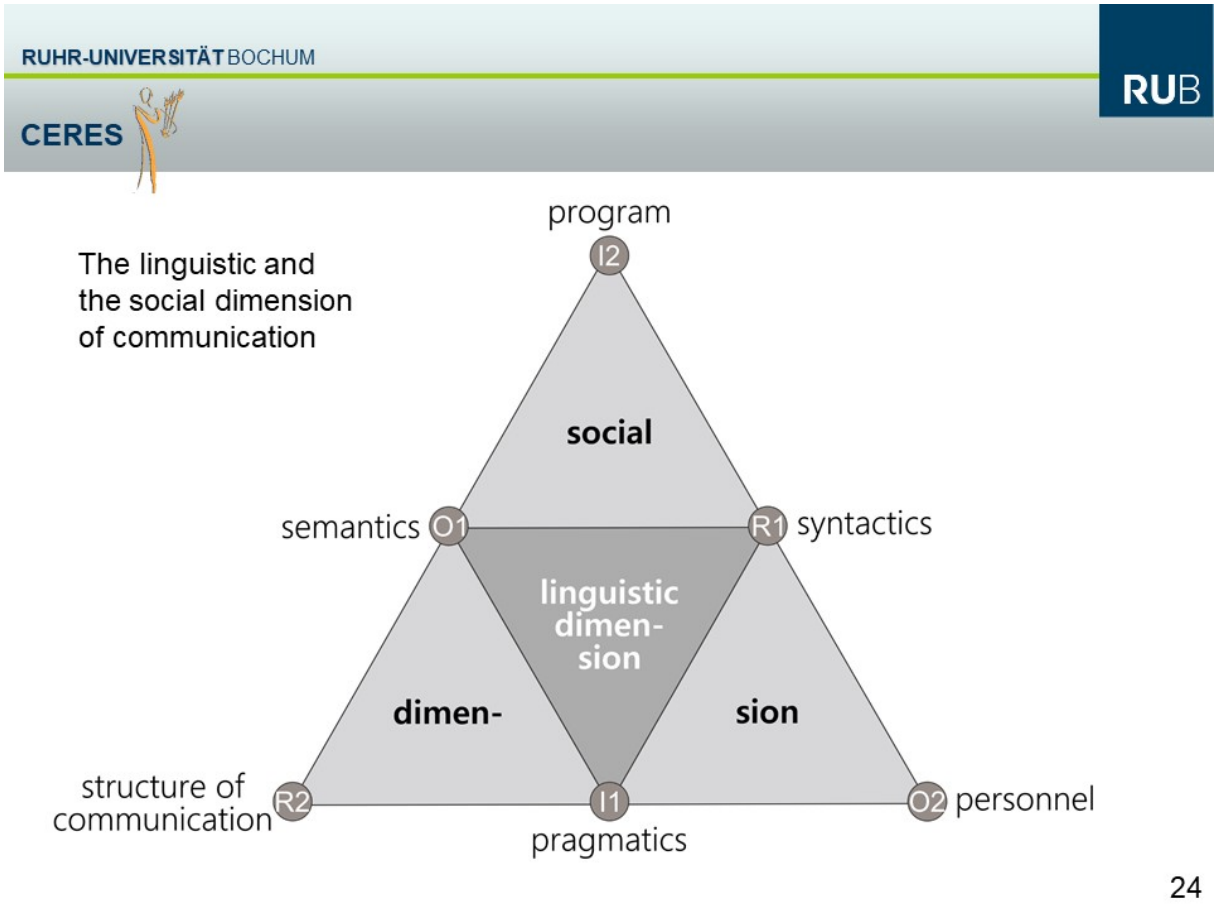
4 Towards a theory of religious evolution

23.Slide:



From systems theory and semiotics back to the theory of religious evolution.

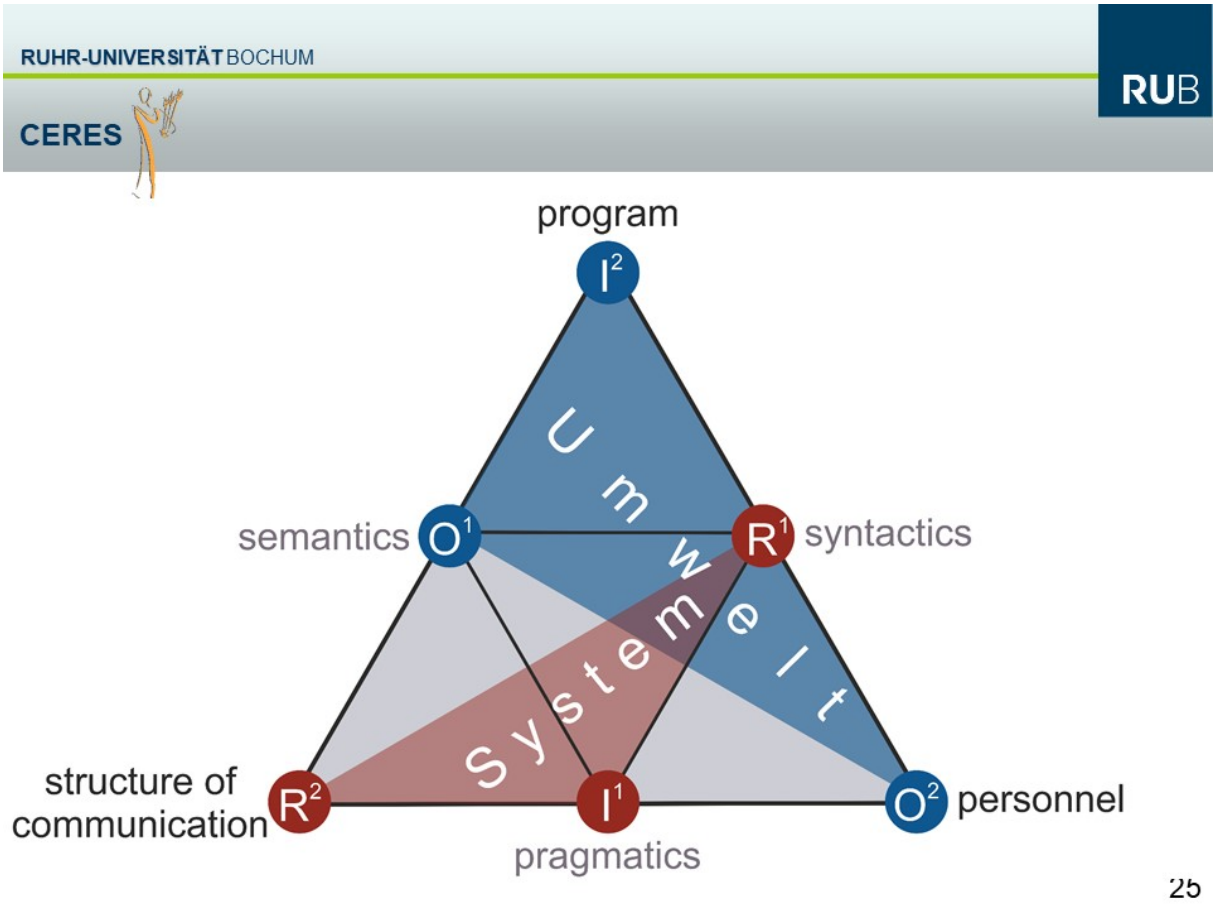
24.Slide:



One important consequence to draw from the considerations on systems theory and the semiotically informed theory of communication is that communication is always embedded in social systems – from the encounter in the sense of Erving Goffman via groups, movements and networks to formal organizations. This is the interplay between the linguistic and the social dimension of communication.

Regarding the linguistic dimension of communication, I follow the triple distinction of language between syntactics, semantics, and pragmatics. *Syntactics* is situated at the position of the first representamen of the sign model, *semantics* is located at the position of the first object, and *pragmatics* is placed at the position of the first interpretant. The social dimension of communication consists of a *structure of communication* that is situated at the position of the second representamen of the sign model, *personnel* that is located at the position of the second object, and a *program* that is placed at the position of the second interpretant.

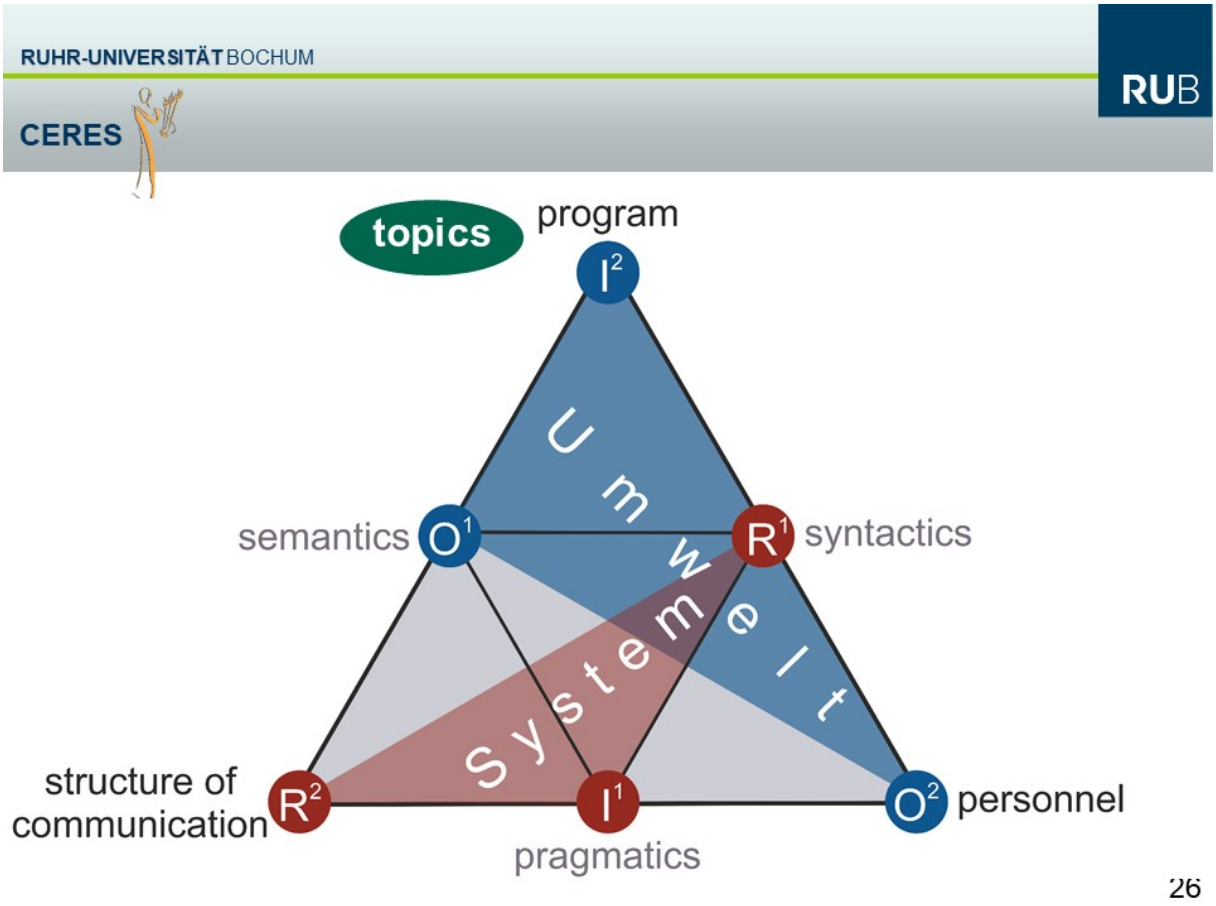
25.Slide:



The two dimensions of communication are interleaved by the system-internal distinction between system and environment, as we learned from the combination of systems theory and semiotics.

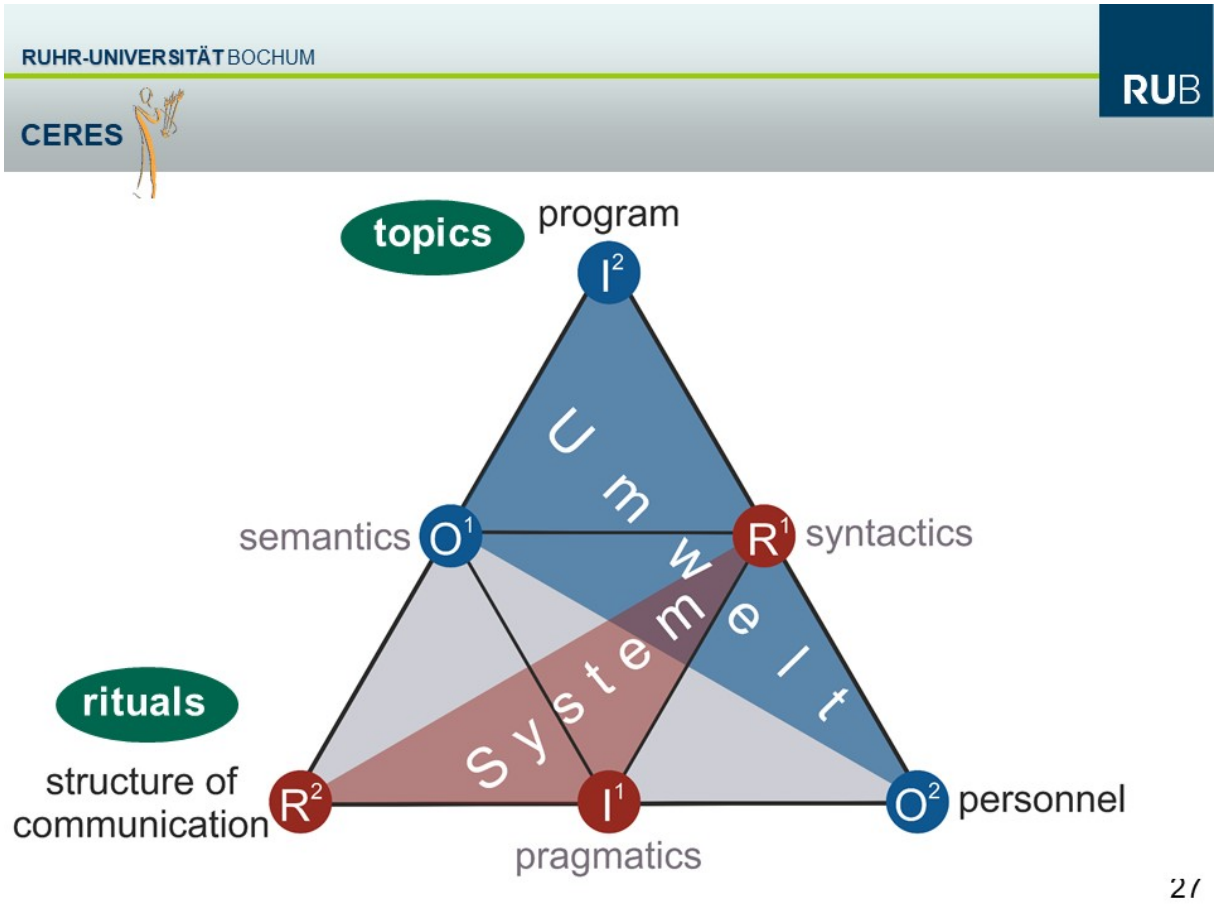
With this model, it is possible to follow the paths of religious evolution in dealing with the systematic separation of variation and selection as well as of selection and stabilization.

26.Slide:



The take-off of religion consists of identifying *topics* in its specific environment and transforming them into religious information. Topics are fluid, frequently change and therefore are difficult to control, as elementary face-to-face interactions and social gatherings still demonstrate today. This means that religion exposes itself to strong environmental influences by topic-based differentiation. The reason for other-referential orientation is that religion at the early evolutionary stage cannot *systematically* differentiate between variation and selection. The evolving religious system instead uses environmental conditions for building up structures, which it could not perform from within itself. These environmental conditions consist of societal processes, of mental perceptions, and—mediated by them—of physical as well as organic processes.

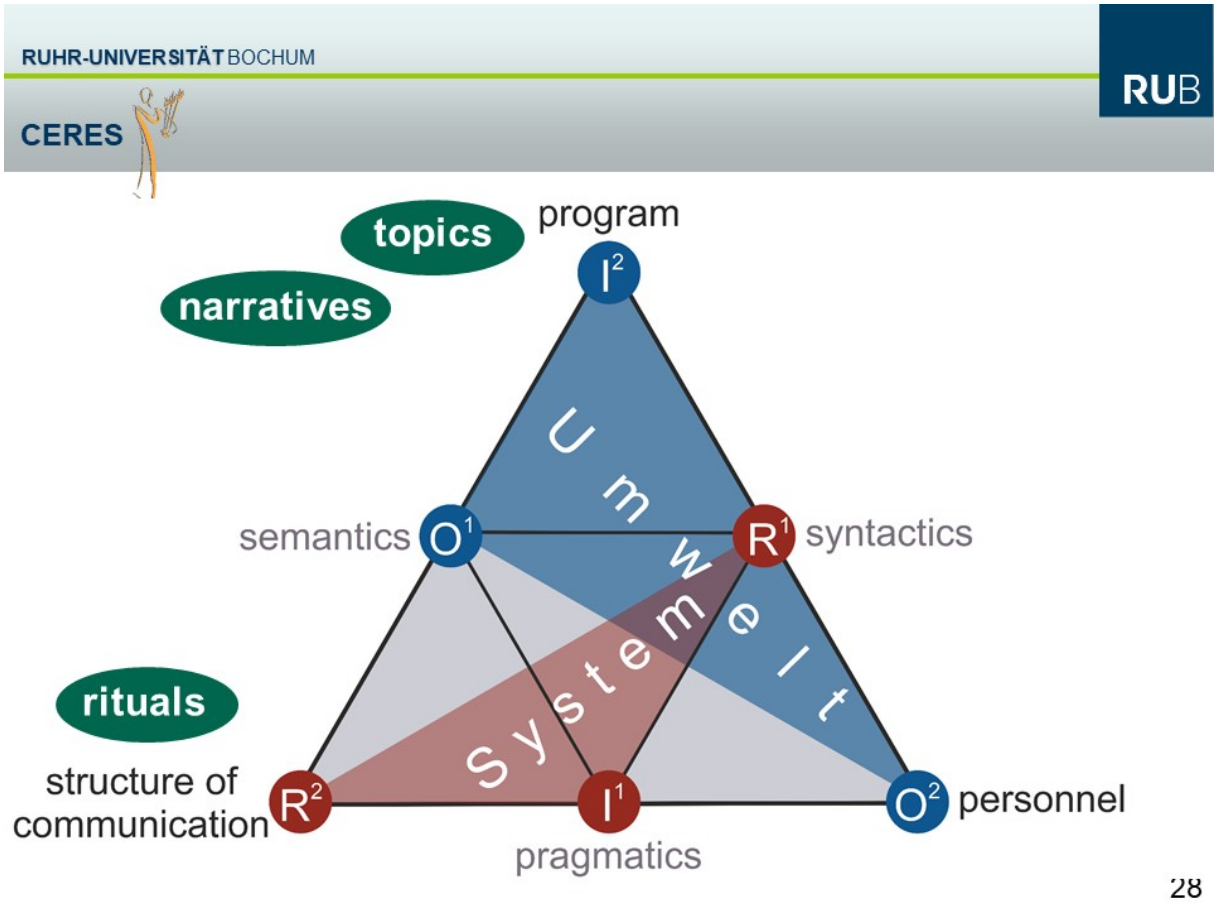
27.Slide:



Besides topic-based differentiation, *situational differentiation* occurs within religious evolution. It brings along an initial religious self-specification. Religion binds itself to certain places and times, within which intensive religious experiences are communicatively addressed, evoked, and updated. This is the beginning of rituals and ritual complexes in the form of cults. In segmentarily differentiated societies, religious rituals are so deeply embedded in its societal environment (mainly by its strong relation to kinship) that the society is not able to systematically distinguish between itself and religion. Nevertheless, religious rituals are the earliest form of religious self-centering and still belong to this very day to religion's most constant forms.[25]

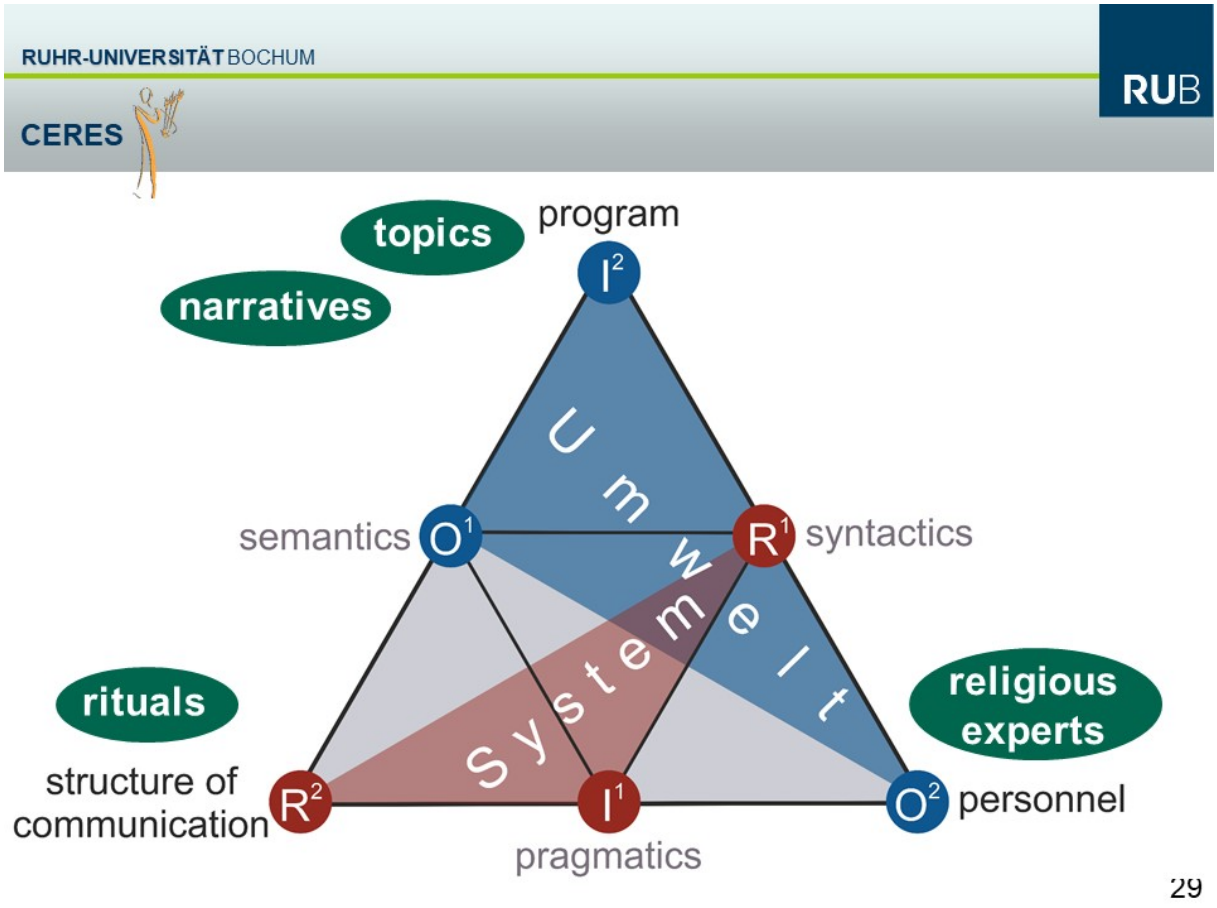
[25] Émile Durkheim, *The Elementary Forms of Religious Life* (New York, London, Toronto, Sydney: The Free Press, 1995); Translated and with an introduction by Karen E. Fields; Roy Abraham Rappaport, *Ritual and Religion in the Making of Humanity,* Cambridge Studies in Social and Cultural Anthropology 110 (Cambridge, UK, New York: Cambridge University Press, 1999).

28.Slide:



By establishing self-referential religious rituals, there develops a need to re-form the system-internally represented environment. This reform leads to the development of narratives (in research mostly called myths). The formation of narratives is stimulated by the ritualization of liminality.

29.Slide:

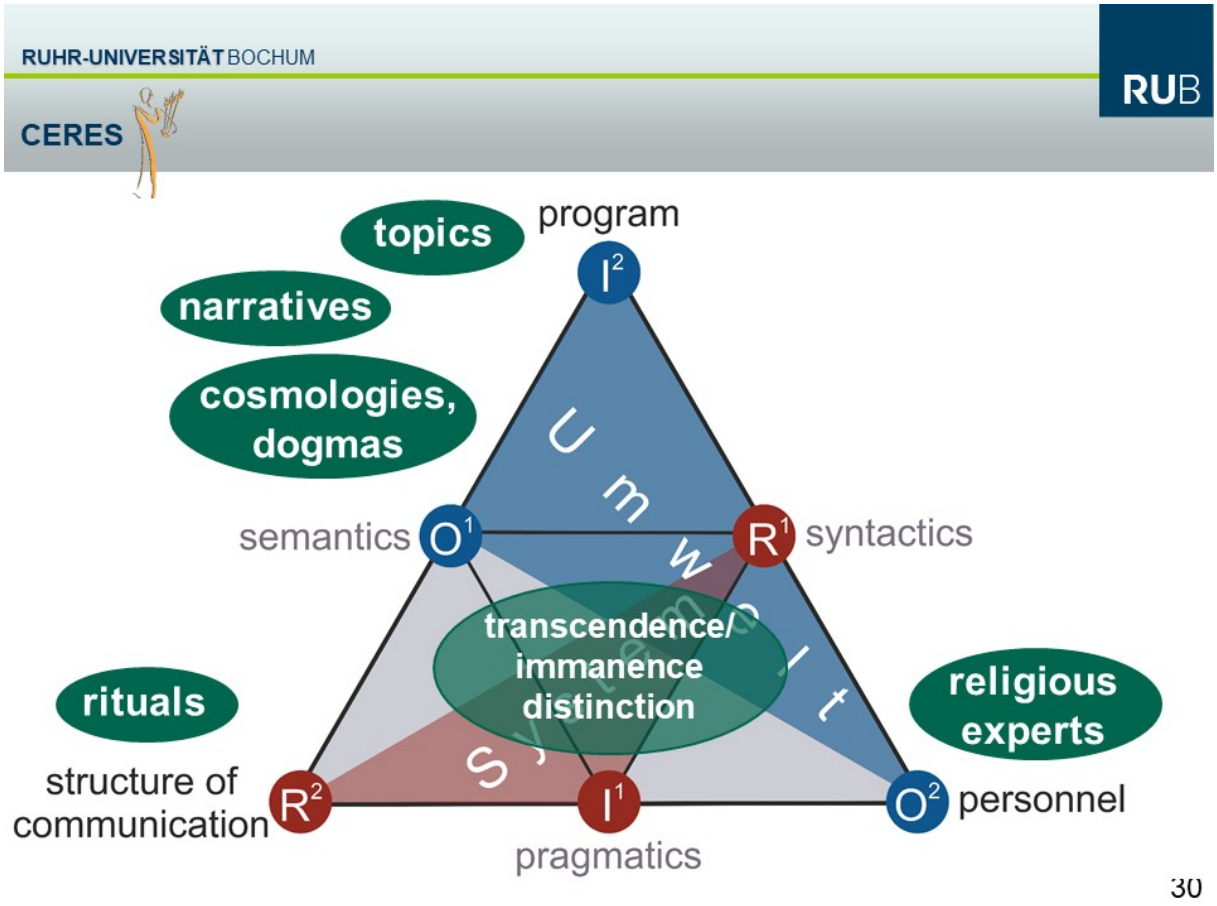


Another step into the direction of the systematic separation between variation and selection consists in further institutional differentiation, especially role differentiation in the shape of religious experts: first those experts, who some scholars call shamans or sorcerers, then priests and later prophets in addition.

Nevertheless, even in advanced societies, religions provide the society with a complete description, which makes it difficult for the society to acknowledge and communicatively process the differentiation of religion. "Society accepted religion's positing of the world [*Weltsetzung*]."[26]

[26] Luhmann, *A Systems Theory of Religion*, 142.

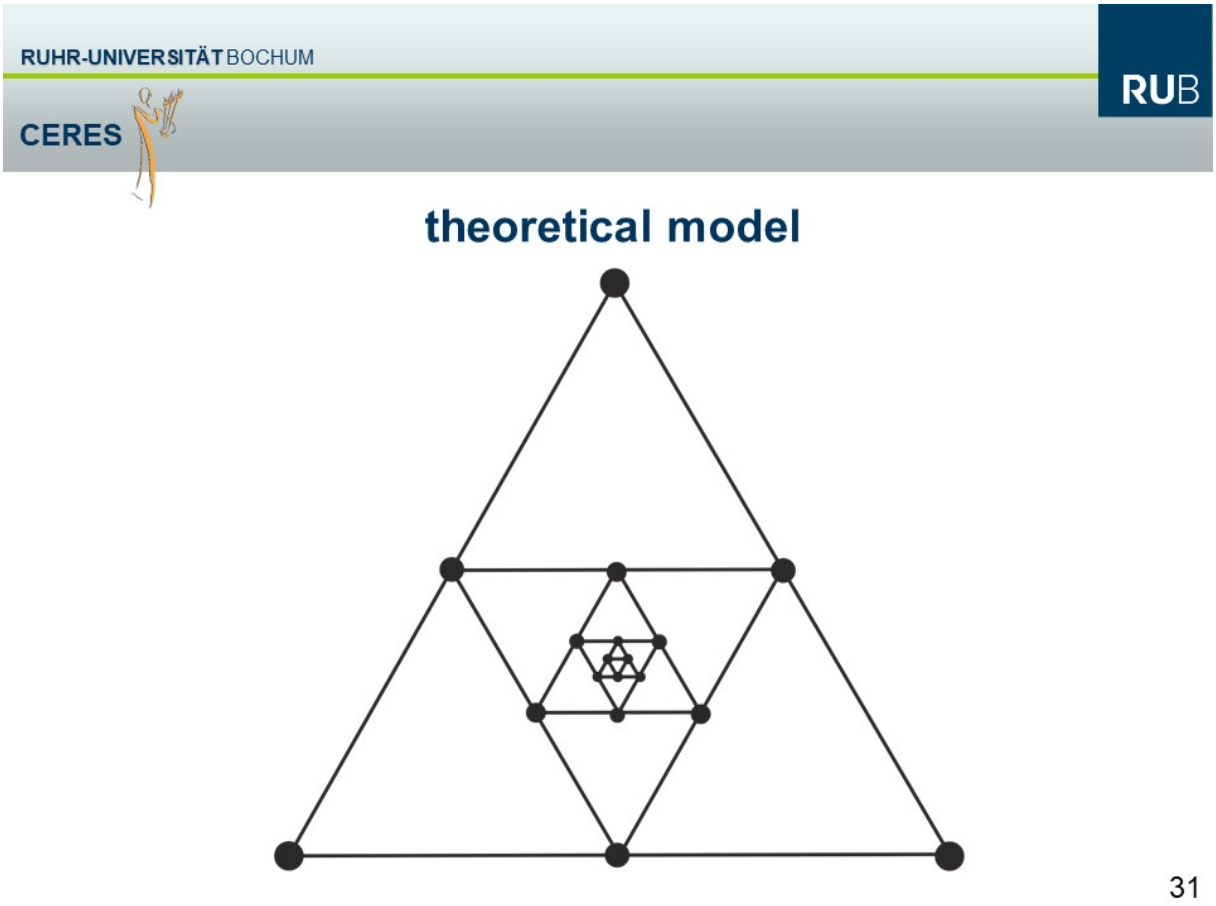
30.Slide:



Religion succeeds in systematically separating selection from variation in axial cultures, when second-order transcendence comes up, which distinguishes itself from normal transcendence and links to the societal function of coping with otherwise undetermined contingency. With this explicit religious code, cosmologies and early dogmas are constructed and systemized.

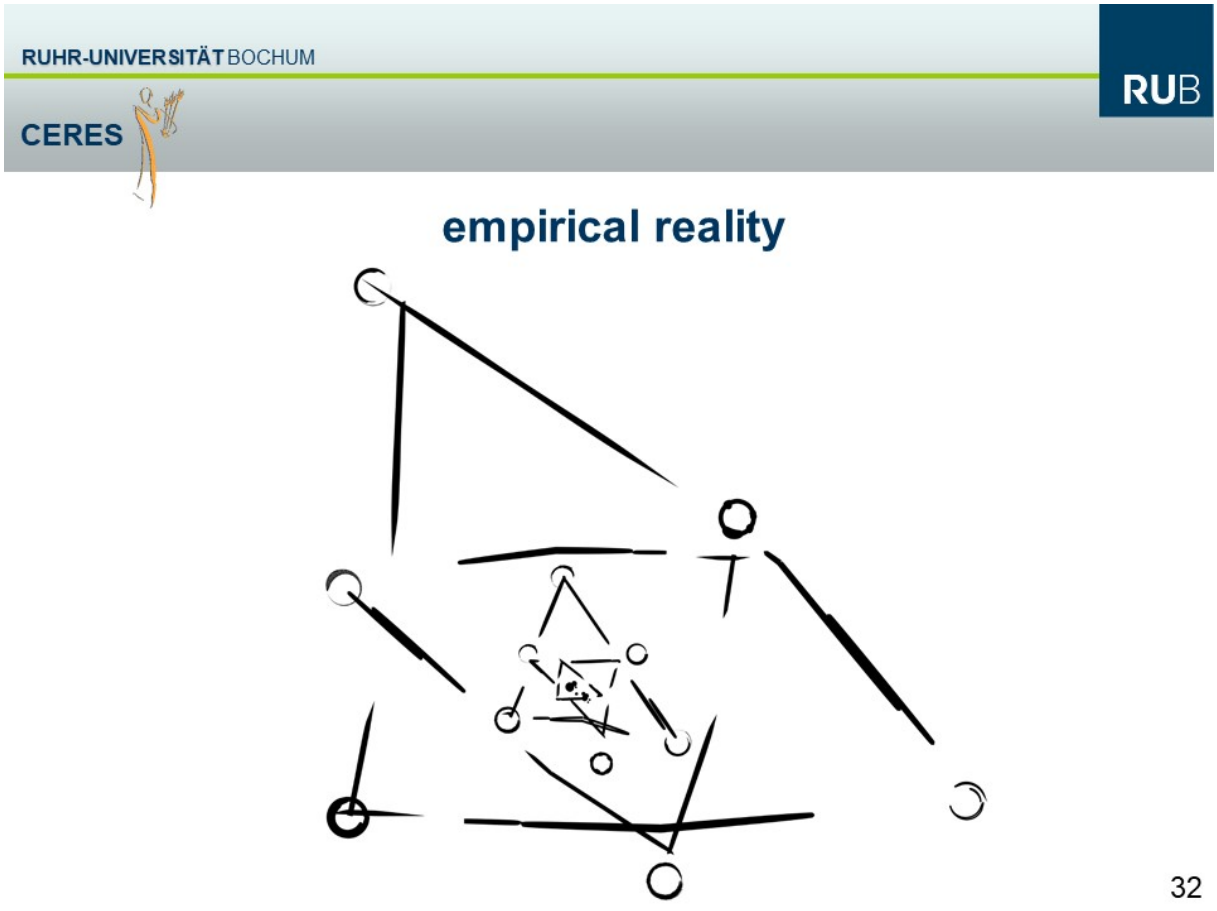
From this state of religious evolution, it is still a long way for religion to succeed in systematically separating selection from stabilization, i.e. the stable differentiation of religion from its environment. However, in order to save some time for the discussion, I have to stop here. I would like to finish by coming back to a statement I made in the beginning of my talk, namely that evolution is a metaphor.

31.Slide:



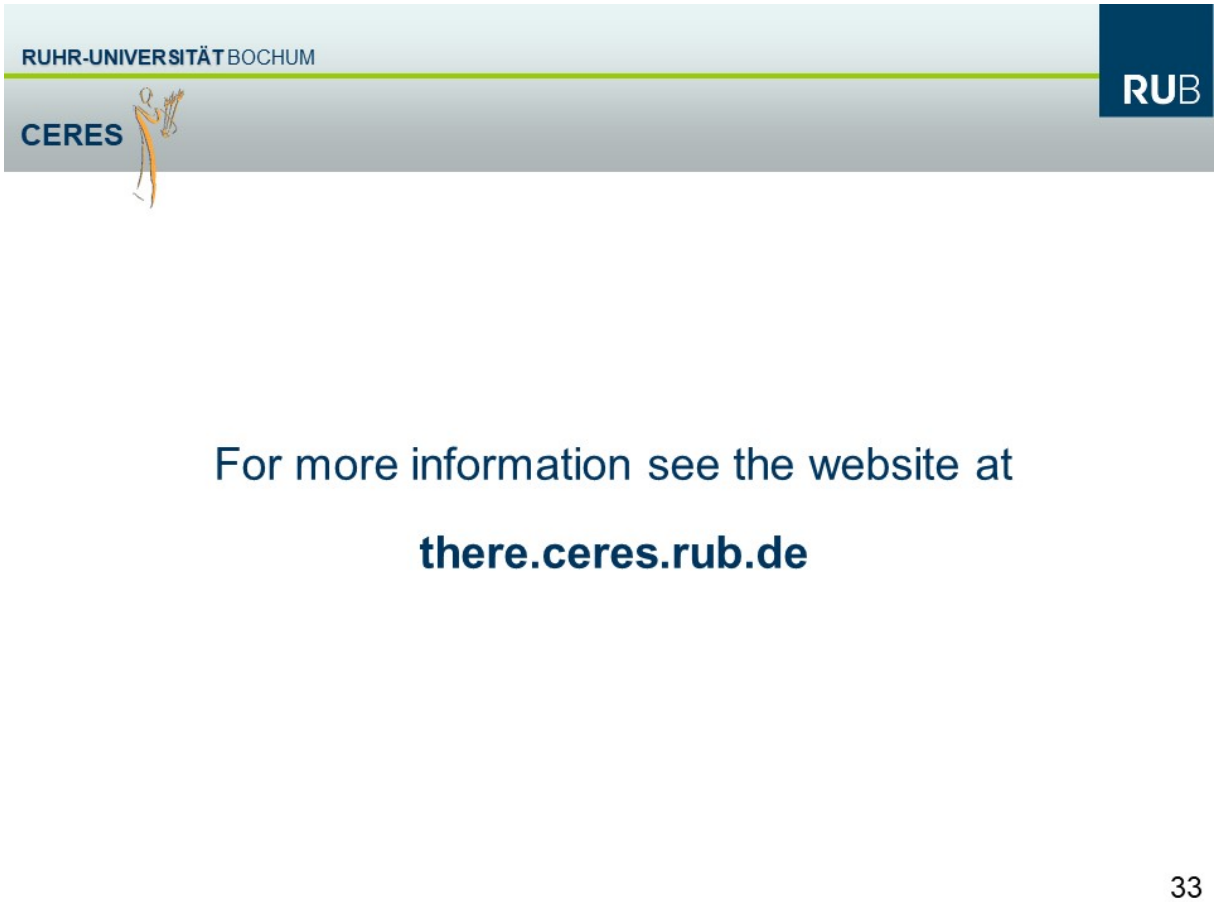
Bearing this in mind, a theoretical model is one thing…

32.Slide:



…and empirical reality another thing.

33.Slide:



Thank you for your attention and patience.

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