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Perceiving Cape-Town-Geoethics (CTG) through Symbolic Universes (SU)

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Cultural milieus determine the worldviews and practices of individuals and groups, including the reception of norms that guide them. Semiotic Cultural Psychological Theory (SCPT) methods, such as Symbolic Universes (SU), describe relationships of reception, worldviews and practice, which also applies to geo-philosophical matters [1]. This essay outlines how geoethics, for example, the Cape Town Geoethics (CTG), might be received in different cultural milieus.

The Cape Town Statement on Geoethics was proposed in 2016 at the 36th IGC [2] and is the most accessible resource on geoethics. It bundles various concepts in a Kantian/Aristotelian virtue ethics framework, illustrated, for example, by the Geoethical Promise [3].

The SU method describes the understanding, insights, and behaviour of groups of people expressing their respective cultural milieus. Extensive fieldwork identified five SU for people of European (Western) cultures [4]. The SUs called "Ordered Universe", "Interpersonal Bond", "Caring Society", "Niche of Belongingness", and "Others' World" categorise milieus, for example, in terms of relation to power and institutions or sources of trust. They corroborated with the Kohlberg hierarchy of the level of societal coordination [5] that is applicable to associate CTG and the worldviews of individuals and groups [6].

Comparing CTG and SU indicates: (1) CTG resonates most positively with people of the cultural milieu "Ordered Universe" (highest Kohlberg level); (2) in other milieus, the reception of the CTG will be "measured"; (3) reception will be adverse for the milieu "Others' World" (lowest Kohlberg level). Hence, considering the quantitative distribution of SUs (in Europe), European citizens' reception of CTG is likely restrained.

Given complex-adaptive social-ecological systems of the World and Nature couple world views, human practices, and societal and natural systems [7] (see example: [8]), whether variants of CTG "fitted to different milieus" should be developed is of practical relevance. The perception of norms and their acceptance or rejection is a system feature, of which geoethics should not be agnostic.

[1] Bohle M (2019) "Homo Semioticus" Migrating Out of Area? In: Salvatore S, et al. (eds) Symbolic Universes in Time of (Post)Crisis. Springer Berlin Heidelberg, Cham, pp 295–307

[2] Di Capua G, et al. (2017) The Cape Town Statement on Geoethics. Ann Geophys 60:1–6. <https://doi.org/10.4401/ag-7553>

[3] Matteucci R, et al. (2014) The "Geoethical Promise": A Proposal. Episodes 37:190–191. <https://doi.org/10.18814/epiiugs/2014/v37i3/004>

[4] Salvatore S, et al (2019) The Cultural Milieu and the Symbolic Universes of European Societies. In: Salvatore S, et al. (eds) Symbolic Universes in Time of (Post)crisis. Springer, Cham, pp 53–133

[5] Kohlberg L (1981) The Philosophy of Moral Development: Moral Stages and the Idea of Justice. Harber & Row, San Francisco

[6] Bohle M, Marone E (2022) Phronesis at the Human-Earth Nexus: Managed Retreat. Front Polit Sci 4:1–13. <https://doi.org/10.3389/fpos.2022.819930>

[7] Preiser R, Woermann M (2019) Complexity, philosophy and ethics. In: Galaz V (ed) Global Challenges, Governance, and Complexity. Edward Elgar Publishing., Cheltenham, pp 38–62

[8] Talukder B, et al. (2023) Complex Adaptive Systems-Based Conceptual Framework for Modeling the Health Impacts of Climate Change. J Clim Chang Heal 100292. <https://doi.org/10.1016/j.joclim.2023.100292>



Introduction

People's perceptions warrant people's practices. People's perceptions, i.e., rational-affective sensemaking, vary with the social milieu. Hence, normative guidance such as geoethics will be received variably (Bohle, 2019). This essay explores possible variances by applying some findings of cultural psychology.

Rational-affective sensemaking, i.e. perceptions of groups of people, is a cultural process to internalise the systemic features of people's lives, milieus, and environments. Rational sensemaking is bound by affection. People are rational within constraints, for example, of the fundamental need to keep worldviews coherent within the cultural milieu. This essay outlines how rational-affective sensemaking of 'geoethical standards' may happen in various milieus using the Symbolic Universes (SU) approach of the Semiotic Cultural Psychological Theory (SCPT).

Geoethics

The Cape Town Statement on Geoethics (CTG) was proposed in 2016 at the 36th IGC (Di Capua et al., 2017). Translated into 36 languages, it is the most accessible resource on geoethical norms. It bundles various concepts in a Kantian/Aristotelian virtue ethics framework to underpin practices wherever human activities interact with the Earth system (Bohle and Marone, 2021).

Table 1 The Geoethical Promise (Matteucci et al., 2014)

Nine Statements
... I will practice geosciences, being fully aware of the societal implications, and I will do my best for the protection of the Earth system for the benefit of humankind.
... I understand my responsibilities towards society, future generations, and the Earth for sustainable development.
... I will put the interest of society foremost in my work.
... I will never misuse my geoscience knowledge, resisting constraint or coercion.
... I will always be ready to provide my professional assistance when needed, and I will be impartial in making my expertise available to decision-makers.
... I will continue the lifelong development of my geoscientific knowledge.
... I will always maintain intellectual honesty in my work, being aware of the limits of my competencies and skills.
... I will act to foster progress in the geosciences, the sharing of geoscientific knowledge, and the dissemination of the geoethical approach.
... I will always be fully respectful of Earth processes in my work as a geoscientist.

A known application of the CTG is the geoethical promise (Table 1) that describes aspirational norms for professional geoscientists. How an individual will apply these norms will likely vary. For example, what is the relevance of “benefit of humankind”, “future generations”, or “interest of society” for the individual when interacting with peers, neighbours, friends or family?

Table 2 Description of the Symbolic Universe; see (Salvatore et al., 2018) [Table 7.]

<p>Symbolic Universe 1. Ordered universe: Cluster 1 is characterised by two relevant facets-on the one hand, a generalised positive attitude toward the world (institutions and services, the people, the place where one lives, the country, the future), which is considered trustworthy, receptive of the efforts to engage with and to improve it. On the other hand, there is identification with transcendent values and ideals (e.g., justice, morality, solidarity; rejection of opportunism, conformism and power) that foster commitment to making things better-where such commitment is meant as a value in itself: the way of making life meaningful, rather than of pursuing material interests. The combination of these two facets outlines what we interpret as the basic assumption substantiating this symbolic universe: faith in the inherent ethical order of the world. Rightness, morality and efficacy go together; what is just is also efficacious in rendering things better because the universe follows its harmonious design. Behaviour has to conform to and reflect such universal order, and in so doing, one can trust in being on the right side of history.</p>
<p>Symbolic Universe 2. Interpersonal bond: Cluster 2 comprises a group of responses detecting a positive, optimistic vision of the world as a place that is meaningful and fulfilling. On the other hand, the world these responses refer to is not the universalistic one of the previous symbolic universe; rather, it is the vital world of interpersonal emotional bonds. To be part of such a world is an end in itself: sacrifices (regarding adaptability and conformism) are needed for it and are repaid regarding safety and fulfilment, as well as in promoting a moderate sense of agency, trust and openness to the new. The verse of the famous song-all I need is love- depicts the basic assumption of this symbolic universe.</p>
<p>Symbolic Universe 3. Caring society: Cluster 3's profile is characterised by a vision of society and institutions as trustworthy providers of services and commons (e.g., education, health, security, and development). Society is receptive to the demands and needs of people. This vision fosters a generalised feeling of confidence in life, optimism in the future and a sense of agency- what one has to do is keep oneself within the rules of the game, there being those who take care of handling it for the best. It is worth noting how in the case of this symbolic universe, the trustworthiness attributed to institutions does not mean passivity and dependency. Rather, it works as grounds for a sense of agency: people who identify with this symbolic universe feel able to pursue purposes because they feel part of a system that supports and allows their efforts.</p>
<p>Symbolic Universe 4. Niche of belongingness: Cluster 4's profile shares a similar anchorage to the primary network characterising Cluster 2. Yet, in this case, such an anchorage is combined with a negative generalised connotation of the world outside the primary network- in terms of pessimism in the future, fatalism, untrustworthiness of agencies and institutions. In such a context, the primary network is not a matter of pleasure, an end in itself; rather, it is a necessity responding to the need to find shelter from and survive the anomic, threatening outside. Consistently with such a feeling, the primary network is connoted in terms of familistic power (see the agreement with the statements “success depends on forming an alliance with stronger people” and “sometimes one has to break the rules to help loved ones”). Interestingly, the only institution that is not considered unreliable is the school, namely the only agency among the ones proposed in the questionnaire which is mediated at the level of the local community.</p>
<p>Symbolic Universe 5. Others' world: Cluster 5's profile outlines a fully negative, even desperate vision of the world- generalised untrustworthiness, sense of impotency, lack of agency, anomie. The world belongs to those who have power- the defeated have only the chance to try to survive day-by-day, surrendering to those with the power to lead the game. Morality and values are a luxury one cannot afford when the only possible concern is to limit the damage.</p>

Symbolic Universes

Understanding people's practices through Symbolic Universes (SU) is an approach stemming from Semiotic Cultural Psychological Theory (SCPT). SU describe the understanding, insights, and behaviour of groups of people in their respective cultural milieus (Salvatore et al., 2018) (Salvatore et al., 2019). Extensive fieldwork among people of European (Western) cultures found five specific SUs that determine social and political attitudes called: "Ordered Universe", "Interpersonal Bond", "Caring Society", "Niche of Belongingness", and "Others' World" (Table 2). These SUs categorise various milieus, considering features like power, institutions, or trust differently. Although the SUs could indicate a gradient, reading the set as two extreme and an intermediate configuration seems more appropriate.

An alternative description of social milieus is given by the Kohlberg hierarchy of the level of societal coordination (Kohlberg, 1981). Comparing Kohlberg's approach with SU indicates that both approaches align mutually (Table 3). This feature supports the idea that a set of milieus can be identified, stretching somehow from 'obedience and egoism' to 'principled mutual respect.' Considering geoethics, individuals *"living in a social milieu placed somewhere in this range"* should support the Geoethical Promise differently, depending on whether the respective social situation is closer to 'obedience and egoism' or 'principled mutual respect.'

Table 3 Correspondence between Symbolic Universes and Kohlberg's hierarchy of societal coordination

		Symbolic Universes				
		1 Ordered Universe	2 Interpersonal Bond	3 Caring Society	4 Niche of Belongingness	5 Other's World
Kohlberg Stages (forms of societal coordination)						
1	Obedience and punishment; blind egoism					
2	Self-interest orientation; individualism, instrumental egoism					
3	Interpersonal accord and conformity; other's approval, social relationships					
4	Law and order; blind compliance, social systems					
5	Social contract orientation; agrees on common regulations					
6	Universal ethical principles; principled self-conscience, mutual respect					

Geoethics and Cultural Milieus

Regarding methodology, to study how the CTG is perceived in various cultural milieus, the respective descriptions are brought into a form that permits mutual comparison.

Geoethics has been formulated differently, for example, as a detailed narrative (Peppoloni et al., 2019) or as a set of tenets (Marone and Bohle, 2020) (Bohle and Marone, 2021) (Bohle, 2021). The tenets differ slightly depending on the geoethics variant (Bohle and Marone, 2022). The geoethics variant CTG can be described in four tenets (Table 4) – agency, virtue, responsibility and knowledge.

Table 4. Tenets of Cape Town Statement on Geoethics (adapted from (Marone and Bohle, 2020))

Label	Description
1. agent-centricity	To apply a normative framework that invests (empowers) individual professional geoscientists to act to their best understanding in the face of circumstances given, opportunities and purposes;
2. virtue-focus	A corpus of personal traits (honesty, integrity, transparency, reliability, or spirit of sharing, cooperation, reciprocity) of individual professional geoscientists that further the individual's operational (handling of things) and social (handling of people) capabilities;
3. responsibility focus	The outcome of a normative call (internal, external) upon an individual / group that frames decisions / acts in terms of accountability, as well for the intended effects as for unintended consequences and implications for future generations;
4. knowledge-base	In the first and foremost instance, geosciences / Earth system knowledge; in a broader sense, knowledge is acquired by scientific methods instead of alluding to faith or 'authorities.'

Compared to the initial (narrative) description of the SU, they are re-phrased for the given context, emphasising ,to be', ,to ought', and ,to do' (Table 5)¹ with the end that the style of descriptions of SUs and the tenets of geoethics align. As presented in this essay, using this style to describe geoethics is a methodological choice to ease the comparison of descriptions, a subjective approach suitable (only) for an initial appraisal.

The subsequent analysis is subjective: The phrasing of the tenets of CTG has been manually simplified to keep only those parts that seem to fit the social milieu

¹ This description was checked by S. Salvatore as appropriate (personal communication)

described by the SU and associated Kohlberg level. Ancillary, a Large Language Model (ChatGPT) has been prompted to compare descriptions of SU and the tenets of CTG. This analysis aligns with the manual analysis.

Table 5 ,Descriptions of the five Symbolic Universe' using phrasing fitting to the description of the tenets of Cape Town Statement on Geoethics

Symbolic Universe 1. <i>Ordered Universe:</i>	<i>To be: trustworthy, receptive, harmoniously designed, and ethically ordered world (institutions, people, commons, place and future) to engage with (behaviour reflects universal order, rightness, morality, efficaciously bettering things);</i> <i>To ought: identification with values and ideals (justice, morality, solidarity; rejection of opportunism, conformism and power; right side of the history)</i> <i>To do: commitment to making things better, a value and a way of a meaningful life;</i>
Symbolic Universe 2. <i>Interpersonal Bond</i>	<i>To be: a positive, optimistic vision of the world (institutions, people, commons, place and future);</i> <i>To ought: a vital world of interpersonal, emotional bonds that are meaningful and fulfilling;</i> <i>To do: agency needs adaptability and conformism to find individual safety and fulfilment;</i>
Symbolic Universe 3 <i>Caring Society:</i>	<i>To be: society is a trustworthy provider of commons, receptive to demands and needs;</i> <i>To ought: generalised confidence in the rules to be supportive (life, future and agency);</i> <i>To do: undertake trustworthy efforts together with the care-takers;</i>
Symbolic Universe 4. <i>Niche of Belongingness:</i>	<i>To be: an identity, in-group network within an untrustworthy world;</i> <i>To ought: the network provides shelter from a threatening outside;</i> <i>To do: power in alliance with the more potent, breaking the rules to help loved ones;</i>
Symbolic Universe 5. <i>Others' World:</i>	<i>To be: an untrustworthy world that belongs to the powerful;</i> <i>To ought: morality and values are a luxury;</i> <i>To do: impotence and attempts to limit damage;</i>

Illustrating the manual analysis:

- A trivial change for all SUs is suppressing the words “*individual professional geoscientists*” because geoethics is applied to non-professional settings.
- Furthermore, the term “*individual*” is deleted for all SUs because the SUs focus on groups instead of individual human agents. This change is substantial given the individual's central role in most geoethics variants, including the CTG (Peppoloni and Di Capua, 2022).
- However, the resulting alteration of the norms (spelt out in the CTG) is minimal. The CTG norms are intact for the cultural milieu/SU “Ordered Universe”. Hence, CTG fits the cultural milieu/SU “Ordered Universe”.
- In the cultural milieu/SUs, “Interpersonal Bond” and “Caring Society”, an (external) framework does not bind human agency, “alluding to faith or 'authorities'” is a possible source of knowledge because interpersonal trust

replaces rule-based behaviour, and relevance of 'scientific method' is diminished. These changes touch the core of any variant of geoethics, including CTG.

Summarising (Table 6), CTG likely resonates most positively with people of the cultural milieu/SU 'Ordered Universe' (highest Kohlberg level). In other cultural milieus, the reception of the CTG should be moderate and possibly adverse for the cultural milieu/SU 'Others' World' (lowest Kohlberg level). For the cultural milieu/SU 'Others' World', the CTG would be replaced by norms such as: *"To act, alluding to 'authorities', in the face of circumstances given, opportunities and purposes."* For the cultural milieu/SU "Niche of Belongingness", the CTG would be replaced by two norms: *"(i) To act, alluding to 'authorities', in the face of circumstances given, opportunities and purposes. (ii) A corpus of personal traits (reciprocity) that further social (handling of people) capabilities."* In both cases, little is left of the original CTG design, or other geoethics variant.

Table 6 Correspondence between SU, Kohlberg's hierarchy of societal coordination and Tenets of CTG

		Symbolic Universes				
		1 Ordered Universe	2 Interpersonal Bound	3 Caring Society	4 Niche of Belongingness	5 'Other's World
1	Obedience and punishment, blind egoism					min
2	Self-interest orientation, individualism, instrumental egoism				low	
3	Interpersonal accord and conformity, other's approval, social relationships			moderate		
4	Law and order, blind compliance, social systems		high			
5	Social contract orientation, agrees on common regulations	max				
6	Universal ethical principles, principled self-conscience, mutual respect					

The findings sketched in the previous paragraphs are unsurprising because, in essence, geoethics is about an ordered world. Hence, the alignment and opposition of CTG with the SUs 'Ordered Universe' and 'Other's World' seems evident. The SUs with intermediate 'moderate reception' leave room for interpretation regarding how far CTG would be supported by people belonging to a specific SU. However, for the SUs 'Interpersonal Bound', 'Caring Society' and 'Niche of Belongingness', the relative

importance of interpersonal and affective bounds increases, the role of formal frameworks diminishes, and the role of authorities and faith increases. However, none of these features resonate well with CTG.

Conclusion

If the presented pattern of alignment and misalignment between CTG and SUs is proven, then the practical applicability of CTG is limited. Therefore, the question arises whether forms of geoethical thinking should be developed “*fitted to different cultural milieus*”. As an illustration, one might ask, what are the “geoethics of the Holy See”? It seems to be called “*Laudato si*”² and might be associated with a variant of SUs like ‘Interpersonal Bound’ or ‘Caring Society’.

The issue of “fitted geoethics” is relevant because the complex-adaptive social-ecological systems of the World and Nature (Preiser and Woermann, 2019) (Dorninger et al., 2024) (Ellis, 2024) couple world views, human practices, and societal and natural systems. Therefore, the rational-affective sensemaking of norms, i.e. their acceptance or rejection, is an intrinsic system feature, of which geoethics should not be agnostic if it shall have an effect.

Bohle, M. (2019). “Homo Semioticus” Migrating Out of Area?, in *Symbolic Universes in Time of (Post)Crisis*, eds. S. Salvatore, V. Fini, T. Manarini, J. Valsiner, and G. A. Veltri (Cham: Springer Berlin Heidelberg), 295–307. doi:10.1007/978-3-030-19497-0_11.

Bohle, M. (2021). A geo-ethical logic for citizens and geoscientists. *Sustain. Water Resour. Manag.* 7, 85. doi:10.1007/s40899-021-00557-1.

Bohle, M., and Marone, E. (2021). Geoethics, a Branding for Sustainable Practices. *Sustainability* 13, 895. doi:10.3390/su13020895.

Bohle, M., and Marone, E. (2022). Phronesis at the Human–Earth Nexus: Managed Retreat. *Front. Polit. Sci.* 4, 1–13. doi:10.3389/fpos.2022.819930.

Di Capua, G., Peppoloni, S., and Bobrowsky, P. (2017). The Cape Town Statement on Geoethics. *Ann. Geophys.* 60, 1–6. doi:10.4401/ag-7553.

Dorninger, C., Menéndez, L. P., and Caniglia, G. (2024). Social-ecological niche construction for sustainability: understanding destructive processes and exploring regenerative potentials. *Philos. Trans. R. Soc. B Biol. Sci.* 379. doi:10.1098/rstb.2022.0431.

Ellis, E. C. (2024). The Anthropocene condition: evolving through social–ecological

² https://www.vatican.va/content/francesco/en/encyclicals/documents/papa-francesco_20150524_enciclica-laudato-si.html

transformations. *Philos. Trans. R. Soc. B Biol. Sci.* 379. doi:10.1098/rstb.2022.0255.

Kohlberg, L. (1981). *The Philosophy of Moral Development: Moral Stages and the Idea of Justice*. San Francisco: Harber & Row.

Marone, E., and Bohle, M. (2020). Geoethics for Nudging Human Practices in Times of Pandemics. *Sustainability* 12, 7271. doi:10.3390/su12187271.

Matteucci, R., Gosso, G., Peppoloni, S., Piacente, S., and Wasowski, J. (2014). The “Geoethical Promise”: A Proposal. *Episodes* 37, 190–191. doi:10.18814/epiiugs/2014/v37i3/004.

Peppoloni, S., Bilham, N., and Di Capua, G. (2019). ‘Contemporary Geoethics Within the Geosciences’, in *Exploring Geoethics* (Cham: Springer International Publishing), 25–70. doi:10.1007/978-3-030-12010-8_2.

Peppoloni, S., and Di Capua, G. (2022). *Geoethics: Manifesto for an Ethics of Responsibility Towards the Earth*. Cham: Springer International Publishing doi:10.1007/978-3-030-98044-3.

Preiser, R., and Woermann, M. (2019). ‘Complexity, philosophy and ethics’, in *Global Challenges, Governance, and Complexity*, ed. V. Galaz (Cheltenham: Edward Elgar Publishing.), 38–62.

Salvatore, S., Avdi, E., Battaglia, F., Bernal-Marcos, M. J., Buhagiar, L. J., Ciavolino, E., et al. (2019). ‘The Cultural Milieu and the Symbolic Universes of European Societies’, in *Symbolic Universes in Time of (Post)crisis*, eds. S. Salvatore, V. Fini, T. Mannarini, J. Valsiner, and G. A. Veltri (Cham: Springer), 53–133. doi:10.1007/978-3-030-19497-0_3.

Salvatore, S., Fini, V., Mannarini, T., Veltri, G. A., Avdi, E., Battaglia, F., et al. (2018). Symbolic universes between present and future of Europe. First results of the map of European societies’ cultural milieu. *PLoS One* 13, e0189885. doi:10.1371/journal.pone.0189885.