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'Creation out of nothing' – A problematic assumption: biblical, metaphysical and scientific perspectives

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Science, technology, commerce and consumerism have set humankind on a trajectory towards a catastrophe of inestimable proportions. To respond appropriately to this danger, theology must replace obsolete contextualisations of its message with currently relevant ones. 'Creation out of nothing' is a case in point. Will God create a new and perfect world 'out of nothing' after we have messed up the one we have? Probably not! In Part I, I show that 'creation out of nothing' is not a relevant issue in the biblical tradition. In Part II, I argue that the concept is based on the unsupported metaphysical postulate of 'divine perfection'. In Part III, I try to find an equivalent for the concept in science that theology could link up with. 'Creation' can be equated with a cosmic evolution proceeding in levels of emergence. But 'out of nothing' cannot be supported by science. Even at the most fundamental level, energy and the way it operates, are presupposed. At lower levels, the process is guided by causality and (embedded) contingency. Intentionality and agency only appear at the personal and social levels. Dealing with existential needs, faith (appropriately) intuits a personal transcendent Source and Destiny of reality, but (inappropriately) absolutizes the personal at the expense of the impersonal aspects of reality. The laws of nature are also of God; they are essential; they are valid. They leave sufficient space for novelty and agency, but God works as much through regularity as through contingency.

Contribution: The dynamic nature of the biblical tradition demands constant re-contextualisations of its central message. 'Creation out of nothing' is part of the contextualisation of the message into the ancient Hellenistic worldview, which does not fit into the modern scientific worldview and must be replaced with a contemporarily more appropriate alternative.

Keywords: Science and faith; creation out of nothing; divine perfection; cosmic evolution; emergence theory; laws of nature; purpose and function; naturalism and theism; God as person; suffering of God.

Introduction

How relevant is an obscure doctrine such as 'creation out of nothing' at a time when the Covid-19 virus is sowing fear, misery and death across the globe? Or indeed when humankind is heading towards an economic-ecological catastrophe of inestimable proportions? How responsible is it to invest one's time and financial resources into its investigation and dissemination?

The question hits science and technology even harder than theology. How relevant is the question whether water can be found on Mars, or whether there is a Higgs boson or not? How meaningful is it to develop nuclear weapons that, if deployed, could wipe out humankind and most life on earth? How responsible is it to invest disproportionate financial and intellectual resources in such redundant pursuits?

Science, technology and globalised networks have given humanity powers that dominate the world of today. The development of commensurate systems of meaning, values and norms has not kept pace, leaving countless people clueless and rudderless in a chaotic pluralistic situation. Traditional commitments and inhibitions are dissolved by relentless marketing. Masses of people are lured into perpetual discontent and an insatiable pursuit of profit and pleasure.

Note: Special Collection: Theology and Nature, sub-edited by Johan Buitendag (University of Pretoria).

The quest for truth is indispensable. Only a plausible, realistic and responsible set of convictions can guide and motivate humankind to proceed in more wholesome directions. Christian theology must 'become a Jew to the Jews' (1 Cor 9:19–23), clear out obsolete assumptions and obfuscations and recontextualise its priceless message. The same may be true for other convictions, but they must speak for themselves.

Does 'creation out of nothing' imply that God (or science and technology) will create a new and perfect world 'out of nothing' after we have messed up the one we have? Or is God's action all about the creative and redemptive *transformation* of a perilous trajectory, involving us in the process?

'Creation out of nothing' in the Bible?

Though couched in metaphorical or mythological language, biblical statements on creation have experiential, rather than metaphysical roots.[1] In the Ancient Near East, reality was experienced as unstable, unpredictable, dangerous, if not malicious. To subdue chaos, the Deity had established a 'cosmic order' that encompassed nature, society and morality (Schmid 1968). It was upheld through sacred offices, stories and rituals.

That God could have created 'out of nothing' did not occur to these ancient authors. Genesis 2 begins with a desert-like earth waiting for life-giving rain; the human being is formed from the dust of the ground and the woman from a body part of the man. The emphasis lies on healthy relationships with God, the community and nature.

The context of the 'Priestly' creation story in Genesis 1 is the envisaged transformation of the catastrophe of the exile into a new and wholesome beginning. Through a series of imperial decrees, Elohim changes darkness into light[2] and sets up a dependable structure in the midst of the chaotic primeval ocean within which life can emerge and prosper. The human being is defined as the 'image (= representative) of God' rather than a slave, as in the *enuma elish*, the Babylonian myth of creation.

Deutero-Isaiah (Is 40–55) refers to the wonders of creation to convince his sceptical and cynical listeners that Elohim is about to change the course of history in Israel's favour.[3] Job 38–42 responds to the riddle of an unendurable fate: the creature cannot fathom the actions of the Creator.

Psalm 104 is a jubilant praise song: whatever happens in the natural world (now, not at the beginning of time!) is attributed to the action of the Creator.

Responding to threatening or crushing predicaments, prophesy and apocalyptic come up with counter-intuitive, even counter-factual scenarios – from peace between predators and their victims (Is 11:6) to the resurrection of the dead (Ezk 37) and a new world without suffering and death (Rv 21). This is deliberate: they want to overcome fatalism and despondency, reassure, motivate and empower the 'people of God'.

Paul presupposes the wider horizons of apocalyptic. 'This age' will be transformed into the 'age to come' and the 'flesh' into the 'Spirit'. 'Flesh' stands for the feeble, sinful and mortal creature; 'spirit' stands for the creature transformed and empowered by the Spirit. Romans 4:17 is about realising a latent possibility; 1 Corinthians 1:28 defines the status of leaders; 1 Corinthians 15:35, 42–49 is about the transformation of the mortal body into a spiritual body. John 1:12–13 and 3:3–10 are about the 'rebirth' into a new spiritual identity.

Occasionally, the basic motif flowers into reflections concerning the foundations of the universe. Jewish sages posit 'wisdom' as the principle underlying reality as a whole and personify it as the 'agent' of the creative process. Wisdom is a created tool; the source of creative power is God. Wisdom has an ethical, rather than a metaphysical agenda: it can be observed, understood and followed by humans. The question out of what the world has been created does not arise:

> Wisdom was created before all other things, and prudent understanding from *òlam* (= the unfathomable past). The root of wisdom – to whom has it been revealed? … There is but one who is wise, greatly to be feared, seated upon his throne – the Lord … It is he who created her … he poured her out upon all his works … he lavished her upon those who love him. … I (= wisdom) was constantly at his side. I was filled with delight day after day, rejoicing always in his presence … (Sir 1:5–10, 22–24 and 27–30)

The Stoa, a Hellenistic philosophical movement, has a similar concept, the *Logos*, which here stands for *rationality*. This too has an ethical agenda. Just as the Jewish sage exhorts his readers to follow wisdom, the Hellenistic sage exhorts his readers to live according to the Logos (*kata logon zen*). However, for the Stoa, the Logos is not a tool of a transcendent 'divine' creator; it is itself the 'divine' power that keeps the world in one piece. This corresponds with modern naturalism for which nature is a self-generated, self-sustaining and self-destructive process.

A comparison of John 1:1–5 with the Sirach text and the Stoa shows that John utilises the Jewish, rather than the Hellenistic tradition, but employs the Hellenistic concept of the Logos to articulate it, establishing an association with God's imperial decree in Genesis 1. The Logos now appears as God's intentionality that manifested itself in the life, ministry and death of Jesus of Nazareth, the messianic representative of God.

The point is that the divine intentionality must be understood as *grace and truth*, rather than the Mosaic law (Jn 1:14 and 17). In John's Gospel and first letter, 'grace and truth' are further defined as creative, sacrificial and redeeming *love*. So, divine love is the ultimate rationale that gives the universe its shape and purpose! Colossians 1:13–20; 2:8–9 is a parallel to John 1,

1.For a detailed analysis, see Nürnberger (2002:369–395).

2.A motif taken from the Persian religion.

3.Similarly, the phrase 'nothing is impossible for God' (Gn 18:14; Jr 32:17, 27; Zch 8:6).

which responds to the multiplicity of mythological stories in Roman times.

In none of these biblical cases, a 'creation from nothing' is implied. The general concern is the stability of the preconditions of life, the protection and advancement of health and prosperity and the authenticity of the human being. What exists is either to be transformed or lifted onto a higher (spiritual) level. Whether there was something or nothing before God began to create is not a relevant issue.

'Creation out of nothing' in the doctrinal tradition

If it is not a biblical motif, where does it come from? I want to suggest that it is rooted in the contextualisation of the biblical message in the Hellenistic world. The discrepancy between what is and what ought to be is a common human experience. It tends to lead to visions of a reality without these shortcomings. This is also the experiential basis of the Hellenistic approach. In the world we know, everything is in flux; everything is located; everything has limited power to exist; all life is vulnerable and mortal; justice is not seen to be done and human motivations are fickle.

The Platonic vision abstracted from limited time to timelessness, from limited space to universality, from limited power to omnipotence, from limited knowledge to omniscience, from appearance to essence, from matter to spirit, from mortality to immortality and from human opinion to the divine logos. This idealised abstraction from an imperfect reality is deemed the true reality. The material reality we experience is only a poor, flawed and misleading reflection.

When the material object breaks down (when the body dies), the idea (the soul) is released from its prison and returns to the realm of perfect ideas. The inauthentic is not transformed into the authentic, as in Paul, but devalued and eventually discarded. In contrast, there is not even a word for a 'timeless eternity' in Hebrew (*òlam* means from the deep past into the deep future, thus always), nor is there a soul without a body.

In Aristotelianism, the Platonic 'idea' changed into the 'form' of reality as it ought to be. The 'form' does not hover above material reality, as in Platonism, but pushes concrete entities from within towards their own perfection (= teleology). In both cases, perfection is the basic concern. The ethical task is to subdue the body whilst alive and leave the body behind upon its death.

A parallel to the Hellenistic approach is found in apocalyptic. Here too we have a dualism between what happens to be and what ought to be (and is bound to become). However, typical for the Israelite-Jewish approach, its frame of reference is a sequence in time (the present world vs the world to come), rather than an ontological juxtaposition (matter vs. Spirit). The New Jerusalem of Revelation 21 is a deliberately unrealistic idealisation of the world. It reflects the world as it ought to be, in contrast to the miserable world experienced in a situation of acute oppression and persecution.

Contextualising the biblical message, the doctrinal tradition latched onto the Hellenistic matter–spirit dualism. God is conceptualised as the highest and most perfect idea, the epitome of goodness, truth and beauty. Expressed in the idiom of the Protestant Orthodoxy of the 17th century, God is an 'Infinite Spiritual Essence', or 'The Most Perfect Essence' (Schmid [1899]1961:112, 117). Note the juxtapositions: infinite – finite; spiritual – material; essence – existence and perfect – imperfect. God and humanity are defined as opposites, leading to the Christological and Trinitarian paradoxes.

A perfect Creator is an omnipotent Creator – not in the sense that all power in the world is God's power, as in the biblical tradition, but in the sense that God's agency is beyond earthly preconditions, regularities and constraints. God is 'actus purus', the 'unmoved Mover'. That even applies to the flow of reality. 'Continuous creation' is 'creation out of nothing' on a regular and ongoing basis. In its most consistent form, the continuity between sequences of events does not, in the final instance, reflect causality, necessity or regularity, but the 'commitment' and 'fidelity' of a graceful God.

Over many centuries and bitter conflicts, the Hellenistic contextualisation reached probably the best formulations attainable under the idealist presumptions and deductive method of the period. The point is, however, that people informed by modern science no longer share this frame of reference. They have an empirical orientation and follow an inductive methodology. To make sense of theological statements, they need a new contextualisation.

'Divine perfection' does not manifest itself anywhere – whether in nature, society, human existence or even the 'Holy Scriptures'. It is an idealised abstraction from the imperfect world we know. This is not unproblematic. Like its apocalyptic alternative, it can lead to bewilderment, wishful thinking and despondency, rather than insight, motivation and empowerment. In contrast, the biblical narrative is a passionate call for the creative and redemptive intervention of the Deity in response to human predicaments, beginning with the liberation, empowerment and transformation of human motivations and actions.

'Creation out of nothing' in a scientific perspective

Science has no use for idealised abstractions. The evolving universe cannot reach perfection. It is a progressive rhythm of gravity and entropy, construction and destruction, growth and decay, life and death, and novelty and obsolescence (Sachsse 1984:10–12). But what about the beginning of the process? Is there an equivalent to 'creation out of nothing' in modern science?

Science confines itself to immanent reality and leaves the question of transcendence open. The transcendent is

inaccessible and cannot be investigated. Expressed in scientific, thus strictly immanent terms, the metaphor of 'creation' can only refer to cosmic evolution. Cosmic evolution proceeds in levels of emergence.

Emergence theory is pivotal for our argument.[4] Every higher level of emergence is constituted by an interactive network of lower level components. As an integrated network, it is a new kind of reality with its own characteristics and regularities. When seen on their own, the components retain their characteristics, but once integrated, they change from 'facts' to 'possibilities' (Mann & Mann 2017:115–116).

The hierarchy of emergences encompasses the whole of reality from energy fields, through quanta, atoms and molecules, via physical, biological and neurological phenomena to mental and social processes. All levels are equally real. Beliefs, myths, values and even hallucinations are located in synaptic networks and have real consequences in this world. To deny them, reality is reductionist.[5]

There is upward and downward causation and there are feedback loops throughout the system. The personal and social levels depend on the entire hierarchy of impersonal levels lower down. 'Nothing' can mean that a newly emergent level did not exist before it emerged, but as a network of constituents, it could not have emerged 'out of nothing'.[6]

However, was there nothing before any constituents existed and combined to form the first higher level? The origin of the most basic building blocks of reality is indeed a virulent scientific issue.

The motor car

To facilitate a lay person's understanding of a complex scientific discourse, let me employ the metaphor of a motor car. There are four basic aspects to such a gadget:

1. The material: Iron, plastic, paint, and so on. What is the 'material' that evolves and differentiates in the cosmic process? And how did it originate?
2. The design: The 'blueprint' underlying the organisation of its parts into a functioning whole. Is there an inner logic that guides the evolution and differentiation of cosmic reality? Was its existence a prerequisite for the process to commence?
3. To get the car moving, you need the power of exploding fuel. What kind of power kick-started and sustained cosmic evolution?
4. The purpose: The construction of a car is pointless if it serves no purpose. Is there a rationale behind the unfolding and differentiation of the cosmic whole?

4.On the theory of emergence, see, amongst many others, Clayton (2006), Kauffman (2008, 2015), Mitchell (2009) and Sachsse (1984).

5.That 'none of these things exist outside the stories that people invent and tell each other' (Harari 2015:31) does not mean that they do not exist!

6.I recently experienced a painful example: after the death and cremation of my wife, there was nothing where she had been – absolutely nothing, and forever. This incredibly complex and magnificent network ranging from quanta to structures of consciousness had disintegrated and its constituents had been redeployed elsewhere in the system. Of course, the same was true before her conception!

Energy – The 'material' of cosmic evolution

In the hierarchy of emergences, every higher level of reality is composed of lower-level components, which are again networks of yet lower components. The scientific equivalent of 'creation out of nothing' would be that there was nothing 'below' the most basic level of the hierarchy of emergences, before any integration of components into wholes had occurred. Well, what is this most basic level?

Contemporary science recognises energy as the basic 'stuff' that makes up the reality we know. Energy manifests itself as electromagnetism. When polarised magnetic fields are drawn out into temporal sequences, they translate into vibrations or waves. Using a metaphor, let us assume that what we perceive as particles and anti-particles in quantum physics are crests and troughs of waves, or compressions and decompressions of energy.[7]

This assumption can throw light on quantum indeterminacy: to establish the location of a particle (the crest of the wave), one must freeze its movement in time, for instance, by taking a photo. The photo pins down the position of the wave at a precise moment, but it cannot show its impulse and direction. If, on the other hand, one focuses on its direction and impulse, the position of the crest (the particle) cannot be pinned down because it is on the move.[8]

So, the lowest kind of 'component' of all higher level networks are waves, rather than 'substances'.[9] '(On) scales smaller than the Planck length … space becomes a seething, boiling cauldron of frenzied fluctuations' (Greene 2005:333). Going up successive integrations of components, these fluctuations cancel each other out and the system smooths out. 'This is a key principle in physics' (Greene 2005:334). Even in a vacuum, quantum jitters move from positive to negative averaging out at zero: there are as many 'up' jitters as 'down' jitters (Greene 2005:330–331).

If quantum waves cancel each other out, seemingly 'stationary' states filled with energy and mass appear. That is why quantum indeterminacies become irrelevant at the level of Newtonian physics. Similarly, seen from a distance (if it were possible), the grainy structure of the universe with its trillions of galaxies would appear like a uniform soup.

Waves can have countless different lengths, amplitudes, shapes, intensities and directions. The electromagnetic spectrum is about 10 trillion times larger than that of visible light (Harari 2017:413; Hawking & Mlodinow 2010:90–93). As wavelengths increase, their frequency decreases and vice versa.

7.This is in line with the Schrödinger interpretation (March 1957:104).

8.Hawking and Mlodinow offer a plausible explanation of Heisenberg's quantum uncertainty: The Planck length of the photons that an observer shoots at the observed wave is larger than the distance between the crests of the wave and therefore disturbs the latter (2005:90ff).

9.March speaks of the 'de-substantialisation of the physical world'. An electron is a 'substanceless structure' (1957:116–122).

When waves of different kinds interact, they produce interference patterns. The higher we go on the hierarchy of emergences, the more different waves interact, the more complex these patterns become. The hierarchy of emergences is a hierarchy of exponentially increasing complexities caused by interference processes of different kinds stacked one upon the other in ever more complex interactions and feedback loops.

Because of the exponentially growing complexity of higher levels of emergence, their shape is less and less predictable. But unpredictability is not the same as random (Nürnberger 2020). That higher levels are governed by regularities is shown by the fact that the probability of their movements can be established, albeit less and less so. Probabilities form an ever more complex regularity with ever higher levels of embedded contingency.[10]

So, we seem to have arrived at the first basic prerequisite of cosmic evolution, namely energy manifesting itself in the form of vibrations or waves. Did this process have a beginning? That cannot be taken for granted. A process can have the shape of a circle where there is no beginning or end, or a sphere where there is no 'edge', or an ever ongoing pendulum, thus a giant super-wave (Sachsse 1984:6).

Scientists are hard-pressed to explain how the process got started. Hawking and Mlodinow, for instance, offer an explanation why 'things don't just appear anywhere from nothing' but, because of the existence of the law of gravity, 'a whole universe can' – and that through self-initiated 'spontaneous creation' (2010:179–180). 'Spontaneous creation is the reason there is something rather than nothing, why the universe exists, why we exist' (p. 180).

Or is it? Assuming that it is true, even this kind of 'spontaneous creation' is not 'creation out of nothing', because it presupposes energy and the way it operates, which can be expressed in a mathematical formula!

'Logic' as prerequisite of cosmic evolution

Levels of emergence do not fall ready made from heaven. They emerge through an ordered sequence of events, guided by some kind of 'logic' (if 'a' then 'b'). The 'laws of nature' are translations of specific logical sequences into mathematical formulae; mathematical formulae become operational in the form of algorithms; when algorithms are followed, they lead to dynamically evolving networks. Logical sequences determine which particular outcome will materialise if a particular procedure is followed. A change in the algorithm leads to a different outcome.

Logical sequences are purely theoretical until they give shape to some kind of structure or process. However, the fact that they can be cast into mathematical formulae implies that they are valid even in their purely potential form. Validity does not depend on empirical manifestation in time and space, but when it becomes applicable in a particular constellation, it leads to a particular outcome. It cannot just be replaced 'at random' with an alternative as well.

So, the timeless and universal *validity* of logical order is a prerequisite of cosmic evolution. This finding corresponds with the logos of the Stoa as 'divine rationality' as well as with the 'wisdom' of Sirach. The difference is that, being a theist, Sirach adds purpose to rationality. John 1 follows Sirach: the Logos is not only divine rationality but also divine rationale (love).

The thrust behind the cosmic process – entropy and gravity

The evolutionary process as a whole is driven by an inexorable thrust towards the realisation of potentials in time and space. What precisely is this force? It cannot be logic; it can only be energy. Energy follows the dialectic between entropy and gravity.

Entropy is the tendency of a situation to move from the least probable to the most probable, from the least balanced to the most balanced, from compactness to dissipation, from order to disorder, from fewer components to more components, from fewer to more possible linkages between components and thus from simplicity to complexity (Sachsse 1984:6–12). Following the arrow of time, entropy always moves in the same direction.

Gravity in turn pulls the disparate elements of energy together into more or less organised wholes. Gravity too is a purposeless force that simply links up whatever seems to fit. This is how the dynamic evolutionary movement from one level of emergence to another comes about. Entropy and gravity are the two indispensable prerequisites of the cosmic process. An initial 'nothing' does not enter into the equation.

Potential and kinetic energy

Energy comes as potential (resting) and kinetic (moving) energy. To 'exist' as an effective force, it has to 'step out' of the potential state into the kinetic state. (The word 'exist' is derived from the Latin word exsistere = to step out of). However, potential energy is not something undefined. 'It is not a matter of a new creation of forms, but a matter of appearing in the sphere of the observable' (Sachsse 1984:9).

As mentioned above, in a situation of 'embedded contingency', a spectrum of possibilities opens up: once one of them is realised, all the others are forever excluded from realisation. That does not mean, however, that the excluded possibilities disappear into 'nothing'! Unrealised possibilities too are composed of waves.

At this point, the model becomes quite spooky. Unrealised possibilities belong to the same league as realised possibilities,

10. Photons sent through a slit do not fly all over but move within a particular range of possibilities. The weird trajectories of rogue processes can be traced. 'Thus apparent randomness can arise from very simple deterministic systems' (Mitchell 2009:33).

just as losers in a race are as alive and healthy as the winner. That means that the potentiality of waves is as pre-existent as the validity of regularities.

Here too we do not seem to come across 'something' that could be defined as 'nothing'. Yes, before a possibility was actualised, it did not 'exist'. But it does not mean that it was 'nothing' that changes into 'something'. After its demise, it exists no longer, but that does not mean that its existence can be restored 'out of nothing'.

Purpose as a prerequisite of cosmic evolution?

Is the cosmic process driven by purpose? This is a contentious issue between main line science and proponents of 'intelligent design'. The word 'purpose' presupposes intentionality, which occurs only at the personal and social levels of emergence. In the case of a human artefact such as the construction of a car, the concept is appropriate. But the universe is not a human artefact!

If you are a believer and suspect that the universe as a whole has a purpose, you venture into transcendent territory. Only the intentionality of a transcendent all-encompassing 'agent' could cover all of reality, including the impersonal levels. Science has no mandate and competence to do that because one cannot observe and explain something to which one has no access. Scientific theories are possible inferences from established facts that again call for empirical substantiation. They do not leave the realm of immanent reality.

Confined to immanent reality, mainline scientists are unanimous that cosmic evolution is not driven by purpose, vision or rationale. Emergent evolution just integrates various potential functions that happen to fit. Scientists can use the concepts of 'creativity' (as Kauffman 2008 does) or 'design' (as Hawking & Mlodinow do in their title 'The Grand Design' 2010), but these are anthropomorphic metaphors for an essentially mechanical process.[11]

One can refer to certain functions within a whole, such as the starter, the wheels or the petrol tank of the car. Lower level constituents are indispensable for the constitution and operation of higher level networks. In symbiotic relationships, wholes can be indispensable for each other: cattle need grass for food, grass needs fertile soil and so on. Kauffman speaks about 'task closure', which means that a constituent is pinned down to a specific function in an emergent whole (2015:9). But function is an impersonal prerequisite, whilst purpose refers to personal intentionality.

Embedded contingency

If cosmic evolution follows purely mechanical processes, where does novelty, chance and (human) agency come into the picture? In the absence of intentionality and agency, the cosmic process follows the path of least resistance (Sachsse 1984:7–11). However, in a causal system, more or less open spaces occur wherever the forces determining a situation are sufficiently balanced for an additional force to impact the impulse and direction of the process.

Depending on the interacting forces, a spectrum of possibilities opens up: from the possible that is being realised, to the adjacent possible (that would be realised if the 'initial conditions' were slight different), to the more remote possible and finally to the impossible.[12] I call this phenomenon 'embedded contingency'. Embedded contingency renders novelty possible to various degrees, whilst it is still constrained by regularity.

Going higher on the ladder of emergences, the number of impacting forces increases exponentially, thus progressively widening the range of embedded contingency. The personal level is hugely more differentiated and versatile than the level of Newtonian physics, making intentionality feasible and agency effective. 'Free will' is not an illusion, therefore, as an obsolete reductionist science assumed, but it is always determined and constrained by the forces that impact the process. 'Creation out of nothing' within immanent reality would imply that there are no such forces.

We come to the overall conclusion that there is no scientific equivalent of the concept of 'creation out of nothing'. Science knows of transformations within levels of emergence, for instance, the evolution of biological species and the realisation of potentials when lower levels of emergence merge to form higher levels, but there is no hard and fast concept of 'nothing' before the onset of the cosmic process.

The Creator as a person

The critical importance of the personal level of emergence

God is the name for the intuited transcendent source and destiny of reality as such and as a whole. The transcendent is not accessible to human observation, explanation and manipulation. But the intuition, notion or concept of God are part of immanent reality. They can be described, explained, critiqued, changed, replaced or abandoned. To the extent that theology does precisely that, it is on par with the natural and historical sciences. The question is whether the intuition of faith requires the intuited transcendent source and destiny of reality as a whole to be a person.

Confined as we are to immanent reality, we must begin with the human being as a person, rather than a metaphysical postulate. With the emergence of the human being, cosmic evolution reached the personal level of emergence. While brain research has found multiple functions within the brain, no organ or realm in the brain in which a soul, a personal identity or an ego could be located (Harari 2017:128–140). However, this does not prove that there is no personal 'ego';

11.To avoid the personal aspect, naturalists often use the abstract noun 'creativity' (Kauffman 2008:281ff). Kaufman speaks of serendipitous creativity (2004:53ff).

12.For Kauffman (2008), 'adjacent possible' means the next step in the evolutionary sequence, for me it means the possible that would materialise if the initial conditions were slightly different.

it only shows that the ego is an emergent whole whose components interact to form a new reality, namely personal consciousness.

Because they too are based on electromagnetic waves (Mann & Mann 2017:149–158), structures and processes of consciousness are as 'real' as structures and processes at the level of Newtonian physics. At an emergent level higher up the hierarchy of emergences, they have their own characteristics and follow their own regularities, notably goal-directed intentionality, deliberate agency and an astounding communicative versatility made possible through the astronomical number of interacting forces and 'embedded contingencies' characteristic for this level of emergence.

The personal level of emergence defines the human being as a creature. It introduces meaning and purpose into the cosmic process, lays down values and norms and allocates statuses and roles. It is the seat of perspectives, world views and convictions; it allows scientific insight and creative art; it allows the choice between responsibility and ruthlessness, love and selfishness.

Humans have the capacity to reach out beyond the fleeting present; beyond limited horizons; beyond currently available power; beyond current world views, values and norms; beyond the real to the possible; beyond the immediately given to a sense of an all-encompassing whole and beyond what ought not to be towards what ought to be.

A concept of reality that does not include the personal level of emergence – such as a meaningless mechanism, an autocatalytic process, a historical dialectic, a brute will to power, a blind fate, or whatever – is a truncated, reductionist view of reality. It practically eliminates the human being from what is perceived to be real – and with that eliminates itself.

The concept of God as a person

The most critical aspect of the formation of consciousness is the need and the capacity of the human being to transcend the self. Beginning with the infant's first encounter with mother, that first great Other, the self is being formed in a vivid relation to others (Faber 2004; Nürnberger 2013:77–94). But as these others are integrated, demythologised and relativised, they no longer suffice as the catalysts of a growing personal identity. Increasingly confronted with vast dimensions, amazing diversity, countless possibilities and vexing uncertainties, the self transcends itself towards a more comprehensive Other, which that encompasses the entire life world, defines what the self could be and should be within this context (its authenticity), and motivates the self to attain it.

Freud's super-ego would not do because it leaves the self with a glorified image of a less than glorious self. The same is true for Feuerbach's re-appropriation of human excellence, projected into an imagined deity, because there is no such excellence. The message of Christ, in contrast, places one before the ultimate Where-from and Where-to of one's life and life world. In Jesus of Nazareth, deemed the messianic representative of God, God acquired a human face: a person that forgives, accepts, liberates and empowers. God consciousness is like an all-encompassing embrace. It allows us to be emotionally 'at home in the universe' (as Kauffman puts it in the title of one of his books), rather than a misfit and outcast.

This does not have to be something mysterious in terms of the scientific world view. That faith speaks of the divine person in anthropomorphic metaphors is self-evident – we have no other language for a personal reality. The question is what the metaphor stands for. Asked whether he believed in a personal God, Werner Heisenberg, the father of quantum physics, suggested that it is possible to have a relationship with the 'central order of things' that is as immediate and intimate as that with the 'soul' (sic) of another person (Mann & Mann 2017:119 – paraphrased). As with a human person, one can get 'onto the same wavelength' with this 'central order' and experience a deep sense of connectedness and belonging.

The specific character of this personal Other is not communicated through sensual experiences or metaphysical constructions. It is communicated as a 'performative' message, whose content emerged and evolved in the tradition of ancient Israel culminating in the 'Christ-event'. In the story of Jesus of Nazareth, acting as the human representative of God, the great Other became a God of accepting, liberating, transforming and empowering love, in contrast to a God of a demanding and vindictive obligation.

This message may hit home when it responds creatively and redemptively to typically human existential and communal needs: (1) humans become aware of their derivation, dependence, vulnerability and mortality, (2) they become aware of their responsibility, accountability and culpability, and thus of their need for forgiveness, acceptability and belonging and (3) they are confronted with pangs of fate that they cannot avoid, interpret and handle. If the message hits home, it forms a synaptic network producing structures of consciousness that are part of evolving reality.

Regular and intensive 'virtual' encounters with the great Other through the 'sacred story', its enactments in rituals and the transformed behaviour of the fellow believers now shape the identity of the believer, a community and a whole culture, defining meaning, truth, acceptability, values and norms. Ontologically, it is on par with alternatives such as ethnic nationalism, fascism, the dictatorship of the proletariat, the Torah, the Quran, the pursuit of personal prosperity and pleasure as supreme motivation (neoliberal economics), or the human being as ultimate master of reality (science and technology).[13] It is the qualitative content of the story that matters!

13.In this sense, Harari is right when he treats all phenomena at the mental and social levels products of the imagination – including nation states, corporations, traffic systems and the Internet (2011:passim). However, this does not mean that they are less real than houses or trees.

Freedom and responsibility

If one is unable to transcend one's own personhood towards an overarching personal 'Other', one cannot relate to one's lifeworld as a whole in a personal way. One cannot thank the rain for breaking a drought, praise a flower for its beauty or tell a tumour to get lost. One cannot gain ethical directives from wasps or pumpkins. In spite of a wagging tail, one cannot expect one's dog to confirm one's right of existence when having become a delinquent or outcast.

In the absence of an authoritative Other, humans consider themselves the supreme authority around, responsible only to themselves, thus not responsible at all. In modernity, self-emancipated human beings have become, in their own estimation, the sole owners and prime beneficiaries of natural, human and social reality – with truly devastating psychological, economic and ecological consequences.[14]

At the same time, seemingly autonomous humans cannot rise above the pressures, demands and constraints of the immanent world – whether physical, biological, psychological or social. Cut from their moorings, they can drift or be swept in all kinds of direction by enslaving ideologies such as fascism, Stalinism and fanatic fundamentalism. Today the manipulative power of the marketing industry has led to multiple addictions and enslavements based on the narcissistic preoccupation of individuals with the gratification of needs and desires. It is the awareness of a higher authority that liberates and empowers.[15]

God as the transcendent source of impersonal mechanisms

The divine person is the 'Other' of the human person. Within a Christian context, it is pointless to intuit and recognise a transcendent Other that is not a person because that would amount to the elevation of a part of reality at a lower, impersonal level of emergence to divine dignity. Such an absolutisation of a part of the 'world' is called 'idolatry' in the Bible.

The theological tradition appropriately maintains that God became a person for humans because humans are persons. However, as the ultimate source and destiny of the whole of reality, including the impersonal levels of emergence, God must also be deemed much more than a person, just as humans are much more than persons.

The tumour in my body is not the result of my conscious decision but the consequence of a rogue mutation that follows the laws of nature – which are also of God. A tsunami does not happen because of an intentional act of God, but a consequence of tectonic shifts that follow the laws of nature – which are also of God! The problem with the theist concept of God is not its personification, but its over-personalisation.

14.Harari's depiction of the great sweeps of human history shows just how little self-evident the humanist narcissistic preoccupation is if seen in its contexts (2016:Part II).

15.Werner Heisenberg used an appealing metaphor: If a ship consists of so much iron that the needle of its compass can only point to the ship itself and not to the north pole, it will lose its orientation (Mann & Mann 2017:118).

Our concept of the transcendent source and destiny of reality must simply become more inclusive and consistent. If the concept of God is reduced to the personal level at the expense of the impersonal levels, it leaves us with the imagination of an 'omnipotent' agent, that is, an unconstrained subject, who should have the power to sweep away all existential, social and natural evils with a single divine decree and inexplicably does not do so.

Conclusion

The idea of a 'creation out of nothing' is not an existentially or socially relevant issue in the biblical tradition. The biblical tradition simply attributes reality – precisely as it is experienced and perceived – to the creative power and the benevolent intentionality of a personal Creator. This includes both desirable and undesirable phenomena, both regularity and novelty and both structure and agency. The biblical faith is all about transformation of what ought not to be in the direction of a divine vision of what ought to be. A vision is not a prediction, but a compass that indicates a direction and triggers a motivation.

In the Hellenistic context too, the experiential basis is the discrepancy between what is and what ought to be. However, the Platonic vision of what ought to be is an idealised abstraction from a less than perfect reality. Where the basic concern is perfection, God becomes the most perfect being, which implies eternity, universality, omnipotence, omniscience, and so on. Divine omnipotence then leads to the concept of creation out of nothing.

Although all scientific facts and theories are provisional, modern science offers the best explanations of how cosmic reality functions that we have, and the ancient biblical and theological traditions cannot possibly know better. *This* is the world that we consider to be the 'creation of God' and no other! And in this world, not everything is possible.

My deceased and cremated wife will not be restored to life again, no matter how hard I pray. God will not suspend the laws of nature to satisfy our needs and desires. They are necessary for the world to exist and function; they are God's laws; they are valid. If I jumped from a high-rise building and God would suspend the force of gravity to save my life, I, and everything else on earth, would fly into outer space and perish!

Science teaches us that reality depends on the dialectic between entropy and gravity, destruction and construction, life and death, causality and contingency, and freedom and constraint. Moreover, the suffering endured in the cosmic evolutionary process is so horrific and overwhelming that any romanticising of 'nature' or 'history' is out of place (Sachsse 1984:11–12).

This implies that God as the transcendent source and destiny of precisely the reality we experience and the sciences

explore, accepts, suffers and transforms whatever is unacceptable towards God's vision of comprehensive optimal well-being – and expects us to participate in this endeavour. The supreme manifestation and symbol of God's suffering acceptance of the unacceptable is the cross of Jesus of Nazareth, deemed God's messianic representative.

The imperfections of reality do not disprove faith in a creating, redeeming and transforming God, but call for it. It is by participating in God's power and God's motivation that we find the resolve and the courage to tackle what ought not to be. Nor is hope for an extraordinary turn of events futile. The range of possibilities available in any situation is infinitely greater than we can know or fathom, a fact that the surprising advances of science and technology have amply demonstrated. God can very well open our eyes for hidden and wholesome possibilities and grant us the resolve and the strength to go forward.

It is therefore entirely appropriate to develop visions of what ought to be, hope for 'miracles' in desperate situations, request God to open possibilities that we do not recognise, liberate us from debilitating and detrimental assumptions and motivations and empower us to go beyond the given and the probable towards the optimal. The biblical message prompts us to embark on a transformative journey and stretch our expectations and efforts to their limits.

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Author's contribution

I declare that I am the sole author of this research article.

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