Abstract

Religion is a powerful phenomenon arising in and from society. Various efforts have been done to understand religion as a natural phenomenon, which could be framed in the language of science. In this paper, I forward a sui generis approach to the naturality of religion, where religion is explained as one of the next stages in broader natural processes of self-organization. Furthermore, having framed like this the naturality of the religious experience, the paper explores the contemporary debate of current religious expressions. It is suggested that the arrival of science and the modern society have changed some expressions of religious experiences; while, nonetheless, keeping their capacity to self-organize societies. The magical realist society, as the society capable of disguising the magic of religion within the realism of the scientific ethos, is presented and discussed as a modern secular expression of religion, capable to cope with the challenges of science through the dynamics of modernity and capitalism.

Keywords: religion; naturalism; science; magical realism; secularization.

In this essay, I will explore precisely the religious phenomenon as that: a natural phenomenon that bestows a level of order, coordination and unification within human groups. By doing the latter, I will argue, thus, that religion is part of a long sequence of ordering phenomena in nature known as self-organization processes, where self-organization is to be understood as “an intrinsically arising asymmetric change from more to fewer dynamical tendencies” (Deacon and Cashman, 2012: 200). In short, as Kauffman argues, self-organization represents nature’s capacity to generate order, an “order…” that “is not merely tinkered, but arises naturally and spontaneously” (1995: VII). Self-organization surrounds us, from stars forming (Strogatz, 2003), to crystals emerging...
on Earth and life evolving into ever more complex systems, it is clear that nature possesses a capacity to create order (Bak, 1996).

Having explored the naturality of religion as being a piece of a larger puzzle of self-organizing phenomena, I will move next to understand the challenge that the development of science has represented for religious beliefs. The problem with science and religion, is that, as Varki and Brower argue (2013), science provides us with an account of reality where we are simply the accidental emergence of blind and unintended processes of evolution. Something that does not provide humans with the sense of meaning they are searching for. Hence, and by contrast, most religious efforts to believe in an all-encompassing principle of order have tended to bestow on the aforementioned supernatural entities the responsibility for this desired meaningful life. However, science, besides generating terrifying propositions of an accidental existence, also generates roadblocks for humans to go back to their supernatural religious beliefs. As Harris conjectures (2005: 64), conventional religion is underpinned by faith, of which he says:

> What is faith, then? Is it something other than belief? The Hebrew term ‘emûnâ (verb ‘mn) is alternately translated as “to have faith,” “to believe,” or “to trust.” The Septuagint, the Greek translation of the Hebrew Bible, retains the same meaning in the term pisteuein, and this Greek equivalent is adopted in the New Testament. Hebrews 11:1 defines faith as “the assurance of things hoped for, the conviction of things not seen.” Read in the right way, this passage seems to render faith entirely self-justifying: perhaps the very fact that one believes in something which has not yet come to pass (“things hoped for”) or for which one has no evidence (“things not seen”) constitutes evidence for its actuality (“assurance”).

The challenge here, thus, is that in the scientific era in which we live, science preaches against the conviction on things not seen – i.e., faith –, including the inaccessible supernatural realm. Thus, for some people, returning to such faith is difficult. It is here, then, that the emergence of the magical realist society is essential. So that this paper will conclude by presenting the modern religious secularization here called magical realism, which consists of retaining the realism of science, yet with an inch of magic. This disguising of magic as part of reality provides modern humans with an opportunity to go back to their religious state of meaning, to continue, thus, their journey towards self-organization.

The magical realist society will be presented as protecting the self-organization that conventional religion, with its beliefs on the supernatural, tends to produce in human groups. Providing like this, then, a novel dimension of the secularization of religion debate (Gorski and Altnordu, 2008). Not because I will argue, like Wallace, that “[t] he evolutionary future of religion is extinction...” (1966: 264). But, because I will argue, by contrast, that a modern emerging implicit religiosity that is “post-institutional”
and that attempts to reconcile science and religiosity is emerging: magical realism. In short, in Pollack and Pickle’s words, I will argue that: “processes of modernization will not lead to a decline in the social significance of religion, but rather to a change in its social form” (2007: 604).

Let us begin this exploration at the beginning: nature and self-organization. To illustrate the naturality of religion through the concept of self-organization, I will take a big history approach first. This will take us to review history from the big bang until our times, so that we can see how self-organization is an essential characteristic of our origins, and hence, how religion could be a part of that narrative.

The Beginning of Being

“In the beginning was simplicity” (Dawkins, 2006: 12), everything was one, and one was everything, argues the now famous theory of the Big Bang. According to this theory, “the universe started, in the big bang, in a highly ordered initial state” (Kauffman, 2008: 27). The question of before the unity bears no sense, as physics heralds that the Big Bang was a singularity, “a point at which all the known laws of nature did not exist. Time too did not exist” (Harari, 2014: 349). Yet, through the insupportable arrow of time that ever accruing entropy has casted over the Cosmos (Gleick, 1988), the unity derived in difference. A rift was, therefore, induced by the Big Bang: the lamentable rupture that enabled separation, as the unity of the entirety shifted to the abandonment of the sundered.

However, not everything was fracture, because just as everything that existed swiftly expanded, some niches in the universe seem to have emerged where discrete amounts of energy have come back together. In other words, just as the universe expanded and became more difficult to describe because the simplicity of unity was lost, some parts of it have naturally reunited, or, self-organized. In the most trivial way, the formation of stars is an example of nature’s forces bringing some of its elements back together to form a unity that could be seen as an entity itself (Tyson and Goldsmith, 2004). Yet, as time has passed ever more intricate episodes of self-organization have happened, including the evolution of life on Earth.

One of the most accepted theories on the origin of life on Earth, originated in a letter Darwin addressed to Hooker. Particularly, in this letter, Darwin claims: “But if (and Oh! what a big if!) we could conceive in some warm little pond, with all sorts of ammonia and phosphoric salts, light, heat, electricity, etc., present, that a protein compound was chemically formed ready to undergo still more complex changes” (in Priscu, 2015: 1). In other words, the cherished primordial soup (Wagner, 2014): a broth of desolated chemical blocks whence life emerged. According to Darwinism, those desolated chemical blocks probably transformed themselves into ever more complex centers
of unity through a mechanism called evolution through natural selection. Evolution, because the process “transforms one living system into another” (Nowak, 2012: 120). Natural selection, because “if variations useful to any organic being ever do occur, assuredly individuals thus characterised will have the best chance of being preserved in the struggle for life” (Darwin, 1872: 148).

It was only later on, that we understood that the metamorphosis of one living system turning into another, was aided by the building blocks Dawkins calls the replicators (2006: 15). Of which, foremost, we know DNA. Deoxyribo nucleic acid—DNA—, a cryptic term, which in base sequences forms life’s instructions: genes. It is, then, from their inheritance capacity, that genes partly support the continuance of living features, while from their replicating errors, variety endures too. So that those organisms which genotypes express fitter phenotypes, survive, reproduce and become preponderant. It is “a process of blind variation and selective retention” (Wilson, 2003: 88), “leading to organisms that appear to behave as if they were designed to maximize their fitness” (Kurzban et al., 2015: 578): but they were not.

Evolution through natural selection could be described as self-organization, as it is a spontaneous natural trend towards ordering matter. It is here, as well, that we can see clearly expressed what could be referred as the ontological principle of self-organization: the principle of unification through fracture. In short, self-organizing processes allow a discrete number of particles to order themselves—e.g. a living organism—, and thus, become unified by creating a fracture. So that, for instance, the birth of an animal represents the ordering of a given number of atoms back into unity, yet they create a fissure between them and the rest of the entities in the universe, as now the animal possesses an ontological reality that is somehow fractured from the whole.

Habemus Humans

Evolution through natural selection resulted in the formation of our ancestors and eventually our species: Homo sapiens. Yet, it now becomes essential to understand how the principle of unification through fraction reached a whole new dimension with the emergence of consciousness in humans. To do this, let us think first about what defines human behavior.

Biologically a significant part of our behavior is defined genetically. In short, genes are the authoritative dictators that in perpetuum enslave humans. Yet, like the revolting insurgent, Homo sapiens took up arms against it captor. The cognitive revolution is how such a rebellion is usually called. In short, when humans’ cognitive capacities evolved, as to be able to regulate and expand some of that genetically prewired behavior. The cognitive revolution brought to us an unmatched level of freedom (Marean, 2015),
“enabling”, then, us to “think in unprecedented ways and to communicate using an altogether new type of language” (Harari, 2014).

With the cognitive revolution, new ways for humans to relate to their world emerged, and a new unit of life became shared and replicated. Dawkins calls this unit of cognitive life the meme, which is “a unit of cultural transmission” (2006: 192). What are memes exactly remains a mystery, yet they include any cultural cognitive construction that is transmitted through non-genetic means (e.g. stories, tunes, fashions, etc.). Memes, like genes, evolve much qua evolution through natural selection (Blackmore, 1999). The most basic type of memes is words and their subsequent accumulations (Dennett, 2002).

Words came to bestow meaning on the world, and more importantly, created a new dimension of the principle of unification through fracture, by creating the self. In short, at the individual level, language enables unprecedented levels of unification through the “I”. Unlike other animals that might show levels of self-awareness, humans distinguish themselves because of the narrative of reportability that as the meme of “I” is experienced. Testifying, therefore, to the Lacanian principle that “Not only is man born into language in precisely the way he is born into the world; he is born through language” (2008: 27). Forcing, then, Harris to exclaim that “THE sense of self seems to be the product of the brain’s representing its own acts of representation; its seeing of the world begets an image of a one who sees” (2005: 212). So that the brain has to forge its own other in the “I”, to be finally a self. Such a level of self-organization, creates in the self an unseen level of unity within a human, which emerges, nevertheless, through an unprecedented type of fracture that the “I” represents too. It is such a rift from which the “I” looms, that for eons many people have thought that beyond their bodies there is a second independent reality of who they are (e.g. a soul). Yet, the “I” is simply a natural by-product of the ontological principle of self-organization – i.e. unification through fracture.

Culture and Religion

“In the beginning, there was not the origin. There was the place”, exclaims Lacan (2008: 4); and it was place for sapiens, because place was what we needed. A need that emerges as the “I” becomes lost in its awareness, realizing, unlike other forms of living, the fracture from which it was formed. So that as Varki and Brower put it: “If one were to fully and continuously contemplate one’s existence and the repercussions of its end, it would lead to constant anxiety, stress, depression, and paralyzing behavior in many ordinary circumstances” (2013: 95). Awareness is a curse, because, as Paz claims, “Solitude is the profoundest fact of the human condition. Man is the only being who knows he is alone, and the only one who seeks out another” (1961: 195). The animal, by contrast, has probably not experienced this perdition. Its fracture from the world might be as real as that of man, but its solution is given by the place that its genes
bestow on it, giving it no space to realize its solitude. Yet, genes could not fully cast for humans their paths, as humans metaphorically rebelled against them. Thus, humans’ place remains undefined, it has the property of potency: the property of being able to be—in potentia—anything, although not necessarily being something yet.

But, how do humans escape from this deplorable awareness? It is in their symbolic meanings, that humans try to refuge (Freud, 1929). Throughout history, communities of men and women have formed the most powerful symbolic orders to escape this traumatic conundrum (Lacan, 2005). Orders where place has been finally given, where memes that humans created to make the world meaningful, “appear as an autonomous reality” (Ricoeur, 1986: 5), “so that men and women submit to what are in fact products of their own activity” (Eagleton, 1991: 70). The true believer, therefore, arises from the ashes to obey his/her own words. In short, as communities of people agree on certain meanings, beliefs and shared-thoughts, through the exchange of memes, they basically form a socially constructed fiction of ordering principles, which tell them how to behave, who to be, where to be, or whom to be with. These socially-constructed fictions could be called symbolic orders, and they call us to our place and role in the world: the student, the parent, the law-abiding citizen, the follower, the leader, etc.

Symbolic orders only work because of the Freudian operation of as if, so that when encapsulated in a symbolic order, we behave “as if we believed in these fictions” (2010: 4440). An operation that if it succeeds, it results in the state of you must, as in: you must go to university, you must have children, you must travel throughout the world, you must have social status, or you must buy it all and have it all you must too. Like this, thus, an unintended, purposeless, and undesigned natural reality is transformed into a lively social arrangement of place and meaning. It is here that we find religion, which could be simply defined as a symbolic order of transcendental meaning, which gives place to the humans that share it, to bestow a level of coordination—i.e. self-organization—on them. So, for example, the Christian faith, through what Norenzayan et al. call a Big God—i.e a God that is “believed to deliver rewards and punishments according to how well people meet the particular, often local, behavioral standards” (2016: 3)—allows Christians, on the one hand, to calm their solitude. While, on the other hand, giving them rules on how to behave, where to be, or how to be, so that they become coordinated and also, as Wilson (2003) and Dennett (2006) argue, more resilient to face the challenges of survival in the natural process of evolution through natural selection.

Religions based on Big Gods, such as the Abrahamic God who punishes/rewards, illustrate yet another dimension of the ontological principle of self-organization. Think about this, a Christian religion, such as Catholicism, provides a sense of unity to its believers. Nevertheless, this new level of self-organization (i.e. “I”’s finding with each other a level of order) is achieved only because of the social construction of a symbolic
order, which in Berger and Luckmann’s (2011) terms, comes to be *reified* through the concept of God the Father and his incarnation in the son Jesus (Ehrman, 2014). In short, the Catholic concept of God allows the Catholic symbolic order to gain an ontological status itself, despite it being a social construction of humans. Therefore, here, in this example, the symbolic Catholic order transforms into what Lacan would call Autre (2005) or as Žižek renamed it: the big Other (1989). In a word, the ‘as if real’ (Hay, 2014: 459) agency of the symbolic order, an order that is felt as an external and commanding force, despite being our human creation.

Through religion and its big Other(s), hence, a route is found towards social self-organization. It is a way back to the lost state of resonance, as in a religion you are one with others. Glamorous and charming this magical delusion of unity with others in the big Other is, because as Goethe poetically expressed it: “The world is so empty if one thinks only of mountains, rivers and cities; but to know someone here and there who thinks and feels with us, and though distant, is close to us in spirit–this makes the earth feel like an inhabited garden” (in Nowak, 2012: 237).

**Sustaining the Autre**

So far, it seems, then, that possibly first the human brain reunited in harmony a system–a human–through the formation of an additional rift in the “I”. Then, as those “I”s reunite themselves through religion, they nevertheless create an extra rupture in the looming, this time, of a big Other. Yet, the challenge is to sustain the delusion that there is a big Other that is independent of believers. It turns out that for many religions in the world, their big Other is protected in the supernatural. So that when facing the symptom—the unavoidable failure of most symbolic orders (Žižek, 1989)—, believers rejoice in the fact that for many of them (e.g. Abrahamic religions) their God is part of a different ontological realm, the supernatural. Hence, in those moments of the symptom, the symptom may be solved by the big Other being in the supernatural, where the supernatural is a part of a different order, one which believers cannot access. The latter produces overall, an authentic ritual, that in loco of absolute meanings, it has by contrast, perpetually postponed these through the Derridean operation of *la différance* (1973): the differing and deferring of meaning. Locking us, then, in an eternal chasing as the big Other, other always remains, always elsewhere, and unrealized. Like this, through the fiction of the supernatural, the postponement of meaning becomes ironclad: the big Other has magically ascended into the sacred, which as Durkheim argues, entails “things set apart and forbidden” (1976: 47). In a word, untouchable. Things that through such inaccessibility render possible, therefore, “a meaningful life that actually has no meaning at all” (Pelzer, 2004: 145), and deliver believers into a state that Durkheim himself would describe as a state of “collective effervescence” (1976: 226).
The Challenge of Scientia

As it must be clear now, one could see the emergence of religion as a higher-order element of a sequence of self-organizing processes in nature. So that from stars and galaxies forming and grouping, to cells coming together to create living organisms, we arrive eventually to the point where some of those living organisms with inner “I”s now find an unintended, undesigned and spontaneous way to self-organize themselves through religion. Yet, the problem with religion was the eventual emergence of science, because science precisely emerged to challenge the religious Autre. Science promoted a fairly different epistemology than pretense, one which “is built [by contrast] around the idea that we ought not have false beliefs” (Flanagan, 2007: 168). An idea best championed by the epistemological reformers of the scientific revolution, who defended the authority of “truth by correspondence” (Civitarese et al., 2015: 560). The ideological semiotic principle of science, therefore, proposed that “to be meaningful, a word must have some connection with what can be experienced” (Ladyman, 2002: 150). Science became, hence, a powerful human undertaking, whence the narrative distance between the symbolic and the material was asymptotically shrunk to nil.

Scientia has become dominant, because it has promised to give us the supposedly actual truth. As these scientific truths have worked – so far – and have allowed us to control our world in unprecedented ways, science has become ever popular, to the point that is difficult to imagine our lives today without science and its technology. Now, the popularity of science poses a challenge to religion, not only because it originated by defying it, but more importantly, because of the dark truth that so far science has constructed. Because behind, for instance, a blind unintended evolutionary process that created us, there is no hope for a majestic meaning to be found in our origins; and behind the subatomic world of interacting particles, there is no secret essence for an afterlife of purpose and meaningfulness. Even worse, the more we know about the universe, the scarier our existence becomes, as “Science tells us that we are creatures of accident clinging to a ball of mud hurtling aimlessly through space”, and I am afraid that regrettably “This is not a notion to warm hearts or rouse multitudes” (Ehrlich, 2000: 214).

Overcoming Science

One of the first ways through which mankind tried to overcome the challenge of science, was by showing that it is science the one that actually fails to deliver. The latter emerges as science at some point had to realize that it could not deliver the whole truth. Whether it is the problem of induction, the epistemological challenges of a ruined causal regime in complex systems, the sensitive dependence of chaos, Heisenberg’s dramatic conundrum of quantic uncertainty, or Mlodinow’s desperation to acknowledge the ungraspable power of random processes that govern our existence
(2008), the fact is that full knowledge that would precisely mirror the universe has not and will probably not ever come. Thus, science might be an effort to understand; however, as Polanyi once said, we must acknowledge that: “Any effort made to understand something must be sustained by the belief that there is something there that can be understood” (1946: 30).

Now, beyond pointing out the limitations of science, there is a second path through which humankind has tried to overcome the challenge of science against its beliefs. I am talking about conventional religious naturalism, where one accepts that the natural order is the only one that exists, forgetting, thus, about the delusion of the supernatural realm. From this perspective, then, scientists have claimed that there could be a sort of religious naturalism, whence a natural sense of meaning, purpose and transcendence could be derived. Or, in Drees’ words (1997: 534):

The phrase religious naturalism, or empirical theology, is used for a variety of positions similar to the view taken here. For instance, in an essay on science and empirical theology, Karl E. Peters wrote, “Human fulfillment and the ultimate source of fulfillment are to be found not beyond the spatial-temporal world but within it. If there are realms of being other than space-time nature and history (as in supernaturalism), they are beyond our ken and have no relevance to life today.”

In short, for religious naturalism, if nature is all we have, then, meaning, spirituality, transcendence or purpose should come from nature. The latter has produced various efforts by scientists to build a religious naturalism. For instance, for Polkinghorne we need to redefine God, so to understand that “God is... embodied in the universe as we are embodied in parts of it” (1998: 35). A similar claim is made by Kauffman, who argues that “all the unfolding of Nature is God, a fully natural God” (2008: 288). A different approach is taken by Flanagan, who says that the concept of a deity, in any form, might not be that helpful, but that, however, humans could still be spiritual, but in other more naturalistic ways, without aspiring to supernatural lives. Flanagan particularly argues that “like all other humans, [he] wish[es] to flourish, to be blessed with happiness, to achieve eudaimonia” (2007: 1).

Religious naturalism has tried to solve the challenge of science versus religion, to allow for the self-organized – civilized society – that from the construction of the religious Autre has emerged, to continue. Yet, religious naturalism faces a major roadblock, which is that the most fundamental tenets of science contradict it. Let me explain. The argument goes that the Baconian dream of objective knowledge, might give us a partial – not full as aforementioned – insight into how the universe is. But, as in the Humean epiphany, one cannot unfortunately derive ought from is (2009). Hence, from this that is – i.e. what science tells us about nature –, what ought to be my place in it cannot be answered. Thus, if religious naturalism truly accepts science as its cornerstone, then, it must accept that in the unintentionedly evolved universe in which
current science says we live in, there is no element of meaning. Thus, turning the religious naturalists’ equivalence of God with nature, into possibly a false equivalence. Because science does not preach that looking at a random, undesigned, unplanned, and unintended processes of evolution that produced us, will give us any insight into what it means to be human, or what the purpose of existence is. In other words, this is the Weberian cry of disdain against science (1922: 540):

what is the meaning of science... now after all these former illusions, the ‘way to true being,’ the ‘way to true art,’ the ‘way to true nature,’ the ‘way to true God,’ the ‘way to true happiness,’ have been dispelled? Tolstoy has given the simplest answer, with the words: ‘Science is meaningless because it gives no answer to our question, the only question important for us: “What shall we do and how shall we live?” That science does not give an answer to this is indisputable.

The Magical Realist Society

It seems that it has been society itself the one that has – probably unintendedly – found a way to live in a world that embraces science and its fruits, but that at the same time, has not given up on the socially-constructed reality of a life that is meaningful. The latter has been achieved through the operation of magical realism. Magical realism is fairly simple: it disguises the magic of meaning, spirituality and purpose in the realism of science. In short, Magical realism (Carpentier, 1949), as Flores argues, consists “in the amalgamation of reality and fantasy” (1955: 189), as to transform fantasy into what Žižek calls the objectively subjective: it might be delusional but it feels so much as reality that part of reality it becomes for us (2000). The wonderful thing of magical realism, is that it requires no rift to emerge between the fantasies that give meaning to our lives and the realism that science has given us.

Let us look at some examples. For instance, Marxism was right about how capitalism has created a new God: Money (Harari, 2014; Marx and Engels, 2000); and, while money remains magical, money is, nonetheless, a fairly mundane (real) concept. Thus, basing one’s life on the desire for money – what is more broadly known as consumerism – could create a sense of direction, purpose and meaning, while at the same time not contradicting science and its truth. Actually, the mundanity of money makes it easy to disguise it as a part of reality.

Another example, of magical realism, is when progress becomes the meaning of life for societies. The ideal of modernity – i.e. the great champion of progress –, as Paz described in his Nobel Lecture (1990), is to always look to the future, thinking this will be better than the present. This mania for the future – i.e. the progress ideology – created one of the first instances of the magical realist society, because the future is nothing else but a scientific element of the time dimension of the space-time continuum. Thus, societies, like the US or the UK, which have embraced modernity, have found purpose
by working to get to a promised land that is no longer in the supernatural realm, but in the natural one: in the future (Stewart-Williams, 2010). Related to progress is the way through which we are supposed to achieve it, which is work. Work itself, as Thagard proposes (2010), possesses the capacity to hide in our natural and mundane life, meaning and purpose. Related to the latter, “Recent polls have found that American managers and leaders want a deeper sense of meaning and fulfillment on the job — even more than they want money and time off” (Fry, 2003: 702).

Hence, from progress, to money and other ways in which modern magical realist societies work, the essence of religion, as giving purpose and meaning to people, has survived without needing the Autre to reside in the supernatural realm. By contrast, the big Other has been now brought into the natural realm in current magical realist societies. Most importantly, it continues to play its natural role: to self-organize humans. Because when people worry about the future, or when they desperately need to succeed in their jobs to find meaning in their lives, they find common ground that motivates them to order themselves into ever more intricate arrangements. Something that is clearly evidenced by the continued complexification of, for example, modern corporations.

In short, the religious experience of magical realism might have forgotten in some ways about our Gods and supernatural realities, and it might have brought the big Other closer to us than ever before (i.e. it might have secularized it), but it has nonetheless, continued to fulfill its religious function: to bind people together somehow, even if imperfectly, even if only temporarily. Showing, therefore, that we can built into “Science... its own magic: the magic of reality” (Dawkins, 2012: 257).

Conclusion

Through magical realism, the magic of meaning has been brought back from the supernatural into the natural order, where it is disguised now as the quintessential matter-of-fact. While the mechanism works, humans that believe in it — i.e., that are part of the religion of magical realism — will dwell in a qua teleological state of emergence, where the dry world of science is somehow transformed into the lively spectacle of ephemeral meanings. Yet, the operation of magical realism, has created a threat too, as it has challenged the ontological principle of self-organization — i.e. the principle of unification through fracture —, because this time, in the secular religious experience of magical realism, the fissure with the supernatural has been healed, our meanings have become closer than ever to us, so that our journeys might end up in us reaching them and exposing their emptiness. Because what if we live long enough to see the future, only to see it has nothing especial in it? Or, what if we work hard enough to accumulate all the money in the world, only to realize we are still empty and alone?
Bibliography

4. Carpentier A (1949) *Prologue to The Kingdom of This World*. instruct.uwo.ca: The University of Western Ontario.


