

Data Mining Analysis for Validation of Quantum Matrix Type Ontology for Contact Experiences via Near-Death Experiences ¹

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Abstract

The Survival Hypothesis states that a person's personality and consciousness survive the physical death of the body. Ontology is a well-established theoretical domain within philosophy dealing with models of reality. This research proposes cluster data mining for pattern recognition and classification of perceived objects in Near Death Experience (NDE) stories for the validation of Quantum Matrix Type Ontology. This type of reality is similar to an NDE and includes different contact modalities with Non-Human Intelligence and is based on the Quantum Hologram Theory of Physics and Consciousness. This chapter uses Quantum Matrix Type Ontology to represent the unintelligible aspects of near-death experiences. The research focuses on the validation of a select number of ontology constructs within Quantum Matrix Type Ontology to show the potential of this methodology in NDE research.

1. Introduction

The Survival Hypothesis is a theory that states a person's personality and consciousness survive the physical death of the body (Irwin 2002). Accordingly, humans have a dual nature: a physical body and an ethereal aspect that contains their personality and consciousness. This ethereal aspect has been referred to as, among other things, consciousness, the soul, spirit, and the "Higher Self." Many theories exist to support the Survival Hypothesis including the First Law of Thermodynamics, also known as the Law of Conservation of Energy, which states, "Energy can be changed from one form to another, but it cannot be created or destroyed. Thus, the total amount of energy available in the Universe is constant." The Survival Hypothesis is not complete without this Law.

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With the advances in medical science over the last century, more and more people are being resuscitated after having been clinically dead, and many of them have reported strange experiences. In 1975 Raymond Moody (2016) published a book entitled *Life After Life* and coined the term “Near-Death Experience” (NDE) to describe these experiences.

Some features of these experiences seem to be tied to the person’s belief system, including their religious beliefs (Badham 1997). For example, a Christian may see Jesus whereas a non-religious person will see an unknown person; a Muslim may see Mohammad; a Buddhist may see Buddha, an atheist might see alien beings, etc. A person’s beliefs also seem to explain why some individuals have a negative NDE, for example, some have claimed to go to Hell.

Hernandez et al. (2018) have proposed an ontology for a Matrix-type reality. This type of reality according to Hernandez et. al (2018) is similar to an NDE and includes different contact modalities with Non-Human Intelligence. Hernandez et. al (2018) hypothesize that the Quantum Hologram Theory of Physics and Consciousness (QHTC) provides a rudimentary explanation of Matrix-type reality. According to Hernandez et. al (2018), the different types of Non-Human Intelligence contacts are interrelated (Mitchell 1999). Many NDE experiences have reported contacts with forms of Non-Human Intelligence that are perceived as religious figures.

Given the fact that many people’s NDEs experiences seem to have similar characteristics and that these characteristics fit the ontology proposed by Hernandez et. al (2018), the objective of this research is the development of a research methodology and Quantum Matrix type consciousness ontology as the main framework for NDE research. This research focuses on the validation of a select number of ontology constructs within Quantum Matrix Type Ontology to show the potential of this methodology in NDE research.

2. The Unintelligibility Approach and Quantum Physics

Philosophers have accurately identified the central, essential barriers to the legitimate rational examination of the question of life after death. Attempts at eliding the extraordinary challenges raised by these philosophers regarding the unintelligibility of life after death would be intellectually dishonest. Moody (2020) provides a way of responding to these challenges via his description of the concept of unintelligibility. He proposes the possibility that the universe is unintelligible. If we imagine the universe as going on and on and on in space infinitely, that does not make sense either. Either way, it ends up in unintelligibility.

According to Moody (2020), the main obstacle to the rational study of life after death can be removed through a logic of unintelligibility. Linguists describe language on a continuum of intelligibility. While the intelligible, literal and figurative ends of the continuum have been explored extensively, the unintelligible end is an unknown. Yet, unintelligible language is a ubiquitous presence in everyday life. Unintelligible language has a host of recognized, accepted uses. Music, children's literature, science and various spiritual and religious traditions put unintelligible language to specific uses. Unintelligible language can also induce profound alternate states of consciousness, including seemingly transcendent ecstasies (Valverde 2015; Valverde 2016).

Physicists argue that a third value of logic—neither true nor false—is needed to describe the bizarre results of quantum theory. Quantum theory is unintelligible and has been used to attempt to explain life reviews in NDEs. Near-death life reviews pose a challenge to current memory research in terms of the sheer amount of instantaneous and empathetic information recall. Advances in quantum physics and consciousness studies now support a fully realizable quantum biomechanical basis for near-death life reviews (Beck & Coli, 2003). The quantum consciousness paradigm can be used to represent the unintelligible nature of NDE experiences, in particular the timeless and spaceless nature of these experiences and the sense of oneness with the universe. The quantum consciousness paradigm uses an ontology that can be used to represent the unintelligible aspects of consciousness (Valverde 2019). NDE experiences express the realization of the interconnectedness of everything, with the quantum principle of 'entanglement' suggesting that differentiation between 'objectivity' and 'subjectivity' is an artificial one. Instead, there is a meaningful relationship between experiences of consciousness in inner and outer worlds, with neither existing independently of the other (Walton 2017).

3. Quantum Matrix Type Reality Ontology

In philosophy, ontology is the branch of metaphysics which studies what is existing, including the relations that may exist between objects, their categorization, their structure, their properties, their similarities, their states and their changes. Ontology is a well-established theoretical domain within philosophy dealing with models of reality. Mylopoulos (1998) suggests that ontologism can be classified into four categories: static, dynamic, intentional, and social. Each of these categories focuses on different concepts in the real-world. Static ontologies focus on things and their properties. Dynamic ontologies extend static ontologies to focus on such concepts as events and processes, that is, how concepts in the real-world change over time. Intentional ontologies attempt to explain abstract concepts such as goals and objectives, while social ontologies emphasize values and beliefs.

Today however, interest in, and the applicability of ontologies, extends to areas far beyond metaphysics. There have been several efforts to establish an ontology that can describe the reality experienced during an NDE. Rominger (2010), made an effort to use art to describe an ontology for NDE experiences, he suggested the use of art as a methodology for NDE ontology research.

Hernandez et al. (2018) proposed an ontology for a Matrix-type reality that is similar to an NDE, they argue that one of the keys to understanding “Consciousness” is the understanding of contact with Non-Human Intelligence (NHI) using what they call the “Contact Modalities”. They define the different contact modalities of Non-Human Intelligence as:

- NDE contact
- Unidentified Aerial Phenomenon (UAP) contact
- Out of Body Experience (OBE) contact
- Shamanic Hallucinogenic contact
- Channeling of Non-Human Intelligence
- Spirit/Ghost communications
- Remote Viewing contact

Hernandez et. al (2018) hypothesize that all of these Contact Modalities are interconnected through what is commonly called Consciousness and that advanced physics, in particular, the Quantum Hologram Theory of Physics and Consciousness (QHTC) can begin to provide a rudimentary understanding of the relationships between diverse paranormal “Contact Modalities.”(Mitchell 1999).

Many authors have proposed using Quantum ontology to represent consciousness. Quantum ontology has been proposed to represent not only objective but subjective worlds (Ruvant 2010). According to Ruvant (2010), quantum ontology can be used to represent consciousness, and accounts for the existence of a continuum between conscious and unconscious states. Quantum ontology has been used in the study of consciousness in the field of psychology.

Valadas Ponte & Schäfer (2013), describe similarities in the ontology of quantum physics and of Carl Gustav Jung’s psychology. They argue that the empirical world is an emanation of a cosmic realm of potentiality whose forms can appear as physical structures in the external world and as archetypal concepts in our mind. Adherence to quantum principles yields a dynamic theory of the mind/brain/body system that is in close accord with our intuitive idea of ourselves (Stapp 1999). Bohm's theory that quantum events are partly determined by subtler forces operating at deeper levels of reality ties in with John Eccles' theory that our minds exist outside the material world and interact with our brains at the quantum level (Pratt 2003).

The attempt to explain consciousness by applying quantum theories has gained popularity in recent years. Valverde (2018) proposes an ontological model based on quantum theory centred on seven statements:

1. We share a collective consciousness that connects all consciousnesses in the universe to the supreme consciousness, which contains all knowledge in the Universe.
2. What consciousness is able to perceive with its five senses is not reality. Quantum physics has shown that space and time are illusions of perception. Our body is not a reality if it does not occupy most of the space it seems to occupy, quantum physics revealed that the shape of the interior of an atom is almost entirely empty space, and that matter is made of concentrated vibrating energy. Time is also an illusion and it represents a sequence of linear events that the brain generates based on perceived energy around every 25 milliseconds.
3. Consciousness is non-local and can work independently of the physical brain. Nonlocality or “action at a distance” is the nature of consciousness. Human Consciousness is non-spatial and non-temporal and not in the brain but in pre-spacetime. Consciousness is multidimensional, it can exist outside the three-dimensional reality.
4. Consciousness is likely to play an important role in quantum effects such as wave function collapse. This is the foundation of the reality that we perceive.
5. Conscious intentions likely have physical effects on matter at a distance due to the quantum entanglement effect.
6. Materialist theories, such as those proposed by neuroscience, for the explanation of consciousness are likely invalid.
7. The brain is a computer processor and an interface between human consciousness and the external world.

Quantum ontology has already been used in near death studies research. Tyler (2015), for example, describes NDE stories using a Quantum ontology that includes constructs for unity, complex interconnectivity, and distinguishability. In regard to cases of life review in near-death experiences, reviews pose a challenge to current memory research in terms of the sheer amount of instantaneous and empathetic information recall. According to Beck & Colli, (2003), advances in quantum physics, biomechanics, holographic information theory, and consciousness studies now support a fully realizable quantum biomechanical basis for near-death life reviews. Beck & Colli (2003) explain that the zero-point field lends credibility to vast memory storage capabilities outside the physical body. Microtubules are considered to be key components in non-local, quantum processes critical to human consciousness. According to current memory research, it is implausible that one’s life, replete with minute details, can be remembered in its entirety, let alone reviewed in a matter of seconds. Yet vividly empathic life reviews are commonly reported during near-death experiences. Moreover, such experiences are often subjectively described as occurring “outside of time and space,” which is consistent with the concept of instantaneous communication proposed by the Quantum Ontology Model (Beck & Colli, 2003).

Hernandez et al (2018) suggest that there are many similarities between UAP, NDE and OBE with NHI. All three contact modalities involve the experience of being brought to a Matrix Type reality, meeting NHI, and communicating in this Matrix type reality via telepathy, where there is a manipulation of both space and time.

Table 1 show the constructs for the Quantum Ontology for the Types of Contact Experiences with Non-Human Intelligent Beings in a Matrix Like Reality. In this chapter, a research study would be conducted to validate some of these constructs.

Table 1 Quantum Matrix-Like Ontology for the Types of Contact Experiences with Non-Human Intelligent Beings

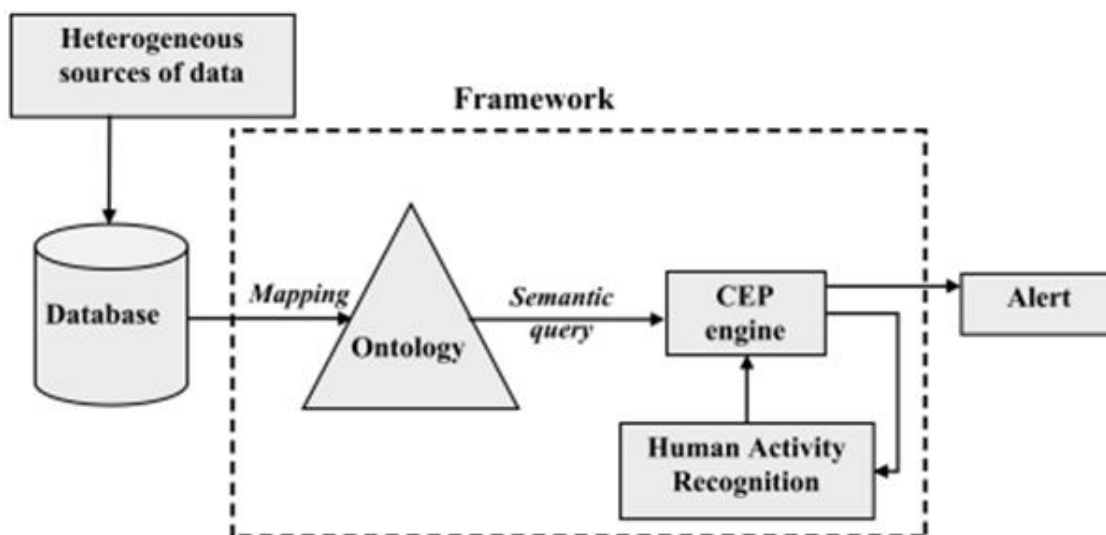
| Construct Element | Description |
|--------------------------|--|
| Physical | Extraterrestrial (ET) contact experience occurring while in your physical body |
| Consciousness separated | Consciousness is separated from your body at the time of the ET contact experience |
| Thoughts sped up | While in this "Matrix" like reality, your thoughts are sped up |
| More vivid reality | While in this "Matrix" like reality, senses are more vivid than usual. |

| | |
|---|--|
| Separated from your body | While in this "Matrix" like reality, you feel separated from your body. For example, you may lose awareness of your body and clearly feel that you exist outside of your body. |
| Relief or Calmness | While in this "Matrix" like reality, you have a feeling of peace or pleasantness. |
| Unusually Bright | While in this "Matrix" like reality, you see or feel as if you are surrounded by a brilliant light. |
| Encounter with mystical being or presence | While in this "Matrix" like reality, you seem to encounter a mystical being or presence, or hear an unidentifiable voice. |
| Contact with deceased or religious spirits | While in this "Matrix" like reality, you see deceased or religious spirits. |
| Past Events | While in this "Matrix" like reality, your past comes back to you. |
| Enter into some other, unearthly world | While in this "Matrix" like reality, you seem to enter into some other, unearthly world. |
| Time seem to speed up or slow down | While in this "Matrix" like reality, time seems to speed up or slow down. |
| Sense of harmony or unity with the universe | While in this "Matrix" like reality, you feel a sense of harmony or unity with the universe. |
| Understand Everything | While in this "Matrix" like reality, you suddenly seem to understand everything. |
| Scenes from the future | While in this "Matrix" like reality, you experience scenes from the future came to you. |
| Scenes from the past | While in this "Matrix" like reality, scenes from the past came to you. |
| Multi-dimensional experience | While in this "Matrix" like reality, multi-dimensional experience seems real to you. |
| ET Council meeting | You are brought to an ET Council Meeting |

| | |
|----------|---|
| Timeless | In this "Matrix" like reality, you perceive that time does not exist. |
|----------|---|

4. Research Methodology

An NDE database was generated based on the database on Dr. Jeffrey Long's website (NDERF www.nderf.org). This database contains a collection of 4267 records of NDE experiences collected for research purposes. The research uses a multi-step methodology as indicated in Figure 1 based on the Culmone et al. (2014) framework, which uses a MySQL DB to collect data that is then mapped to several constructs of the Quantum Ontology for the Matrix-type reality. The mapping is done with the help of SQL statements that retrieve data that is meant to match the meaning of the ontological construct that is being tested. Human recognition is required to validate that the data retrieved indeed represents the ontological construct being tested.

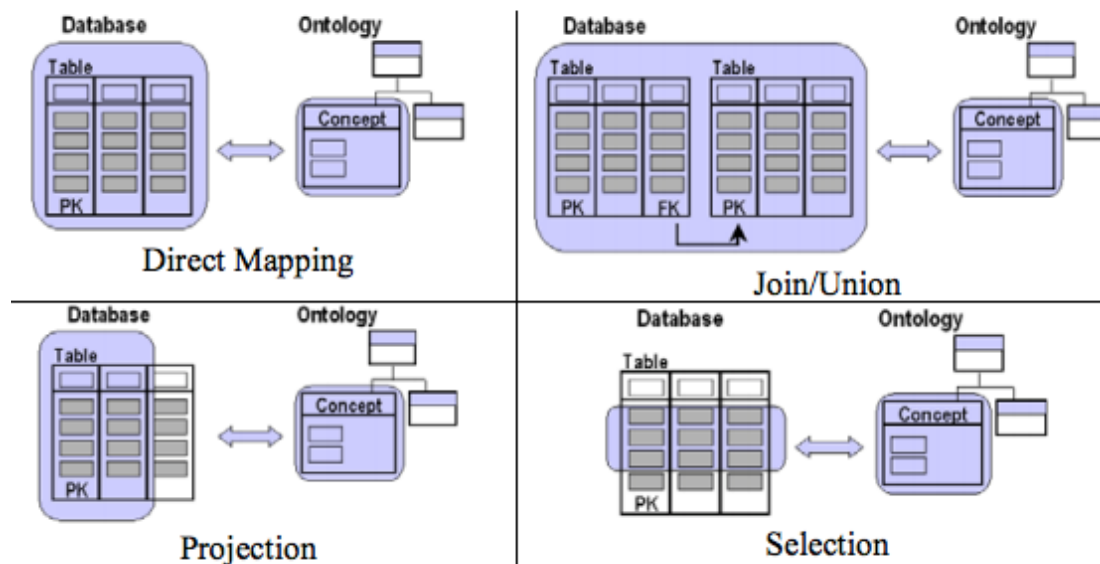


(Figure 1. Taken from Culmone et al.,2004)

Rodriguez et al. (2004) proposed 5 cases of database and ontology mapping as follows (Figure 2):

- Direct Mapping. A DB table directly maps a concept in the ontology. Every record of the table will correspond to an instance of a concept within this ontology.
- Join/Union. A set of DB tables map a concept in the ontology when they are joined. Every joint record within the joined tables corresponds to an instance of a concept within this ontology.

- Projection. When a subset of the columns of a DB table are needed to map a concept in the ontology.
- Selection. A subset of the rows of a DB table map a concept in the ontology.
- Any combination of these cases is also possible.



(Figure 2. Taken from Rodriguez et al.,2004)

4.1 Metrics to measure the model

Nef et al. (2015) developed the method in Figure 3 for finding the ideal metric of the performance of the ontological model. For the classification process, this research used questions that were linked to the ontological construct of unity. Three questions were prepared to identify the main characteristics of the ontological construct. To evaluate the classifiers (questions), this research used the recall, specificity, precision and the F-measure as metrics. The precision is the ratio $tp / (tp + fp)$ where tp is the number of true positives and fp the number of false positives. The precision is the intuitive ability of the classifier not to label as

positive a sample that is negative. The recall is the ratio $tp / (tp + fn)$ where tp is the number of true positives and fn the number of false negatives. The recall is the ability of the classifier to intuitively find all positive samples.

The F-measure score can be interpreted as a weighted harmonic mean of precision and recall, where an F-beta score reaches its best value at 1 and worst score at 0 (Salguero et al. 2018).



Starting with the (reformatted) raw data, a clustering further preprocessed the data before the actual classification was performed. Finally, the computed result was displayed.

(Figure 3. Taken from Nef et al., 2015)

$$F\text{-Measure} = \frac{2 \cdot \text{precision} \cdot \text{recall}}{\text{precision} + \text{recall}}$$

$$\text{Accuracy} = \frac{\sum_{i=1}^N TP_i}{\text{Total}}$$

(Figure 4. Taken from van Kasteren et al., 2011)

4.2 Queries on Databases for Ontology Construction

Das et al. (2004) introduced a set of SQL operators that can perform ontology-based semantic matching and the implementation of ontology related functionality on Oracle RDBMS. They also use some examples to illustrate the use of these matching operations. For example, they apply it to data from Homeland Security to detect terrorism. Their proposed ontology suggests a construct that represents terrorists that perform a set of actions that are part of the characteristics of being a terrorist. The instance they give is to query out two people who live together. One rents a truck and another one buys fertilizer. The query and the table are in the following figure. The result shows the suspicious activities involving a combination of different actions.

This research prepared a set of SQL statements that were used to measure the ability of the ontological construct to match the answers to the questions that were prepared to capture the NDE experiences of the people that experienced them.

| Person_name | Address | Activity | Object |
|-------------|---------|----------|------------------|
| John Buck | Addr1 | Rent | Ford F-150 |
| Jane Doe | Addr1 | Buy | Ammonium Nitrate |
| ... | ... | ... | ... |

```

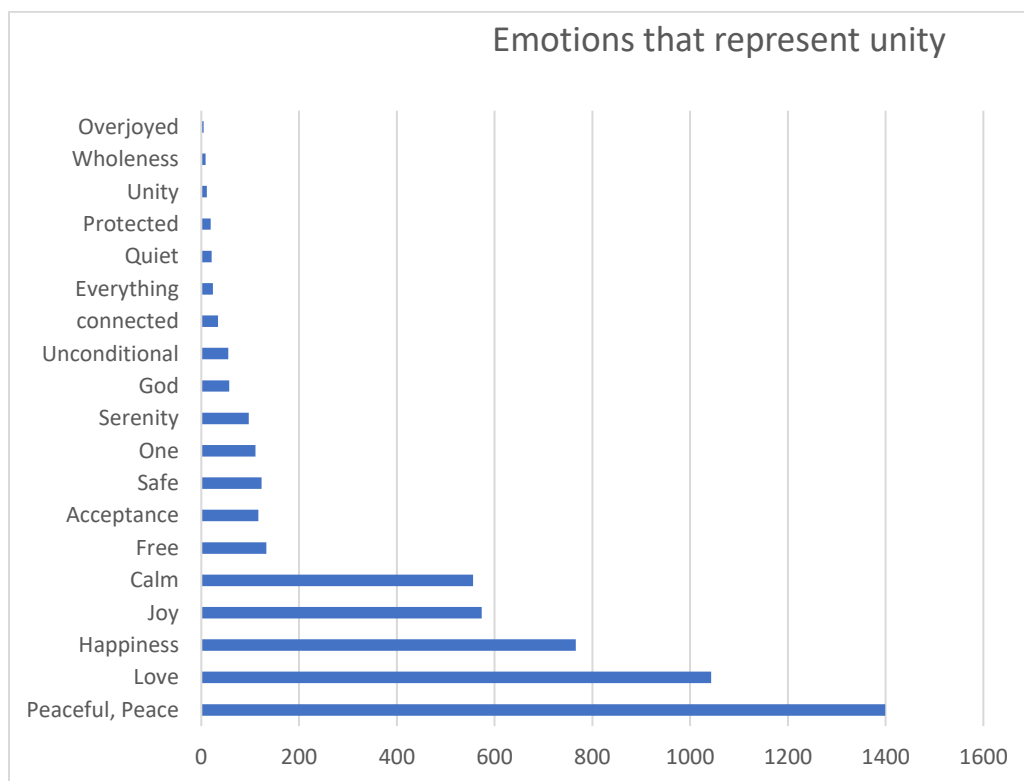
SELECT *
FROM ACTIVITY x, ACTIVITY y
WHERE
  x.Activity = 'Rent' AND
  y.Activity = 'Buy' AND
  ONT_RELATED(x.object, 'IS A', 'Truck',
              'vehicle_ontology') = 1 AND
  ONT_RELATED(y.object, 'IS A', 'Fertilizer',
              'chemical_ontology')=1 AND
  x.Address = y.Address;
  
```

(Figure 5. Taken from Das et al.,2004)

5. Results

The research validates the following ontological constructs from the Quantum Matrix-type reality Ontology: the Encounter with a mystical being or presence, Understand Everything and Sense of harmony or unity with the universe constructs.

The first construct validated is the Sense of harmony or unity. To validate this construct, those who had experiences NDEs were asked, “What emotions did you feel?,” with the aim of capturing all the emotions relating to a sense of harmony and unity. The first step was to list a set of keywords of emotions that relate to unity to construct a SQL statement that could help calculate different metrics to understand if this construct is supported by the answers to this question. The list of keywords that represent emotions that could be perceived as a sense of harmony or unity and the frequency of their occurrence within the 4079 answers is depicted in figure 6.



(Figure 6. Emotions that represent unity and frequency that was found in the responses)

An SQL statement was generated based on the keywords depicted in figure 7 with the purpose to retrieve all the responses that contain these keywords. This was done in order to determine how many NDE experiencers felt a Sense of harmony or unity. Several metrics were calculated to evaluate if the responses support the unity ontological construct and are shown in table 2.

Table 2 Metrics for the SQL statement for unity emotions

| Accuracy | Precision | Recall | F-measure |
|----------|-----------|--------|-----------|
| 71.95% | 0.9826 | 0.9869 | 0.9848 |

The 71.95% accuracy represents the percentage of responses that reflected the emotions in the keyword list and that represent the feeling of a Sense of harmony or unity. The precision is close to one. This represents the ability of the SQL statement to correctly label positive and negative responses. A precision of 0.9826 is considered very high and demonstrates the ability of the SQL statement to find all the positive answers. Positive answers are those retrieved by the SQL that reflect the Sense of harmony or unity construct. An F-measure close to one also reflects the accuracy of the SQL statement to retrieve positive answers.

The second construct validated was the Understand Everything construct that represents the experience of a knowledge of the universe. In order to validate this concept of the construct, two questions were asked to the NDE experiencers:

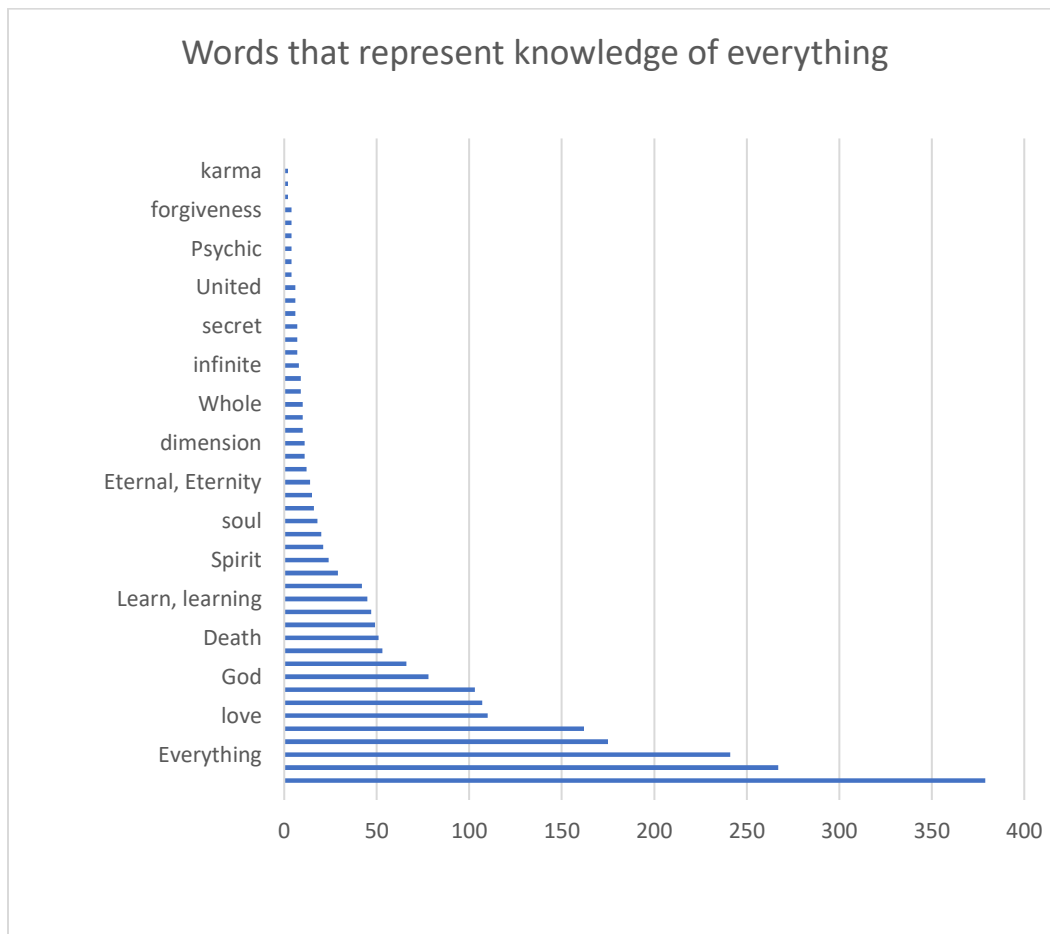
Did you suddenly seem to understand everything? For these the possible answers were: Everything about the universe, everything about myself or others, everything but not universe, myself or others, uncertain, no.

The results of the answers to this question are shown in the table below. Out of the 4140 responses, 2995 had positive responses (Everything about the universe, everything about myself or others, everything but not universe, myself or others) or about 72.3%. This represents a high percentage of NDE experiencers that experienced the feeling of knowing everything either about the universe, themselves or others, or everything but not the universe, themselves or others. This high percentage of positive responses supports the unity construct for the representation of knowledge of creation.

Table 3 Breakdown of the responses for the questions about the understanding of everything

| | |
|---|------|
| Everything about the universe | 1343 |
| Everything about myself or others | 1281 |
| Everything but not universe, myself or others | 371 |
| Uncertain | 57 |
| No | 1090 |

Those who responded positively to the above question, were then asked “Explain understand everything.” This follow-up question was formulated in order to understand the kinds of knowledge experienced in the perception of understanding of everything. A set of keywords that represent “understanding everything” was found in the answers with the help of data clustering and selected for the construction of a SQL statement that could be used to measure the level of presentation of the understand everything construct captured by this question. 1108 respondents explained the meaning of the “knowledge of everything.” A list of keywords from these responses and the frequency of their appearance is presented below in figure 9.



(Figure 7. Keywords that can be used to represent the knowledge of everything)

An SQL statement was generated and used on the keywords depicted in figure 7 with the in order to retrieve those responses that contain words representing the knowledge of everything. The metrics in table 4 were calculated to evaluate if the responses support the knowledge of everything ontological construct.

Table 4 Metrics for the SQL statement for knowledge of everything

| Accuracy | Precision | Recall | F-measure |
|----------|-----------|--------|-----------|
| 85.92% | 0.9422 | 0.9977 | 0.969 |

The accuracy of 85.92% represents the percentage of responses that reflected the keywords in the list and that represent the Understand Everything construct. The precision, recall and F-measure are close to one, which gives a strong indication that the SQL statement made of the keywords was able to retrieve experiences that support the knowledge of everything represented in the Understand Everything construct.

The third construct validated was the Encounter with a mystical being or presence construct that represents the NDE experience of encountering a mystical being or presence, or hearing an unidentifiable voice. In order to validate this concept of the construct, two questions were formulated to NDE experiencers:

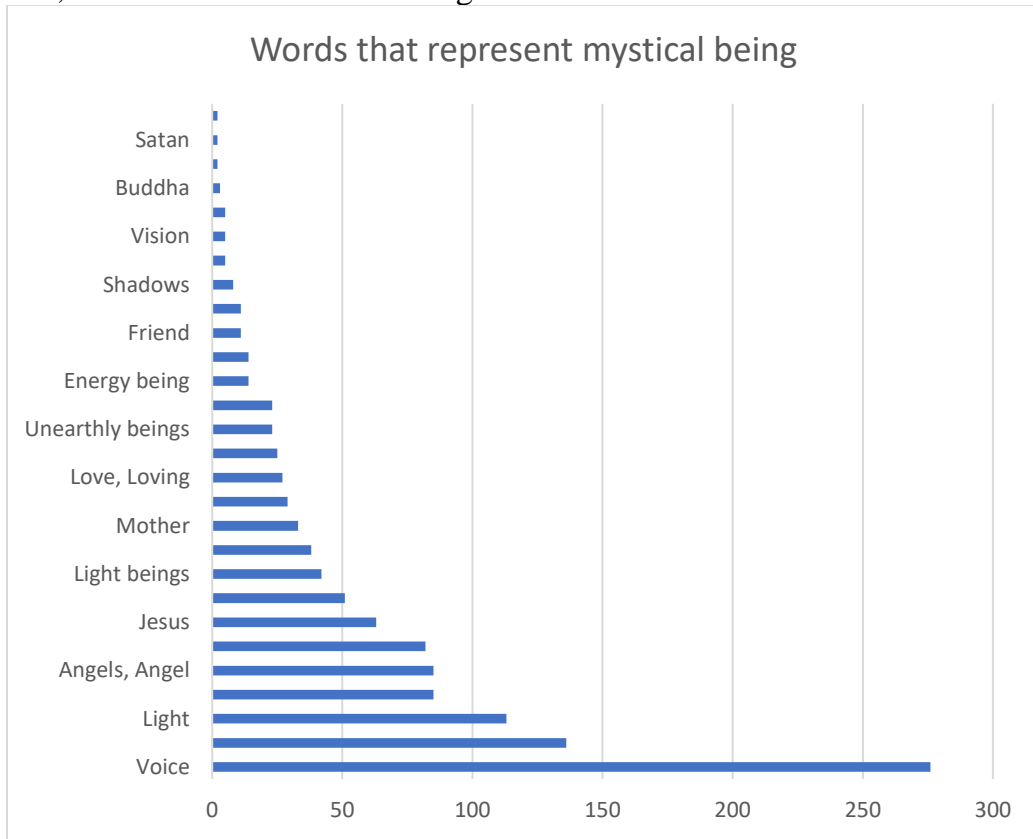
Did you seem to encounter a mystical being or presence? For these the possible answers were: Definite being, or voice clearly of mystical or other-worldly origin, Unidentifiable voice and Neither.

The results of the answers for this question in the table below. Out of the 2751 responses, 2995 had positive responses (Definite being, or voice clearly of mystical or other-worldly origin, Unidentifiable voice) or about 66.2%. This represents a high percentage of NDE experiencers that experienced the feeling of encountering a mystical being or presence or hearing an unidentifiable voice. The high percentage supports the Encounter with mystical being or presence construct.

Table 5 Breakdown of the responses for the questions about the understanding of everything

| | |
|--|------|
| Definite being, or voice clearly of mystical or other-worldly origin | 1639 |
| Unidentifiable voice | 179 |
| Neither | 933 |

As part of the research, for those with positive responses to the question mentioned above, a follow up prompts, “Describe mystical being,” was formulated to understand the perception of this mystical being. A set of keywords that represent mystical beings was found in the answers with the help of data clustering and selected for the construction of a SQL statement that could be used to measure the level of presentation of this construct captured in this question. 918 respondents described the mystical being with a list of keywords detected by using data clustering and frequency of appearance, this is described below in figure 8.



(Figure 8. Keywords that can be used to represent the mystical being)

An SQL statement was generated and used on the keywords depicted in figure 8 in order to retrieve those responses that contain these words. The metrics in table 5 were calculated to evaluate if the responses support the Encounter with mystical being or presence ontological construct.

Table 5 Metrics for the SQL statement for Encounter with mystical being or presence construct

| Accuracy | Precision | Recall | F-measure |
|----------|-----------|--------|-----------|
| 76.57% | 0.9829 | 0.985 | 0.984 |

The accuracy of 76.57% represents the percentage of responses that reflected the keywords in the list and that represent the Encounter with mystical being or presence construct. The precision, recall and F-measure are close to one, giving a strong indication that the SQL statement made of the keywords was able to retrieve experiences that support the Encounter with mystical being or presence construct.

5. Conclusions

The development of an ontology that is consistent across different NDE experiences that describes a reality that can be used to map any NDE experience can be quite challenging but a quantum ontology has been used in the past to represent the life review of NDE experiences, which shows great potential for the use of this ontology (Beck & Colli, 2003). The research concentrated on the validation of the Encounter with mystical being or presence, Understand Everything and Sense of harmony or unity ontology constructs with a proposed research methodology developed for this purpose (Valverde 2018; Tyler 2015). A database populated with 4079 descriptions of NDE experiences compiled by Dr. Long (<https://www.nderf.org/>) was used to support these ontological constructs with the use of SQL statements and metrics that show strong evidence that the unity construct within the Quantum Matrix-type ontology can be used to represent NDEs.

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