

REVELATION AND ARTIFICIAL

NEURAL NETWORKS

by **Lascelles G. James**

Understanding Revelation with Neural Networks

The grammatical forms and material of the book of Revelation suggest a complex interplay of Old Testament and 1st century literature and language. As well, the book does not lack its own peculiarity and character that is unparalleled in the literate world. Various analytical tools including historical-comparative methodologies have been employed to reconstruct the linguistic paradigm of the book and to chart a more accurate understanding of the speech community that produced this symbolic discourse. The expressions generally are fraught with symbolism and typology.

The understanding and practice of Christianity should never be limited by convention or tradition. Science and technology have benefitted from the contributions of numerous Christians throughout history who have connected religion and science to push the horizon of human understanding to new heights. Artificial intelligence and its derivatives are just other ways of probing the symbology of the book of Revelation.

Against the background of increased usage and development of computer software for analysis of scripture, Andrew McChesney assesses that “the analysis of art, music, literature, sociological phenomena, and linguistic activity can no longer be imagined without the information technology support that guarantees interpretive consistency and concise pattern detection.”¹

¹ McChesney, Andrew, “Old Testament Database Wins ‘Oscar’ of Scientific Community,” *Adventist Review*, April 9, 2015.

Artificial Neural Networks are computer systems that can learn on their own. They were first used in the study of human cognition and the process by which the human brain visualizes objects. ANN's are able to do pattern-matching and have learning capabilities that give them the ability to solve problems that are too complex for regular digital computation or statistical methods.

Perhaps the conceptualizers of ANN did not visualize its significance for application to assist in understanding the thought-language paradigm that determined the text of the New Testament. Artificial intelligence, as the name suggests, is the attempt to replicate in computer programs the processes and information required to perform tasks requiring intelligence, those things characteristically done by intelligent creatures. In articulating "Representation of Belief Systems", Pessin and Goldberg suggest that such tasks include meaningful interaction with the world in terms of perception, recognition and manipulation of objects, reasoning, learning and, of course, the use of language. Such a representational system takes the form of some equivalent of sentences or propositions. Information is represented by the programming languages used in this type of research such as Prolog.²

It is not difficult to visualize the world of the New Testament writer in which the *Koine* – like Prolog in Artificial Intelligence – was the mental model for reasoning and the representational system for the purpose of recording information. The truth is that within the framework of cognitive science any system using symbols and operations could model the way the mind comprehends and processes information. Therefore what appears to be very unusual in Rev 14:6, "Καὶ εἶδον ἄλλον ἄγγελον πετόμενον ἐν μεσουρανήματι, ἔχοντα εὐαγγέλιον αἰώνιον

² Andrew Pessin and Sanford Goldberg, eds. "Representation of Belief Systems: Frames" in *The Twin Earth Chronicles: Twenty years of Reflection on Hilary Putnam's The Meaning of Meaning* (Armonk, New York: M.E. Sharp Inc., 1996), 364.

εὐαγγελίσαι ἐπὶ τοὺς καθημένους ἐπὶ τῆς γῆς καὶ ἐπὶ πᾶν ἔθνος καὶ φυλὴν καὶ γλῶσσαν καὶ λαόν, ” is an arrangement of mental models.

The grammatical nominals translated into English are: messenger, midst of heaven, everlasting gospel, those who dwell upon the earth, nation, tribe, tongue and people. They are the mental models which need to be processed for a reasonable understanding of the utterance. Indeed, Johnson-Laird (1983, 1993) argues that sentence comprehension and subsequent thinking do not use propositions, but rather the construction and manipulation of mental models.³

The fact that computers can encode, manipulate, process, and in a limited way understand language, is possible only because of the remarkable properties of language systems as they have evolved through a long history. In its essence, language is a hierarchically organized structure of symbols, which allows us to express a potentially infinite number of ideas through finite means. The basic building blocks are very few: the phonemes of the language – represented by letters and letter combinations in our alphabetical writing systems. These elementary building blocks are combined in highly restrictive ways into the basic meaningful units, the words of the language, which again in accordance with systematic combinatory principles, form meaningful sequences of syntactically well-formed sentences. The entire system thus consists of a concatenation of a finite inventory of discrete units into a potentially infinite set of discourses, just as the ten numerals of our number system can be combined into an infinite set of different values and mathematical expressions. This analogous organization of language and numeric systems makes it possible to represent linguistic units by numbers and to manipulate them as if they were mathematical objects.⁴

The interpretation of this text can benefit from the information processing principles of biological neural networks that have been applied to building computer systems for solving difficult problems whose solutions normally require human intelligence. In the neural network approach, artificial neurons imitate biological neurons that transmit electrochemical signals over neural pathways and through special junctions called *synapses*. Min Fu observes that an artificial neuron models these simple biological characteristics and solve problems by self-learning and

³ Andrew Pessin and Sanford Goldberg, 364.

⁴ Margery S. Berube et al. eds, *The American Heritage Dictionary*, 2nd ed. (New York, NY: Houghton Mifflin Company, 1991), 37, 38.

self-organization. They derive their intelligence from the collective behavior of simple computational mechanisms at individual neurons.⁵

Comparatively, in building a neural network for research and discovery of the Apocalypse the scriptural neurons are the relevant biblical passages. The synaptic junctions are the writers themselves. Thus Isaiah alludes to a Messiah “stricken for the transgression of [His] people.” The signal is picked up by the writer of the book of Hebrews who also makes a connection to expiatory sacrifices in Leviticus and the kerygma of the Gospels in establishing a pattern for “judgment/atonement.”

The neural network recognizes, classifies, converts, and learns patterns. A *pattern* is a qualitative or quantitative description of an object or concept or event. A *pattern class* is a set of patterns sharing common properties. Pattern recognition refers to the categorization of input data into identifiable classes by recognizing significant features or attributes of the data.⁶ The arrangement of and the nominals observed in Rev 14:6 can be associatively classified into a pattern class that shares properties common to several preceding scriptures or neurons. Neurons function associatively through synaptic junctions for distributive network learning and information processing.

In Isa 61:1 the Spirit of God *is* responsible for the preaching of the everlasting Gospel; and in Acts 2:17 Peter prophesies that the Spirit of God will be poured out upon the entire earth. The significant features and attributes of the Holy Spirit manifested in these two data samples are common to the ἄγγελος of Rev 14:6 and the ἄγγελος by association could be classified by the neural network as the Holy Spirit. By similar analogy the ἄγγελος of Rev 18:1,2 lights up the

⁵ Li Min Fu, *Neural Networks in Computer Intelligence* (New York, NY: The MIT Press and McGraw-Hill, 1994), xvii, 8, 9.

⁶ Li Min Fu, *Neural Networks in Computer Intelligence*, 9.

earth and is of the same pattern class by association with Gen 1:2,3, where the Spirit of God hovering over the face of a dark, primordial earth was the catalyst for the creation of light and other ensuing elements constituting creation. The pattern is not isolated and is observed in the language habits of other New Testament writers.

Ἄγγελος, may refer to the other persons of the Godhead. In identifying the angel of Rev 10 commentators suggest that this is an angel of special rank.⁷ Elliot states that in Rev 10 “the same Covenant-Angel, Jehovah Jesus, that now brought with him, as his own proper investiture, the same glory as the God-man in Daniel’s earlier visions (Dan 10:6; Dan 12:7a).”⁸ The man-like appearance evident in Eze 1:26-28 and Dan 7:13 are allusions to Christ. The angel’s glory, cloudy garment and rainbow crown is, according to Barnhouse, an indication that he is Christ. Seiss agrees also that this angel is Christ.⁹ Ford deduces from comparison with divine manifestations in the book of Exodus that the figure may be “the Angel of the Covenant (Exo 14:19), sometimes identified with Yahweh.”¹⁰ In Exodus 13:21 Yahweh goes before Israel in a pillar of cloud by day and a pillar of fire by night.

Grammatical Patterns in Revelation

The line of writing adopted by New Testament writers is to a large extent unconsciously built upon their language habits. Their utterances cannot be studied by examining isolated grammatical patterns. According to Whorf, a much more far-reaching understanding is realized from large scale patterning of grammatical categories, such as plurality, gender, tenses, voices,

⁷ William Shea, “The Mighty Angel and His Message,” *Symposium on Revelation – Book 1*, 289.

⁸ Edward Elliot, *Horae Apocalypticae; or, A Commentary on the Apocalypse, Critical and Historical; including also an examination of the chief prophecies of Daniel* (London, UK: R.B. Seeley, 1852), 123.

⁹ Joseph Seiss, *The Apocalypse: Lectures on the Book of Revelation* [1865] (New York, NY: Cosimo Classics, 2007), 223.

¹⁰ Josephine Ford, *Revelation (The Anchor Bible Vol. 38)*; Garden City, NY: Doubleday & Co., 1975), 163.

classification of the type of “parts of speech,” and the matter of whether a given experience is denoted by a unit morpheme, an inflected word, or a syntactical combination.¹¹

Whorf continues to say that: a category such as number (singular vs. plural) is an attempted interpretation of a whole large order of experience; it attempts to say how experience is to be segmented, what experience is to be called “one” and what “several.” In a similar manner, concepts of “time,” “space,” “substance,” and “matter are in part conditioned by the structure of particular languages.¹²

The origin of grammar learning, says Chomsky, can be traced to the middle of the 1950s with the development of formal grammars for modeling the structure of natural language.¹³ Fu compares this development to *grammatical inference* by which the artificial neural network learns grammar. For example, the categories such as number, time, space, and substance may be presented as *training instances* to the learning network. The network learns the grammar from these sets of training instances. After being presented with a sufficient number of instances, the neural network automatically learns the grammar by self-adaptation or self-organization.¹⁴

In a similar way, the minds of the writers of the NT were trained by their exposure to the OT scripture by way of patterns of syntax, semantics, morphology and phonology. The Apocalypse eschewed this adaptation of thought and organization of ideas that forms the core of the book. Min Fu notes that neural network architectures and network training algorithms have

¹¹ Benjamin Lee Whorf, “The Relation of Habitual Thought and Behavior to Language,” *Language, Culture, and Society*, 66.

¹² Benjamin Lee Whorf, “The Relation of Habitual Thought and Behavior to Language,” *Language, Culture, and Society*, 67, 72.

¹³ Naom Chomsky, *Syntactic Structures* (Mouton, The Hague, 1957); *Aspects of the Theory of Syntax* (Cambridge, MA: MIT Press, 1965).

¹⁴ K.S. Fu, *Syntactic Pattern Recognition and Applications* (Englewood Cliffs, NJ: Prentice Hall, 1982).

been developed to assist researchers in learning the particular ideology and culture of the writers and speakers of languages.¹⁵

NT writers of the Apocalypse were very efficient and articulate in their expression. They were very adept at selecting, interpreting, organizing and expressing structures of thought and ideas learnt through patterns derived from intimacy with scripture previously written. Their “training instances” added to their associative abilities. Their adeptness would have been tested by the fact that the OT was written in a different language from the NT.¹⁶ It would simplify matters a great deal if the author of Revelation had always quoted from a Greek translation of the OT such as the Septuagint, but recent studies have shown Revelation to diverge widely from the Septuagint. It is quite possible that [the author] did the translating,¹⁷ and at times utilized text traditions with which we are relatively unfamiliar, such as the Aramaic targums and the Hebrew text tradition represented at Qumran.¹⁸

With this understanding, Paulien’s statement that Revelation is saturated with OT language, history, and ideas cannot be viewed with simplicity.¹⁹ Generally, says Kraft,

¹⁵ Li Min Fu, *Neural Networks in Computer Intelligence*, 383, 387.

¹⁶ Roger Nicole, “A Study of Old Testament Quotations in the New Testament with Reference to the Doctrine of Inspiration of the Scriptures” (M.S.T. Thesis, Gordon College of Theology and Missions, 1940), 9-11.

¹⁷ R.H. Charles, *The Revelation of St. John*, ICC (Edinburgh, 1920), 1:lxvi.

¹⁸ Leonard P. Trudinger, “Some Observations Concerning the Text of the Old Testament in the Book of Revelation,” *JTS*, n.s., (1966): 82-88.

¹⁹ Jon Paulien, “Interpreting Revelation’s Symbolism,” *Symposium on Revelation – Book 1*, ed. Frank B. Holbrook (Silver Spring, MD.: Biblical Research Institute, General Conference of SDA’s, 2000), 84.

interpreting the Apocalypse entails reconstructing the OT source.²⁰ The problem is that the writer never cites the OT, he only alludes to it.²¹

Angels bearing messages from heaven in the Apocalypse have their typology in OT. The writers ideology and culture extrapolated from what was already scripture and was therefore expressed similarly. The fact that the messengers from heaven in Rev 14, rather than human beings, are mentioned as the ones preaching to the inhabitants of the earth suggests strongly that the final proclamation of the everlasting gospel will be brought to its completion primarily by divine action rather than human effort.²²

In the history of Israel, proclamation instances are typified by divine calling and presence in the execution of salvific action. After the scattering at the tower of Babel, Abraham was called by God himself in Genesis 12:1: “Now the LORD had said unto Abram, Get thee out of thy country.” After Israel’s custody in Egypt for many years Moses was called: “And the angel of the LORD appeared unto him in a flame of fire out of the midst of a bush” (Exodus 3:2). The message was clear: “Come now therefore, and I will send thee unto Pharaoh, that thou mayest bring forth my people the children of Israel out of Egypt (Exodus 3:10).

After their exile in Babylon the angel Gabriel was sent to Daniel. His proclamation was, “Seventy weeks are determined upon thy people and upon thy holy city, to finish the transgression, and to make an end of sins, and to make reconciliation for iniquity, and to bring in everlasting righteousness” (Daniel 9:24). After years under the yoke of Hellenistic ideological invasion and oppression, Gabriel appeared to Mary: “And, behold, thou shalt conceive in thy

²⁰ Heinrich Kraft, *Die Offenbarung des Johannes*, Handbuch zum Neuen Testament, 16a (Tubingen, 1974): 16, trans. Mine.

²¹ A. Vanhoye, L’utilisation du livre d’Ezechiel dans l’Apocalypse,” *Bib* 43 (1962): 436.

²² Ranko Stefanovic, *Revelation of Jesus Christ* (Berrien Springs, MI.: Andrews University Press, 2002), 464.

womb, and bring forth a son, and shalt call his name JESUS. He shall be great, and shall be called the Son of the Highest: and the Lord God shall give unto him the throne of his father David: And he shall reign over the house of Jacob for ever; and of his kingdom there shall be no end” (Luke 1:31-33).

This pattern of divine calling/deliverance was dominant in Scripture; it is not strange that the Apocalypse writer should express divine deliverance through divine agency. The angel’s call of Rev 18:4, “And I heard another voice from heaven, saying, Come out of her, my people,” is a cry that echoes the exoduses from Haran, Egypt, Babylon, and Hellenistic dominance by divine initiation. The call would be belittled or misunderstood if it is considered only as a call to vacate a geographic location. It was primarily a call to look to God and to be mind/heart-transformed by divine power.

Concept Models and Typology

Diop underscores that “typology plays an important role in the use of the OT by Jesus and by the NT writers. The use of typology displays the correspondence and the continuity between the two testaments. The relationship between a type and an antitype involves a correspondence between an element and its counterpart that is more than a resemblance. The types have historical reality; they can be predictive. The antitype is generally greater than the type. Typology is not accidental; it is designed by God to show the unity of language and of thought throughout salvation history.”²³

In his explication of Heb 9:24 Diop further illustrates the superiority of the antitype over the type as he elucidates how much the New Testament writer recognized the greater

²³ Ganoune Diop, “Innerbiblical Interpretation: Reading the Scriptures Intertextually,” *Understanding Scripture: An Adventist Approach – Biblical Research Studies, vol 1*, ed. George W. Reid (Hagerstown, MD: Review and Herald Publishing Association, 2006), 140.

significance of Christ's heavenly high-priestly ministry foreshadowed by the "first tent" of Heb 9:8 (הַמִּשְׁכָּן הַרְאֵשׁוֹן πρώτης σκηνης). The focus he says, "is not the place or the time but the person who ministers in the heavenly sanctuary."²⁴ This was emphasized by the *minister*, Jesus himself in Matt 12:6, "But I say unto you, That in this place is *one* greater than the temple." Here the NT writer refocuses a prophetic utterance so that the unity of language and thought is re-established in harmony with the OT declaration of Haggai who comforted the older weeping Jews when the foundation was laid for the 2nd temple:

Yet now be strong, O Zerubbabel, saith the LORD; and be strong, O Joshua, son of Josedech, the high priest; and be strong, all ye people of the land, saith the LORD, and work: for I *am* with you, saith the LORD of hosts: ⁵ *According to* the word that I covenanted with you when ye came out of Egypt, so my spirit remaineth among you: fear ye not. ⁶ For thus saith the LORD of hosts; Yet once, it *is* a little while, and I will shake the heavens, and the earth, and the sea, and the dry *land*; ⁷ And I will shake all nations, and the desire of all nations shall come: and I will fill this house with glory, saith the LORD of hosts. ⁸ The silver *is* mine, and the gold *is* mine, saith the LORD of hosts. ⁹ The glory of this latter house shall be greater than of the former, saith the LORD of hosts: and in this place will I give peace, saith the LORD of hosts (Haggai 2:4-9).

Davidson notes that symbolic representation is easier for the mind to assimilate than abstract reasoning. Some spiritual truths in Scripture, such as judgment, are thus explained in a concrete or pictorial manner using typology. The earthly sanctuary rites and festivals was the focus of worship for Israelites and it is clearly recognizable as the "type" that preceded the Christ-event and the realization of the plan of salvation (anti-type). The heavenly visions of the NT writer of the apocalypse focus on a heavenly sanctuary alluded to in Hebrews 9. This heavenly sanctuary is the center of divine redemptive activity.²⁵

²⁴ Ganoune Diop, "Hebrews 9:8," *Interpreting Scripture: Bible Questions and Answers - Biblical Research Studies*, vol.2, ed. Gerhard Pfandl (Hagerstown, MD: Review and Publishing Association, 2010), 415.

²⁵ Richard Davidson, "Sanctuary Typology," *Symposium on Revelation – Book 1*, ed. Frank Holbrook (Silver Spring, MD.: BRI, General Conference of SDA, 2000), 99.

The sanctuary “type” seen in the OT was a concrete system that under-girded the efficacy of redemption in Christ described in the NT. This OT background information is employed in the perception or cognitive element of typology. The associative element responsible for inference and expression in the NT is the linguistic component or “anti-type.” Pessin and Goldberg explain that linguists and discourse analysts use the results of neural network modeling research for a better assessment of the symbiosis of language and cognition in cognitive psychology.²⁶ Cognition and language can be juxtaposed to type and anti-type.

In Rev. 14:7 the linguistic term “the hour of judgment” is announced by the 1st angel. The term may be cognitively understood using typology. A mathematical model used will help to shed light on the relationship between the cognitive (type) and the linguistic elements (anti-type) of “judgment.” The Day of Atonement (יוֹם הַכִּפּוּרִים) described in the book of Leviticus (Lev 16 and Lev 23: 27-32) was a concrete cognitive element of the OT sanctuary ritual that has a linguistic parallel of sanctuary antitype in the apocalypse in which Christ ministers the merits of His sacrifice in the presence of God for Christians (Rev 3:5). This ministry concludes with final judgment in Rev 20. Both elements combine to fully illustrate the concept model known as “judgment” which is a corollary of atonement or covering of sin (כַּפֵּר).

A computational model that is experimentally testable suggests that human language and cognition are partners in human understanding.²⁷ Such a model using this partnership that

²⁶ Andrew Pessin and Sanford Goldberg, eds. “Representation of Belief Systems: Frames” in *The Twin Earth Chronicles: Twenty years of Reflection on Hilary Putnam's The Meaning of Meaning* (Armonk, New York: M.E. Sharp Inc., 1996), 363.

²⁷ Leonid Pervlovsky, “Language and Cognition,” *Neural Networks* 22, on-line journal (Elsevier Ltd. Harvard University, SEAS, Cambridge, USA, 2009), 252; available from <http://www.elsevier.com/locate/neunet> or <http://autonomoussystem.org/papers/Language%20and%20Cognition,%20Perlovsky.pdf> accessed 9 Aug 2011.

integrates language and cognition will be used here to show that the term “judgment” in the lexicon of the apocalypse is to some degree derived from its type “day of atonement.” The judgment model M in the apocalypse writer’s mind had a linguistic component and a cognitive component here described as M_L and M_C , so that:

$$M = M_L + M_C$$

M_L and M_C are placeholders for the language and cognitive contents. In the mind of the apocalypse writer, the neural connections between the two types of models were innate; the mind never had to learn which word corresponded with which object. The “neural connections” can be identified in the book of Hebrews (esp. Heb 9) which contain pathways that link the “type” (M_C) to the “antitype” (M_L). There are other “connections” alluded to by NT writers such found in Rom 5:11: “And not only so, but we also joy in God through our Lord Jesus Christ, by whom we have now received the atonement.”

Judgment = “Hour of His Judgment” (Rev 14) + Day of Atonement (yom kippur - Lev 16)

ὥρα τῆς κρίσεως αὐτοῦ + יוֹם הַכִּפּוּרִים

As the writer of the Apocalypse is informed in vision the model acquires specific contents but the linguistic and cognitive contents are always properly connected. The abstract language model, “judgment” becomes less vague and more specific much faster than the corresponding cognitive model, “day of atonement.” In a similar way it has been demonstrated that categorical perception of color in infants who have not yet learned language is based in the right hemisphere. As language is acquired and access to lexical color codes become more automatic, categorical perception of color moves to the left hemisphere (between two and five

years) and adults categorical perception of color is based in the left hemisphere (where language mechanisms are located).²⁸

This model (M) demonstrates the use of typology and the connection between type and antitype. There may not be specific reference to the type when antitype is used especially in the Apocalypse. This is because language models tend to hide cognitive contents from consciousness. The “type” finds its expression and fulfillment in the “anti-type;” the true purpose of the type is revealed in the anti-type. It is fundamental knowledge that cognitive hierarchy cannot be learned without language hierarchy. Pervlovsky recognizes that only from language do we learn what is important for understanding various situations.²⁹ In a similar way, the relevance of “the day of atonement,” the high point of OT sanctuary ritual is underscored by its anti-type “the hour of judgment” declared by the heavenly messenger in Rev 14.

Thus the language model of “judgment” is used and developed in the apocalypse without the mention of the corresponding cognitive element derived from Leviticus. Nonetheless the inescapable cognitive element is clear in subsequent visions of the Apocalypse. As indicated by the “type,” judgment comes to a grand climax when the just are redeemed and the unjust are ostracized and destroyed. The “neural network” runs through various OT and NT scripture providing a solid basis for analysis and comprehension of both cognitive and linguistic elements of judgment.

A crucial linguistic intermediary (ML) neuron (node) that connects to the Pentateuchal cognitive (MC) expression of “judgment” that is overlapped by the book of Hebrews is found in Isa 53:6: “All we like sheep have gone astray; we have turned every one to his own way; and the

²⁸ A. Franklin et al., “Categorical Perception of Color is Lateralized to the Right Hemisphere in Infants, but to the Left Hemisphere in Adults.” *PNAS* 105, no. 9 (2008): 3221-3225.

²⁹ Leonid Pervlovsky, “Language and Cognition.”

LORD hath laid on him the iniquity of us all.” This scriptural neuron is further weighted by the Hebrews 2:9 neuron: “But we see Jesus, who was made a little lower than the angels for the suffering of death, crowned with glory and honour; that he by the grace of God should taste death for every man.” The construction and manipulation of the nominals in both texts are uniquely parallel and demonstrate progressive revelation, uniformity, depth of thinking and comprehension common to OT and NT writers.

NT writers used both language and cognition in interpretation and revelation. Deacon suggests that this hierarchy sets the human mind apart from the animal world as every human culture possesses both abilities.³⁰ Dual hierarchy architecture gives a mathematical reason why hierarchy can only exist as a joint dual hierarchy of language and cognition. Learning is grounded in “real” objects. In artificial intelligence it was long recognized that learning without grounding could easily go wrong, learned or invented models may correspond to nothing real or useful.³¹ Try to teach a dog to understand the word “rational”, or any abstract concept, whose meaning is based on several hierarchical layers; this is not possible. It is known that the smartest chimpanzees after long training can barely understand few concepts at the second layer.

Using the mathematical model of “judgment” presented here, it is clear that artificial intelligence technologies represent a powerful tool for theologians. Cimbala concludes that AI technology has the additional advantage that computer programs are deductive systems and their output depend on the assumptions in the program. Therefore there is an obligation on the part of developers to be sensitive to the theories that support the programming efforts, the choice of basic representation of theoretical primitives, and verification and testing of programs. When the

³⁰ T.W. Deacon, *The Symbolic Species: The Co-evolution of Language and the Brain* (New York: Norton, 1997).

³¹ A. Meystel and J. Albus, *Intelligent Systems: Architecture, Design, and Control* (New York: Wiley, 2001).

AI technology is transferred from linguistics and cognitive science to theological assumptions the reasons must be clear and properly thought out. The success of the technology transfer will depend on the recognition that there is nothing mystical or magical about AI which is simply computer modeling or simulation.³²

William Downes proposes that the religiosity of humans is bound up with our natural language capacities, arguing that when human minds process the phenomena and experiences of their world, fundamental categories such as the supernatural, the normative, and abstract concepts of the divine and of religious experience are the inevitable results. Downes brings cognitive psychological theory into league with linguistics, offering a "form of cognitive pragmatics that sees religion as an essential, even useful and compelling derivative of that which makes us human."³³

The approach taken in this analysis is just another way of understanding the celestial scope of the book of Revelation. No single methodology can explain its form and substance. The authors declare it to be divine in its source and authority and it remains the book with the most wonderful promises and greatest hope for the Christian.

³² Stephen J. Cimbala, *Artificial Intelligence and National Security* (Lexington, MA: Lexington Books, 1987), 142.

³³ William Downes, *Language in Society* 42:3 (Cambridge, England: Cambridge University Press, 2013), 353; or on-line journal, <http://journals.cambridge.org/action/displayJournal?jid=LSY>