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The Heroic Jesus: The Affective Plot Structure of Toynbee's *Christus Patiens*

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For Christians, the greatest hero story ever told is without doubt the story of Jesus in the Holy Bible. Others would also agree that no text in Western history, whether fictional or scientific, religious or secular, has more frequently, universally and lastingly given significance both to individual lives and/or great historical movements. Radically different political heroes of the twentieth century, like Lenin or Wilson, Churchill or Gandhi, Roosevelt or Mao each, in different ways, share some of Jesus' saviour-like qualities. More mythically, or comically, Superman and Luke Skywalker also convey many such heroic possibilities to our own younger generations.

Why has the Jesus story been so amazingly successful as spiritual guide, political propaganda or cultural ideal, spanning with important modifications at least four fundamentally different modes of production (classical slavery, feudalism, early modern capitalism and even East European socialism)? What motivating power does this story, or "myth" contain? (1) What basic structure, what mimetic, self-replicating, infectious or "virus-like" qualities account for this power? (2) The importance of these questions justifies our admittedly inadequate efforts to answer them.

The approach we take comes from a synthesis of several humanistic traditions -- religious history, psychoanalysis and hermeneutical philosophy -- and a computer science methodology of narrative summarization

and plot unit analysis. (3)

This brief paper is the first public report of our investigations, which have been focussed to date on discovering the mimetic plot structure implicit within Arnold Toynbee's schematic outlines of the Biblical Jesus story in an appendix to A Study of History. (4) Even though this limitation in our present focus raises important issues about Toynbee's neglect, overemphasis or mistatement of certain elements of the Biblical story, we feel justified in the choice of this text because of his exemplary scholarly attitude, its narrative explicitness and its historical and political suggestiveness.

A convergent problematique.

On the basis of the previously mentioned literatures, the former humanistically value-oriented and interpretively focused, the latter following the canons of inquiry appropriate to the cognitive and computer sciences, we have achieved a considerable convergence in desiderata appropriate to our investigations. Our shared research problematique argues that:

- 1) Explicit, precise, replicable versions of basic texts must be agreed upon before subsequent analysis.
- 2) To think of Jesus story elements positivistically, as problematically true or false assertions, misses its historically validated, astonishing motivational appeal, at least partly exercised symbolically at the preconscious or unconscious psychic level. The story's affective structure therefore needs further micro-investigation.
- 3) Like LISP instructions, narrative, descriptive (and perhaps also iconic) story elements should be read as imitable and modifiable recipes for human behavior.
- 4) The variety of historical contexts in which this motivational power has been exercised (but not always with the same effectiveness) argues strongly for a deep structured representation of its essential elements, one capable of being rewritten in many different, but not all particular situations.
- 5) Some kind of multi-layered, mimetic plot structure may well be

what we are looking for as a major underlying source of the infectious, self-replicating power of the Jesus story.

6) If a synthetic strategy of interpretation is employed, a) the procedures for recognizing primitive thematic elements and their inter-relationships should be clearly and precisely explicated, as much as possible; b) higher order synthesizing in terms of more basic structures of interpretation should also be explicated and rationalized; c) the role of prior knowledge and alternative perspectives should be clarified. Eventually, a corpus of precise, algorithmic heuristics addressing the derivation of basic or primitive affect state encodings must be formulated as an aspect of text comprehension within some larger theory of integrative memory representations, natural language processing and text pragmatics.

7) Exploring multiple interpretations and arguable, explicit procedures for showing their relative merit (including their empirical effectiveness) should reduce (or raise to a higher level of clarity and precision) past disagreements about the motivational structure of particular texts.
On meeting these desiderata with plot unit summarization procedures.

Toynbee's 37 element text explicitly states a generalized, heroic version of the Biblical Jesus story. It, rather than the sometimes contradictory Biblical texts he cites, will be the agreed upon text for our analysis here.

Not only do plot unit summarization procedures code the details of narrative texts affectively, their larger syntheses of plot structure are similarly substantive, unlike the "story grammar" approach initiated by Rumelhart (5), which syntactically focusses on the formal structure of episodes, made up of causally connected states and events.

Plot unit synthesis has the additional merit of starting with amendable lists of explicitly defined plot components and an associated set of replicable procedures for inductively composing a more or less integrated plot summary of a given story text. Thus the same text can

be given very different summary interpretations based on different initial assumptions about recognizable thematic units.

If one imagines a memory representation for text as a multi-layered structure of inter-related levels of memory representation (one for literal event interpretation, one for inferred goals and plans, one for tracking substantiated and violated expectations at the time of comprehension, one for instantiated thematic structures, etc.), the plot unit level of narrative representation can be thought to reside near the top of this massive hierarchy. Data dependencies and procedural hooks reach down into all contributing levels of evolving memory representation. Current work on plot unit summarization procedures presupposes that the highly theoretical issues of interrelating these levels of natural language processing will require considerable additional investigation.

Reviewing the remaining desiderata, we are left with two issues: the mimetic adequacy of the plot-unit-based story characterization we arrive at, and the prospects for generating "realistic" rewrites of such a deep structural characterization in at least idealized versions of various (but not all) personal or historical contexts. Because various such efforts have at least partly succeeded on the basis of other deep structural plot characterizations (6), we believe that such a generative testing of our text-based plot structures would be both possible and likely to give promising results. Preliminary empirical comparisons with story grammar representations have shown affective plot structures to predict remembered story summaries better than story grammar summaries. (7)

The extraordinary motivational appeal of the Jesus story undoubtedly has many sides to it, hence ours must be considered a preliminary effort. A few additional comments about the self-replicating properties of the Jesus story will be offered below. It will be remarkable indeed if previously developed procedures for synthesizing plot structures

significantly comprehend story outlines as complex as that provided by Toynbee.

The initial affective encoding of story elements.

Affect states are not subtly distinguished; they mark gross distinctions between "positive" events, "negative" events, and mental events of neutral or null emotionality, from the perspective of an actor in question. Various configurations of affect states may be thought of as plot units, the building blocks of narrative texts. Even though space considerations prohibit the presentation of intermediate results, we shall briefly rehearse each of the steps in our investigation, starting with Lehnert's coding of Toynbee's schematic text.

Following the explicit procedures of her 1981 paper (which we shall not repeat here in detail, except, where appropriate, to note updatings), Lehnert's first decision was to distinguish the following six distinctive actors in the story: God, the existing (Jewish) religious/- political Authorities, the Hero (Jesus), the Masses (of Judea and Samaria) he early appeals to, his Disciples, the Traitor (Judas), the Foreign Potentate (Pilate) and the Enthusiast (Paul) who plays such an important role after the Hero's death. (8). Then the resulting graph of 37 positive affect states, 28 negative affect states and 55 affect-neutral mental states was constructed, with these affect states appropriately connected by the five kinds of links plot unit analysis currently allows: motivation links (symbolized by "m's"), actualization links ("a's"), termination links ("t's"), state equivalence links ("e's") and undifferentiated interpersonal links (graphically undesigned). The "e's" allow affectively rich equivalences and contradictions. It should be observed that those elements giving merely descriptive details (such as references to the hero's royal lineage and genealogy) as well as merely visual elements (Toynbee's tableaux) are ignored by these coding procedures. Figure 1, to be discussed shortly, contains important

examples of these coding decisions, along with a brief version of the associated or inferred text in Toynbee's narrative.

Coding affective states and their linkages from narrative text is a skilled procedure. Several comments are appropriate about this important step in our analysis. First, it should be stressed that plot units have been defined with an emphasis on affective and purposive behavior, such as individual success and failure, interpersonal cooperation and competition. Secondly, research has shown that ordinary reader/listeners bring to any new text a set of higher-order or "top-level" knowledge structures used in interpreting that text. Therefore, skilled coders must be familiar with, and are expected to look for, a number of complex plot units. When done carefully, this increases the chance that subsequent search for higher order (or deeper) plot units will be successful. Thirdly, an important grammatical constraint in the production of an affect state graph is the requirement that at most one link of each allowable kind may go into or out of a particular affect state. Novice coders make many mistakes along these lines, which are likely to require repeated recoding efforts; sophisticated coders must still choose among the several possible connections symbolically suggested by certain texts. At the moment reasonably explicit and reliable heuristic and grammatical coding rules exist for this process, but no completely programmed and validated coding algorithms are available.

The specification of precise encoding rules at the level of affect state derivation is a critical component of the plot unit approach. We ideally want to evolve a system of encoding rules reflective of idiosyncratic differences across individual reader or hearers, e.g. Protestants or Catholics, adults or children. We ultimately wish to develop and program algorithmic versions of such encoding rules, in order better to be able to distinguish valid cognitive or cultural variants from uninteresting, randomly motivated personal differences.

Table 1: Primitive Plot UnitsA. Monadic

				
SUCCESS	FAILURE	PROBLEM	ACTIVATION	MOTIVATION
				
PERSEVERANCE	MIXED BLESSING	HIDDEN BLESSING	COMPLEX NEGATIVE	COMPLEX POSITIVE
				
RESOLUTION	LOSS	POSITIVE TRADEOFF	NEGATIVE TRADEOFF	CHANGE OF MIND

B. Dyadic

				
NEGATIVE REACTION	POSITIVE REACTION	EXTERNAL PROBLEM	EXTERNAL ENABLEMENT	EXTERNAL MOTIVATION

The synthesis of affective plot structure.

It is at this point that the computer now plays an important synthetic role in our investigation. On the basis of a previously defined set of approximately 50 possible complex plot units (which we sometimes call "molecules of affective meaning"), all complex units contained in the affective state graph of the story are discovered computationally. There are 199 of these in Lehnert's coding of *Christus Patiens*, of which the computer search algorythm further identified half (actually 100) as undominated or "top-level units."

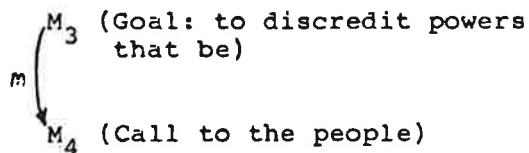
Further synthetic efforts are based on the configuration of these top-level plot units. Plot units are directly "related" when their definitionally included affect states overlap. They are indirectly "connected" when there is a chain of related plot units connecting each other. If an exploration of the connections among top-level units reveals very disparate units, unconnected to each other, then plot unit synthesis efforts must necessarily fail.

Fortunately for our purposes, 80 of the top-level plot units in the Jesus story are interconnected with each other, reflecting an obvious narrative coherence involving the central elements in Jesus' life. The four separate clusters of top-level plot units -- ten connected units involving actions by the Enthusiast (Paul), two small clusters involving Jesus and his Disciples, and one involving Judas and the Disciples -- motivates the eventual addition of three-party plot units to standard synthetic repertoires.

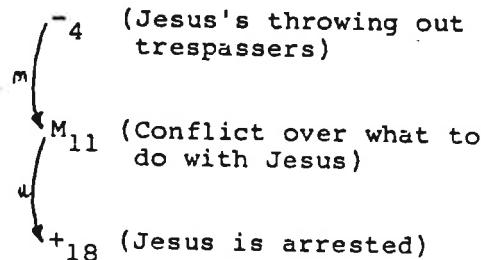
What is at the core of the main narrative cluster? Does this complex configuration have a nerve-carrying spine, a basic string of motivational codons, a viral, highly infectious self-replicating core structure? Following a strategy developed for summarizing the most motivationally significant elements in complex top-level narrative structures, Lehnert identified three top-level units as critical ones, in the sense that their disappearance would disconnect more than 10% of the

top-level units from the rest of the major narrative cluster.

Three such plot units have this property. The first is Jesus' MOTIVATION for calling to the masses, which we infer from Toynbee's text to be a goal of partially discrediting the powers that be. Symbolically, this atom looks like:

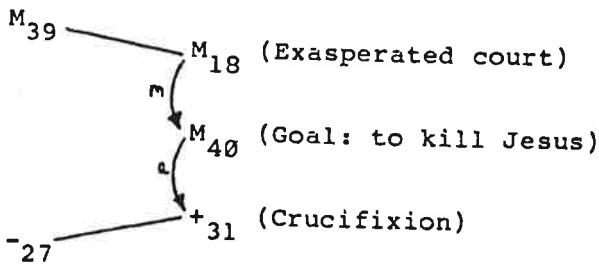


The authorities achieve a kind of SUCCESS-BORN-OF-ADVERSITY in finally getting Jesus arrested. Symbolically:



Their RETALIATION against his exasperating responses in getting him put to death is an even more complex molecule:

JESUS AUTHORITIES



The next step was to find the minimal path connecting these crucial plot units, as a way of inductively inferring essential or basic top-level affective plot units. Table 2 reports the highly suggestive results of this procedure. Not only do these 3 plot units tell the essence of Jesus' being commissioned by God to do battle with the ruling, but illegitimate authorities, there is also attention to Jesus' highly

Table 2: The Deep Structure of the Heroic Jesus:
 The minimal path of top-level affective plot units connecting
 the three critical nodes in Christus Patiens

<u>Links among plot units</u>	<u>Plot units (with agents)</u>	<u>Textual Summary (with relevant Toynbee elements)</u>
7	MOTIVATION (Jesus)	The goal of discrediting the powers that motivate a call to the people. (T 7,8,9,10)
9	ENABLEMENT (Authorities)	The recognition of their authority motivates a desire to maintain it. (T 18,etc.)
10	COMPETITION (Jesus vs. Authorities)	Jesus' motivated, principled behaviors flaunting authorities scandalize, i.e. compete with those desiring to maintain their authority (T 7,14,18,etc.)
18	RETALIATION (God vs. Authorities)	God's lack of recognition due to the recognition granted to illegitimate authorities motivates his goal of regaining respect. His will is acted upon when Jesus throws out the trespassers (T 7,17,etc.)
47	SUCCESS BORN OF ADVERSITY (Authorities)	Jesus' insulting acts lead to a conflict over what to do with him, which is resolved by his arrest. (T 17,18,49,etc.)
89	RETALIATION (Authorities vs. Jesus)	Jesus' exasperating responses to the authorities motivate their goal to kill him, which succeeds with a crucifixion putting Jesus to death. (T 52,53,69,74)
92	HIDDEN BLESSING (Jesus)	Jesus' being put to death is compensated for by his being worshipped. (T 69,74,76,83)
93	SUCCESS (Jesus)	Jesus' early call to the people is rewarded as he is worshipped. (T 10,76,83)

political conflict with the authorities and the religiously (and motivationally) significant connection of his goals to his own (unjustified) crucifixion, which turns out paradoxically to be a successful act *vis à vis* his original aspirations. Note especially the HIDDEN BLESSING represented by this self-sacrificial act, which has been so emotionally powerful a feature of the Jesus myth.

What does the molecular structure of this mimetic plot look like? Figure 1, drawn after the conclusion of the above search, highlights the affectively central states, atoms and molecules of this mimetic plot structure. In a way it is our first (surely incomplete) picture of the detailed structure of the "Jesus virus", highlighted from within a fairly complex structure by the above procedures (the dashed lines indicated omitted connections to the rest of the affect state graph). The higher order plot units are circled in the figure; the critical plot units have especially broad borders.

This discovery of the deep affective plot structure of the heroic Jesus story corroborates both political and religious readings of the Jesus myth that have emphasized its divinely legitimated, revolutionary, historical-political character. The power of self-sacrificing action in achieving Jesus's goals is highlighted. Our interpretation of Figure 1/Table 2 suggests that Christianity should work better in opposition to illegitimate authorities than in the support of them. Because of the absence of Jesus' descent to Hell, his resurrection and ascension to Heaven, Toynbee's text and our plot-like summary of it both also suggest a rather secular (indeed heretical) reading of Jesus' actions and their final desserts.

Our fourth desiderata above called on us to provide a deep structured representation capable of being rewritten suggestively in many but not all historical contexts. A quick review of certain historical conflicts suggests to us some cases where heroic models close to Figure 1/Table 2 have been fairly effectively employed: the early Christian break from Judaism; the resistance of the early Christian

martyrs against Roman Authorities seeking acknowledgment as gods; early Lutheran and Calvinist Reformation of a corrupt Papacy; Solidarity's resistance against Soviet-Polish Communist Party orthodoxy. Although each is highly debateable, we also mention as relevant for consideration the priest-assisted revolt against Samoza in Nicaragua, the contemporary attack of many Christian leaders against authorities advocating nuclear war-fighting strategies. The Crusades, on the other hand, tell more of a political than a religious story.

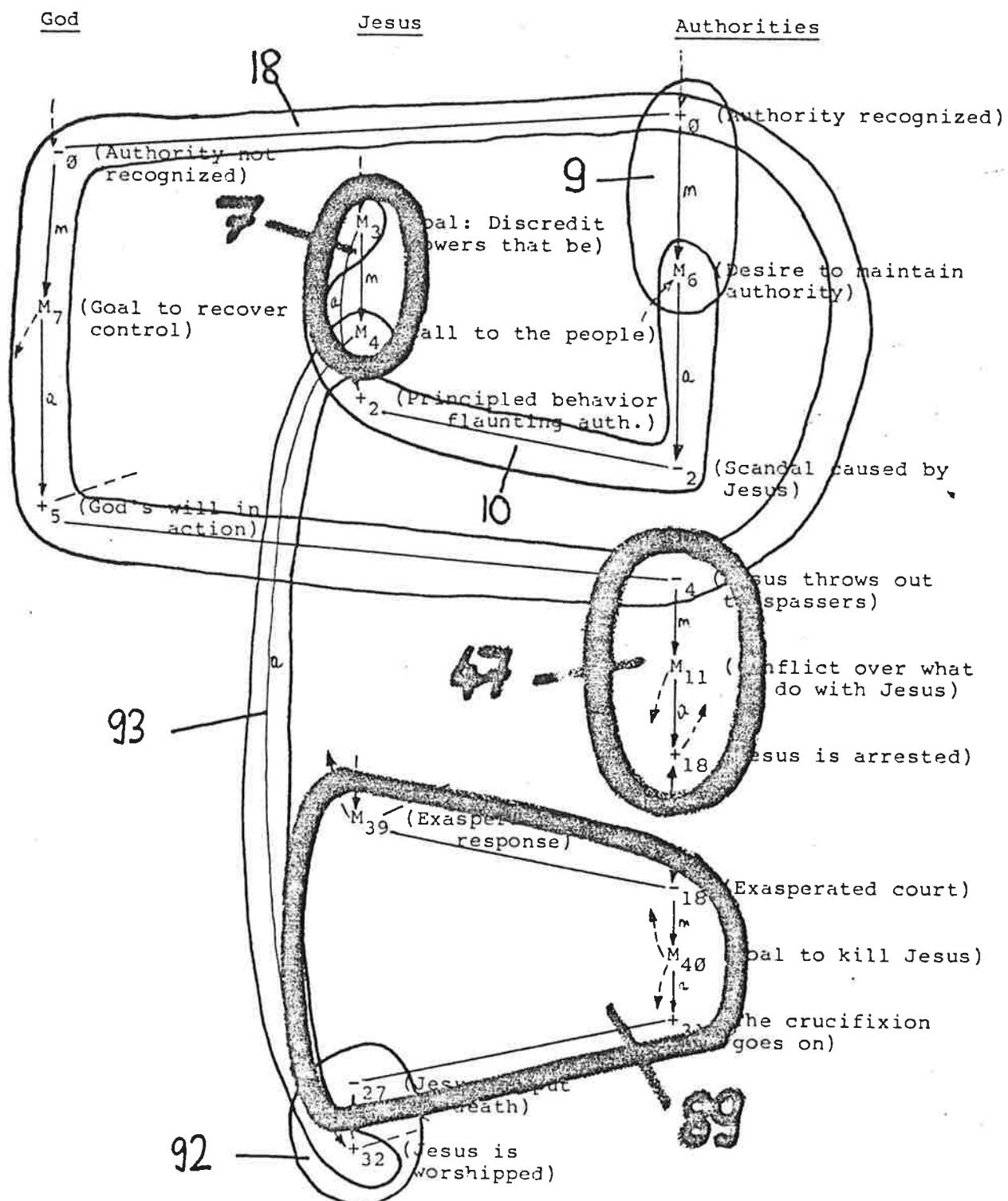
Our computationally-assisted interpretation of Toynbee's Jesus summary also supports the psychoanalytic insight that religious myths are oriented primarily toward super-ego development. (9) Id negatives (such as bodily suffering) are associated with moral and spiritual positives (such as righteous conduct). In Figure 1, Jesus receives the spiritual reward of posthumous worship, representing the achievement of his top-level goals. This appears to be the psychoanalytic significance of the HIDDEN BLESSING molecule when, as in the present case, it occurs at the end of an inspirational story.

Conclusions

A first approximation to our goal of discovering the mimetic plot structure of Toynbee's heroic Jesus story has thus been achieved. This initially surprising, but psychoanalytically suggestive and politically interesting version has been sufficiently different from the typical Sunday School treatments we are familiar with for us to feel that ours has been an illuminating exercise in computationally-assisted hermeneutics. The methodological value of plot unit summarization procedures has been importantly confirmed by the plausibility, even power of the resulting suggested interpretation of Toynbee's schematic narrative.

But fully mimetic plot structures remain a distant goal. Although the present exercise supports Hofstadter's assertion that units of replication and selection exist in the space of ideas (he calls them "memes"), our own affect-based mimetic discovery procedure has

Figure 1: The Jesus Virus:
Affect States and Plot Units Central to Christus Patients



discovered that religious faith may not be totally "blind" or content free. Consider the self-relicating qualities of a SYSTEM J:

SYSTEM J.

BEGIN:

- X0: Jesus Christ is the Son of God.
- X1: Jesus calls on you to follow the core recipe of Figure 1/Table 2 in your own life.
- X2: Belief in System J gives eternal life.
- X3: Anyone rejecting System J will burn in Hell.
- X4: It is your duty to save others from Hell by promoting System J.

Although this little program also does not exhaust the appeal of a powerful religion, this "viral text" clearly has more mimetic power than Figure 1/Table 2 alone. Whereas Toynbee's Hero "declares that, notwithstanding his present plight, his own lot is nevertheless relatively enviable" (his element 68), the cited Biblical text (Luke, Ch.23, verses 27-28) conveys much more vividly a hellish future: "Daughters of Jerusalem, weep not for me, but weep for yourselves and for your children". Where Toynbee's schematization of the Jesus story to be based on a more detailed treatment of the afterlife, it would provide a more compatible fit with the replicative shell of System J.

System J is self-fulfilling, self-reinforcing and amazingly generative with its flexible but affectively powerful binding of the self to Christ-like missionary activity. Part of this power clearly comes from the formal property of being a self-referring text. Although LISP programs with this property do exist, they raise numerous issues of paradox avoidance that cannot be said to be completely resolved. (16) And then we would require complex social science knowledge about how and when such infectious appeals have or have not succeeded, with what kinds of context-specific reinterpretations. Clearly such knowledge is not all now at hand.

Finally we stress that our exercise in computer-assisted hermeneutics does not avoid the problems of textual interpretation

central to that approach. Even while moving more deeply and synthetically into the motivational meanings implicitly suggested by his analysis, we have at least indirectly stressed the strengths of Toynbee's selective reading of Biblical texts. Criticisms of this text, and its links to other classical hero stories are still in order. This issues of how best to code such texts -- and relevant associated texts -- are still very much before us. Our seventh desiderata remains in force. But it is perhaps the greatest contribution of the present effort that we now see a little more clearly what these issues are.

NOTES

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(1) We use the words "myth", "hero story", "legend", "fairy-tale" and "folk-lore" as technical terms in the human sciences, without prejudice to the issue of the ultimate, religious validity of Christianity. More generally, we wish to be identified with the "humanistic" tradition which seeks autonomy in defining its subject matter and standards of scholarly inquiry concerning issues of religious significance, and with the humanistic or cultural sciences which claim autonomy vis a vis the knowledge interests, methodology and tools of the natural sciences.

(2) The idea of a "mimetic" plot structure of narrative text is developed in Paul Ricoeur, "The Narrative Function," Hermeneutics and the Human Sciences, edited and translated by John B. Thompson, Cambridge University Press, New York, 1981, pp.292-294. Ricoeur describes poetic mimesis with such phrases as "meaning speech, fable and plot

together," "productive imagination," an "iconic augmentation" of the real, magnifying its essential possibilities.

The idea of a virus-like, self-replicating text comes from a provocative, but flawed reverie on "Metamagical themes: Virus-like sentences and self-replicating structures", by Douglas R. Hofstadter, Scientific American, Vol. 248, No. 1 (January 1983), pp. 14-26. It will be recalled that viruses are not self-reproducing; like religious creeds, they need living "hosts" to enable them to reproduce into new generations.

(3) Wendy G. Lehnert, "Plot Units and Narrative Summarization," Cognitive Science 4 (1981), pp. 293-331. W. G. Lehnert, J. Black and B. Reiser, "Summarizing Narratives," Proceedings of the 7th International Joint Conference on Artificial Intelligence, Vancouver, B.C., 1981.

(4) Arnold Toynbee, "Christus Patiens," Annex II to Part V.C(ii)(a), Volume VI, A Study of History, Oxford University Press, London and New York, 1946, pp. 376-539. Further Toynbee references are to this appendix. A more general treatment of the theoretical and methodological significance of this work is, Hayward R. Alker, Jr., "Fairy Tales, Tragedies and World Histories," in preparation.

(5) Donald E. Rumelhart, "Notes on a Schema for Stories," in D. G. Bobrow and A. M. Collins (eds.), Representation and Understanding, Academic Press, New York, 1975. Donald E. Rumelhart, "Understanding and Summarizing Brief Stories," in D. Laberge and S. Samuels (eds.), Basic Processing in Reading, Perception, and Comprehension, Lawrence Erlbaum Associates, Hillsdale, N.J., 1977.

(6) James R. Meehan, "Using Planning Structures to Generate Stories," American Journal of Computational Linguistics, Microfiche 33, pp. 78-94. Meehan cites earlier work by Sheldon Klein at the University of Wisconsin at Madison; we have also in mind work by Patrick Winston, Boris Katz and others at M.I.T. See Patrick H. Winston, "Learning New Principles

From Precedents and Exercises," Artificial Intelligence, Vol. 19 (1982), pp. 321-350.

(7) Lehnert, Black and Reiser, op. cit. (footnote 3).

(8) This terminology, explicit in Toynbee's summary, suggests ways in which Toynbee seeks to generalize and compare the Jesus story with other hero stories of the period. Although there are general principles involved -- related to their likely role as independent agencies influencing plot development -- this decision did raise questions in our mind whether Toynbee's "Forerunner" role (John the Baptist) should have been independently coded, and whether the Roman soldiers (as potential converts to Christianity and symbolic members of the Graeco-Roman internal proletariat) should have been differentiated from the Judean masses and the Potentate.

(9) On the psychoanalytic perspective we have found Bruno Bettelheim, The Uses of Enchantment: The Meaning and Importance of Fairy Tales, Vintage Books, Random House, New York, 1977, to be both suggestive and largely compatible with Toynbee's scholarly approach.

(10) See Brian C. Smith, Reflection and Semantics in a Procedural Language, Laboratory of Computer Science, M.I.T., Technical Report 272, 1982. This dissertation is based in part on Kripke's discussion of truth paradoxes.