The Relationship between
Metapattern in Knowledge Management as a Conceptual Model and Contragrammar as Conceptual Meaning

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Abstract. In this paper we wish to examine a deeper issue underlying conceptual modeling, namely what could constitute conceptual meaning. Accordingly we have chosen to compare an analysis of "Metapattern" [8], with "Contragrammar" [4]. We note that there are distinct similarities between Metapattern and Contragrammar at the stage of (1) an exchange of redundancy, and (2) flexibility through relative concepts. Conceptual modeling is an important aspect of Knowledge Management, and, clearly, as concepts vary with 'situations,' conceptual modeling must accommodate those variations. From this paper, it is hoped that, by examining features of Metapattern in relation to Contragrammar, we can thereby see why 'situations' entail meaning, and why Metapattern works as a model of behaviour, and why Contragrams can capture an essential feature of that 'situational' meaning.

1 Introduction

Metapattern [8] is designed to encompass variety in agreement with various 'situations.' It essentially shifts atomicity to particular behaviors [10]. Metapattern is sketched here with an emphasis on assumptions. Contragrammar [4] is explicated via a shift from the human perception of situations to a human conception of the meaning of that 'situation.' Firstly we shall examine Metapattern.

2 Metapattern: An Exchange of Redundancy

Social psychology instructs about the situational nature of behavior [2, 1]. An actor, or agent, is assumed to reside in various situations. Hence variety exists in the actor's behavior. In fact, a particular behavior completely corresponds with the actor *as far as a particular situation goes*. Adding situation and behavior therefore turns inside-out the treatment of an actor as entity/object. Only an actor y's barest identity remains necessary and sufficient for relating a situation x and a behavior z (Figure 1.a). The whole of actor y is now reflected by his particular behaviors *across relevant situations* (Figure 1.b).
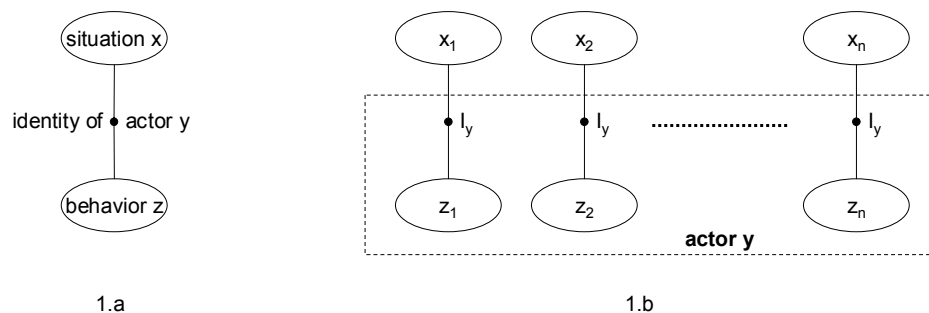

Figure 1: The conceptual triad of situation, (actor's) identity and behavior.

Please note that the juxtaposition of behaviors rests on repeating the — reference to the — actor's identity. An instance of identity exists for every relevant situation, i.e. where the actor has a particular behavior. Through repeated identities, differences (particular behaviors) are reconciled with unity (one actor). In traditional modeling (entity-attribute-relationship, subject-predicate, object orientation, object-role, etc.), repetition of identity shows up as redundancy and is therefore ruled out. Metapattern, however, accepts repeating identities for situations as the deliberate price for avoiding hierarchical decomposition strictly within the boundaries of one actor itself.

3   Metapattern: Flexibility through Relative Concepts

Metapattern's compactness and flexibility comes from the assumption that situation, (actor's) identity and behavior are relative concepts. A rigorous set of modeling constructs applies throughout. Following the spatial orientation of Figure 1, decomposition can proceed both up and downward. Upward, for example situation x_1 can itself be considered as constituted by several actors' identities — presumably all different from I_y — appearing in a correspondingly less determined situation. Introducing levels, the original situation x_1 may be designated as situation $x_{m, 1}$. The result of one step of upward decomposition is shown in Figure 2. The limit to upward decomposition reflects the design choice where ambiguity is argued to be resolved (and should therefore also be flexible and relative). It can proceed as long as identities at the next lower level, such as I_y for the step illustrated here, can connect with only a single identity in what previously was held as an undifferentiated situation.
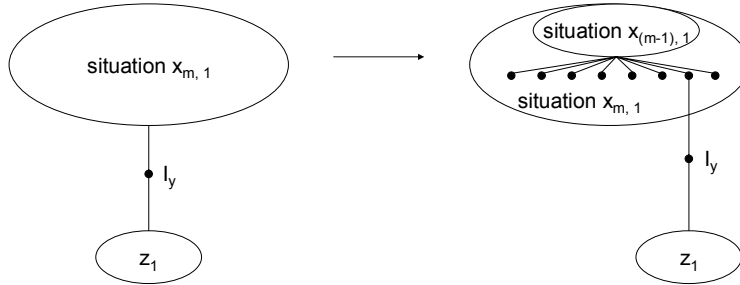

Figure 2: Upward decomposition.

Upward decomposition has a paradoxical ring to it. It can be extremely productive, though, to attempt it from any instance of an identity as a starting point. Is a person's particular behavior correctly located in a city? Or is specific reference to his home — within the city — more apt? Or doesn't it matter in which city his home happens to be (and was the original situational designation irrelevant, even)? In Figure 3, the right hand side of Figure 2 has been adapted to indicate what, after one step of upward decomposition, now count as situation, identity and behavior.
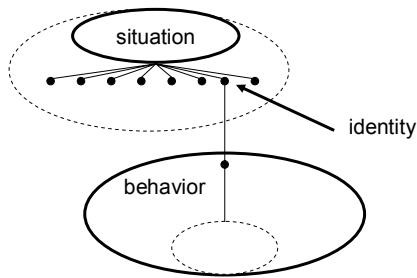

Figure 3: A shifted configuration of situation, identity and behavior.

Reading these figures in reverse order gives an impression of downward decomposition; the original identity is encapsulated within a more determined situation while the original behavior is decomposed into identities, each with situational behavior at a lower level of the conceptual model. There are no limits to upward and downward decomposition. An upper boundary condition must be formally set, however. It reflects the model's horizon, corresponding to the most generally accounted for, least determined situation. In Metapattern's visual language [8] it is a thick horizontal line. A conceptual model takes on the shape of a lattice of nodes. Some nodes are connected to the 'horizon.' Different instances of equal identity may be connected laterally to indicate that an actor's behavior in one situation is invoked from — his behavior in – another situation. How Metapattern accommodates dynamics also goes beyond the fixed, singular instance of identity as implied by traditional modeling methods. On the assumption that each instance of an identity is supplied with a unique … identifier, such instances can be moved about in a controlled manner. For example, the home address of person A was x_1 up to time t_1, and from then on it

has been x_2. The more radical decomposition has moved toward a lattice consisting mainly of identities, only leaving relatively little behavior specified otherwise, the more finely grained management of temporal variety is.

4 Knowledge Management across Universes of Discourse

Metapattern invites modeling beyond given universes of discourse, language games, etc. Another language game in the Wittgensteinean sense [11] for example, can initially be installed as a roughly outlined situation. Upon closer inspection, some relevant behaviors may be seen to coincide with behaviors encountered in other 'language games,' all captured from a common horizon. The overall conceptual model can be tuned accordingly, gradually supplanting the original classification of such language games with a more tightly knitted, integrated representation of situational behaviors. With so-called legacy systems as embodiments of limited universes of discourse and language games, Metapattern shows how improvements can be practically achieved, i.e. goal-oriented, step-by-step, manageable, cost-effective, etc.

Open interconnection, now catalyzed into reality by the Internet, is rapidly making obsolete the conceptual confinement implied by traditional database technology. One particular database's data dictionary is no longer the limiting measure for a universe of discourse and its control. Information from disjunctives, often even varying, physical sources must increasingly contribute to conceptually significant assemblies. This explains the interest in the so-called semantic web. Ontology is hot. Understandable from the largely technological bias, solutions are still mainly proposed with reference to resources as web standards such as the Resource Description Format testify. Metapattern approaches conceptual problems … conceptually, resulting in an unambiguous design as possible for application of information and communication technology.
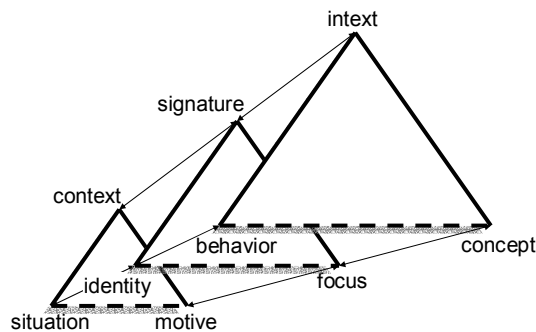

Figure 4: Semiotic ennead.

5 Accounting for (Individual) Differences in Knowledge Management

Metapattern readily supports management-of-knowledge where knowledge is considered the result of objective analysis. But, to what extent should knowledge management allow for human differences in daily practice? It is especially when account must be taken of essential differences that Metapattern supports necessary and sufficient elaboration while maintaining cohesion. Does the experience of one employee provide the appropriate model of behavior for another employee? Is a report of an experience rightly called knowledge in the sense of useful? Should conditions of usefulness be made explicit?

It might be that the careless assumption of equality, similarity, and so on, between situations is risky. In such cases, it is recommended that situations be explicitly classified with special regard to individual involvement. This requires the — identity of the — reporter to be stated, too, as part of the situation of the experience-turned-report for knowledge management. In addition, the reporter's motives might be relevant, suggesting a perspectival turn (see below).

Metapattern suggests an actor invokes a particular behavior as befitting a particular situation. The patterns an actor is primarily recognizing are therefore situations. Recognition is not merely passive, though. An actor, artificial or not, would be overwhelmed when it lacks a pattern of its own to establish situations-as-patterns. Traditionally, an actor's self-directed activity is attributed to goals. A goal is seen as different in kind from, for example, a behavioral specification that should be executed to accomplish it.

An extension of the semiotic triad [6] into an ennead [9] argues for a relative status of goal, or motive. In Figure 4, the term 'motive' is preferred. In semiosis, an actor constructs a sign from a configuration of — again, the relative concepts of — motive, focus and concept. In short, he brings a perspective to his own observational behavior. The resulting sign is transformed in cycles of semiosis into another configuration of motive, focus and concept. That is, semiosis changes the actor's perspective, resulting in one particular behavior or another.

6   Contragrammar: An Exchange of Redundancy

In this section a consistent notation is presented for the movement from perception to conception: from the perception of content (implicit stage) through to the experience (or re-experience) of forming a conception (explicit stage).[1] The exchange of redundancy occurs at the level of perception, until the mode of conception is reached.

Consider the following statement: The culture of consumption is the consumption of culture.[2] The point being made is that a culture ideally emerges out of non-selfish motives. It arises out of the common good and common interests of a group of people. If the group of people turn on themselves and begin to treat each other as objects to be "consumed" rather than as individuals deserving respect, then the original culture will begin to disintegrate. Similarly if a culture naturally emerged out of common interests that were nourished and supported by a group of individuals began to be exploited and "consumed" by the individuals, rather than being supported in an environment of learning, then again the culture would begin to disintegrate.

The above statement has the following structure: The X of Y is the Y of X, labelled by Haynes [4] as a Contragram. The structure performs its function as an idea in a holistic way. In other words, the parts, the X and Y only function as the contents of a wave-form. They are the X and Y drops in the oceanic wave-form of the Contragram. It is interesting to note that Peterson makes the comment that interpreting wave-forms in mathematics in relation to "infinitely many measurements with infinite precision" in the context of how "two different objects appear alike in every measurable way" is still yet to deal with tough problems. [7, p 101].

In the comprehension of this particular Contragram we begin with the perception of (the) X of Y and continue to the Y of X (see figure 5). It is only in the return to the X of Y that the perception-in-gestalt begins. The third scan is experienced as the whole Contragram (see figure 6).
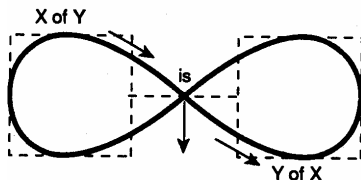

Figure 5: The Implicit Stage of the Contragram: perception (of content).

The notion of the wave-form is all the more reinforced by the fact that X and Y cannot be substituted by words that represent perceivable things. For example, consumption is meant in a metaphorical sense; culture is elusive, but is nevertheless real.

The process can be presented as follows:

(a) At the level of perception: the terms are represented as the X of Y is the Y of X. At this level no conception is apparent. The terms are functioning as perceivable things and no more than that (see figure 5).

(b) The reader now completes the scan of perception. It may be that one term is recognised for its conceptual capacity in which case the Contragram becomes, notationally, the (X) of Y is the Y of (X).

(c) On the third scan a shift to conception is made and the Contragram is recognised as meaningful, and the notation becomes the (X) of Y is the (Y) of X (see figure 6), that is, to the "X of Y" AS the "Y of X".

Further analysis of the above process reveals that, on the surface of the Contragram, (at the level of perception), there is redundancy in "the X of Y is the Y of X." Secondly, there is certainly, on the surface, ambiguity, that is, how is X of Y apparently differentiated from (X) of Y? But if the shift is made to conceiving then the ambiguity is (like the launch pad) left behind. It is left behind because redundancy is found in objects to be logically dissected or analysed, and not in concepts. This letting go then allows the apparent ambiguity to diffuse itself in a shift in seeing that takes in a gestalt

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[1] This notation was first presented by Haynes in 1990 [3] and published in 1991 [3]. See also [4].
[2] Contributed by B.C.Birchall.

(the states of which are neither 'parts' that repeat, but are simply contained in that flux of the wave-form). This can be regarded as a discourse that shifts from death, that is, the death of the object-as-perceived to the life-of-the-gestalt as conceived. A conception which returns again to reconstitute or resurrect that death as Life, which is to say, to resurrect that death as meaning, or in other words, gives meaning to that apparently ambiguous content. This is the sense by which Contragrammar is a consistent notation for the enunciation or resurrection of meaning. The fact that Contragrammar is non-logical does not entail that it is illogical. It should also be noted that at the level of perception we may find contradiction or self-contradiction, as in the example of what is mistakenly understood as the Liar 'Paradox' (correctly Liar Contradiction). In the mode of Conception we may have paradoxes, but we do not have contradictions. In order to comprehend a paradox it must be conceived. We see a contradiction in perceiving it, but we cannot perceive a paradox because there are no 'thingly' elements within a paradox to perceive. Paradoxes occurring in the mode of conception are not problems to be solved, rather, they are aspects of becoming that are able to be conceptually resolved.

7   Contragrammar: Flexibility through Relative Concepts

The Contragram makes sense by succeeding to bring together apparently conflicting relative terms in the form of a shift to conception. Once the shift is complete apparent conflict is resolved. And it is the gestalt of all terms together, which in their being brought together (the journey of the return-to-the-beginning) either metamorphoses their content into form (thus giving the Contragram meaning; enabling its be-ing a Contragram), or the terms are 'frozen' at the level of content, in which case we have no Contragram. Or the 'shift' is possible, but the conception (on the part of the reader) is lacking. Thus the Contragram is a pointer to a sense of form.

For a more thorough treatment (and examples) of Contragrams see Haynes [4]. Here are two Contragrams by John Haynes: (1) The creation of nature is the nature of creation, (2) The awareness of consciousness is the consciousness of awareness. And two Contragrams by Pieter Wisse: (1) The mastery of practicing is the practicing of mastery, (2) The nature of nurturing is the nurturing of nature.

It may be of assistance to briefly explain Contragrammar (the 3 stage process of the Contragram philosophically as follows (paraphrased from Haynes [4, p. 157]; see also figure 6, below). In the two-part Contragram, the terms 'X' and "Y" must be co-extensive. The Contragram is a 'logic' of universals; a 'logic' of meaning; a 'logic' of the subject becoming meaning, i.e. a 'logic' in which the subject/predicate distinction is overcome, and in that overcoming, becomes a Real term. Whereas, the logic of either/or (traditional logic, symbolic logic), will always particularise the predicate through the subject. For example, assume we are looking at a certain table which is square. So we can assert: the table is square. And we could conceive of its contradictory: the table is not square. But squareness is not tableness even though squareness happens to be true of this particular table. In the Contragram, we have no subject, we have instead a 'non-logic' of the concept, implicitly (at the level of perception) in the X of Y is Y of X, becoming explicit in (X) of Y is (as) (Y) of X. In this case, the (X) of Y is the (Y) of X is not a fact (i.e. it does not exist independently of its being conceived) but, instead, is its being conceived (i.e. what is known as its being known). Some person, Z, perceives that S is P, and here we have two distinct facts:

(a) Z is perceiving that S is P, which is either true or false;
(b) S is P, which is either true or false.

But when Z conceives S As P, we have one fact: (and herein lies the key to comprehending and creating new Contragrams): the "X of Y" is conceived of as "X As Y", not the as of comparison, but the As of revelation [5].

Z is conceiving S AS P, which is either true or false.
Which Contragrammatically, is expressed as follows:
Z conceives (X of Y AS Y of X), and this is either true, i.e.
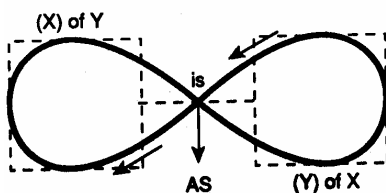[Z conceives (X of Y AS Y of X)] or false, i.e. NOT [Z conceives (X of Y AS Y of X)].

Figure 6: The Explicit Stage of the Contragram – arriving at meaning: Conception (or form).

8   Convergence of Metapattern and Contragrammar: the Concept

From Contragrammar we have noted that when we perceive an object the object necessarily needs to be in view, or at the very least presented for the perception process, and in this respect the *content* of the object is a requirement. On the other hand, when we conceive of an object, or an idea, the form or forming of an object or idea is of paramount importance. This difference between content and form is central to the notion of a concept. In comprehending a concept it is the form that we are apprehending, rather than the way in which the concept is presented. Although the way in which the concept is presented is also crucial. However, it is not crucial after a shift to the concept (idea) itself has been made. Let us say that the presentation of the concept or central idea is like a launch pad, which is critical for launching, but not directly related to the comprehension of the space-craft once the space-craft has been launched (once the idea has been grasped). For example, in mathematics if we are presented with a solution to some problem we firstly perceive the equations or mathematical proof but to conceive of the central idea or theory that the equations are capturing we have to *experience or re-experience* the idea that the equations are pointing to. Similarly in philosophy, the words, which capture a certain point of view, are initially merely perceived. The initial perception then gives way to, or changes into, a state of conception as the reader comes to a comprehension of the meaning (or at the very least validity) of what is being presented or read. From our analysis of Metapattern, we can see why formal knowledge management is worth substantial efforts. Suppose, when documenting an experience, a reporter is asked to include more information than he can realistically be expected to provide. That would immediately make using what was nonetheless recorded as knowledge extremely risky. Wouldn't a superior alternative not be a simple personal reference, to be called upon only when a particular need arose? Conceptual models should assist making practical judgements before incurring the bulk of costs. Again, Metapattern doesn't impose any conceptual limits upon modeling knowledge even when individual differences must be included because the relative nature of its key concepts, situation, identity and behavior, guarantee open-ended opportunities for decomposition both upward and downward. Precisely because conditions for rigor are secure, the question of relevance deserves priority. This is precisely why, for the present, Metapattern is a robust example of the essential inner conceptual workings of Contragrammar, yet is able to apply in real life situations without imposing any conceptual limitations which clearly Contragrammar does in terms of the peculiar nature of the X and Y terms used. In the following consideration, we refer to bi-contragrams (2 terms) as explicated above, and poly-contragrams entailing multiple terms using Metapattern itself to illustrate how Contragrammar could be extended from 2 terms to multiple terms.

9   Metapattern visualization

We now use Metapattern to model Contragrammar. The thick, horizontal line in figure 7 represents the horizon of the universe of significance. The Metapattern stipulates all behavior is situationally determined. An object therefore appears in a model as a collection of situated identities, with specific behavior 'attached' as relevant. As a boundary condition, even generally valid behavior is also situated (the situation of behavior is the behavior of situation). In those cases, the situation equals the universe of significance. For a bi-Contragram, i.e. a Contragram with two basic terms, figure 7 provides an overview. In figure 7a, it starts with the general objects X_1 and X_2. Then, in figure 7b, X_2 is also identified as an object with relevant behavior in X_1 as a situation. Please note, as the dotted, curved line indicates, that the X_2-as-part-of- X_1 is derived from X_2-as-a-whole in its own right. Also note that the actual behavior of X_2-in-X_1 is not yet modeled. To indicate that such behavior is in order, the Metapattern's symbolic language prescribes a text balloon, as added in figure 7c. Figure 7d completes the bi-contragram by including X_1 as identifying specific behavior in X_2 as a situation, that is, behavior different from X_1 in all other relevant situations, and subsequently referring to such behavior itself by another text balloon.

The explicit emphasis on behavior is what importantly distinguishes figure 7 from a Contragram stated as 'The X_1 of X_2 is the X_2 of X_1.' It is now possible to indicate compactly both how the X_1 of X_2 is "united" with the X_2 of X_1, that is, by contra-ing the relative positions of constituent variables, and what "distinguishes" the one subset of variables from the other (behaviors). Poly-Contragrams require explicit recognition of both permutation of variables and demarcation with the subset. Figure 8 only shows one instance of all possible permutations, but it should make the general idea, and complexity, clear enough.
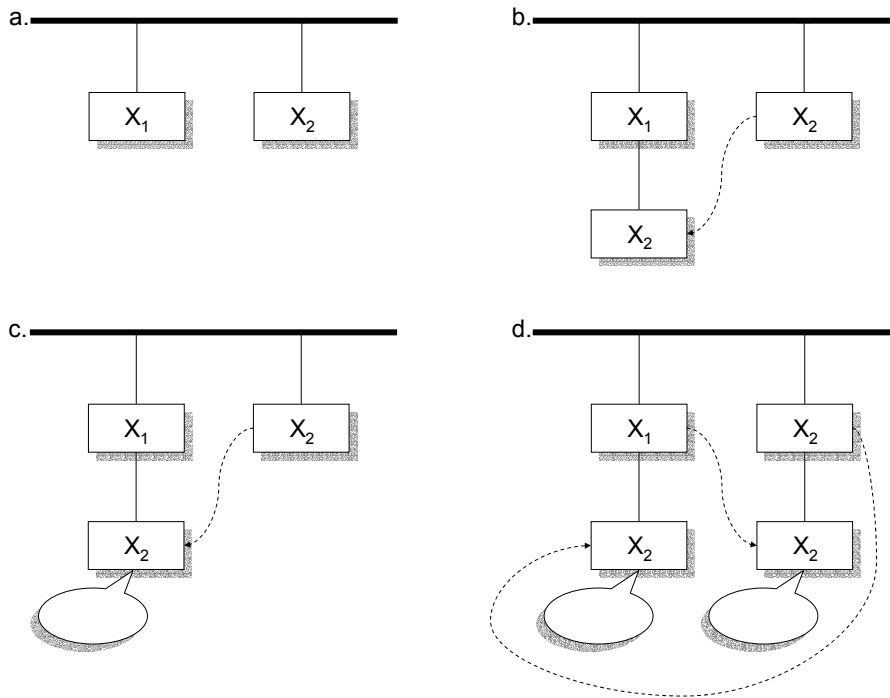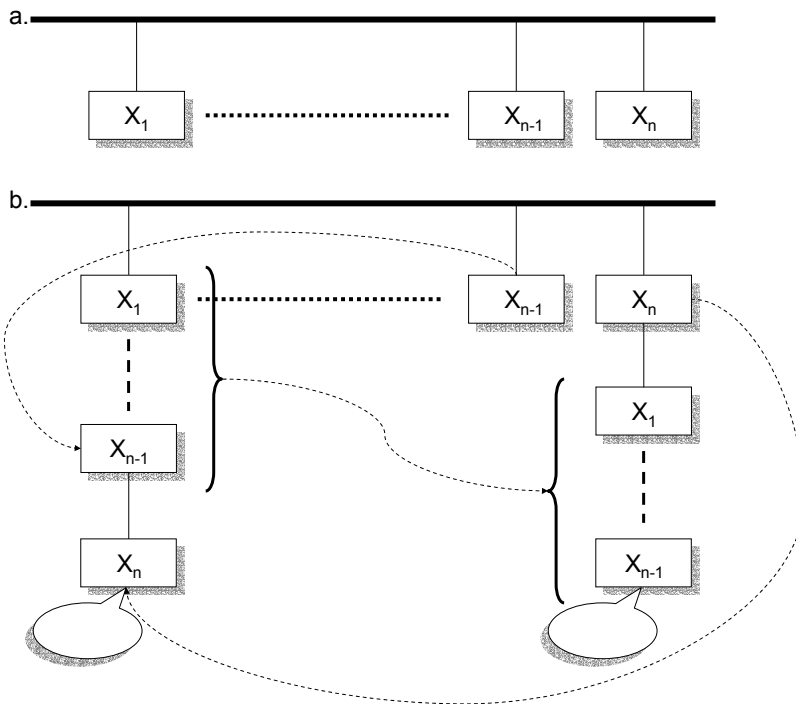
Figure 7a-d: Modeling the bi-Contragram.

Figure 8a-b: Modeling the poly-Contragram.

10 Conclusion

Given the redundancy similarities between Metapattern and Contragrammar and how each can achieve flexibility through relative concepts we are afforded a sense of how Contragrammar is a conceptual way of explaining some important aspects of Metapattern, and how Metapattern is an important way of modeling some crucial aspects of Contragrammar. As Knowledge Management advances to cover ever more complex human endeavors it inevitably needs to acknowledge what constitutes conceptual meaning. As we have seen from an explication of Metapattern, the nature of the challenge is similar to empowering an artificial actor with behavioral variety. But inevitably if Knowledge Management is to effectively – meaningfully – move to a higher form, to that of Conceptual Management, a comprehension of what constitutes the movement from perception to conception, as we have briefly seen in this paper identified by the Contragram and modeled by Metapattern, must continue to evolve to a thorough form of comprehension and hence be more fully embraced in Conceptual Modeling.

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