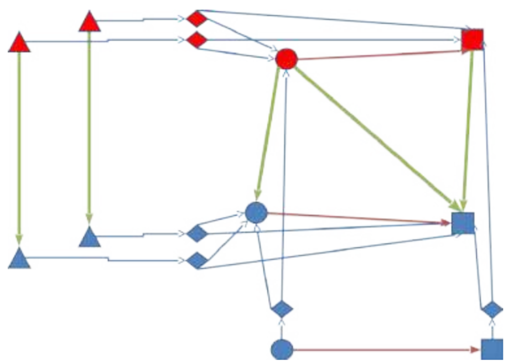

Figure 12. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the divergent integration of deterministic knowledge processing operation as deterministic operation one (red lines).

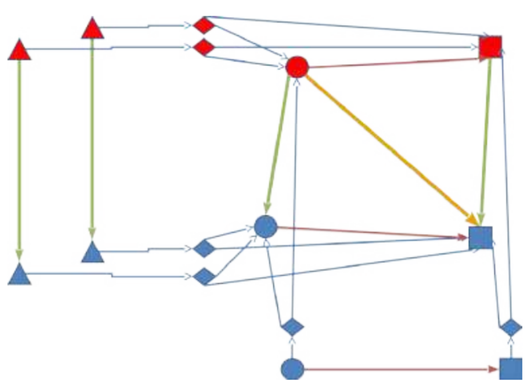

Figure 13. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (yellow (diagonal) and green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (yellow (diagonal) and red lines).

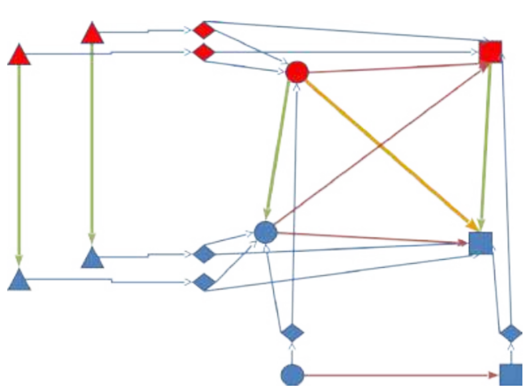

Figure 14. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as non-deterministic one (yellow and green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (yellow and red lines).

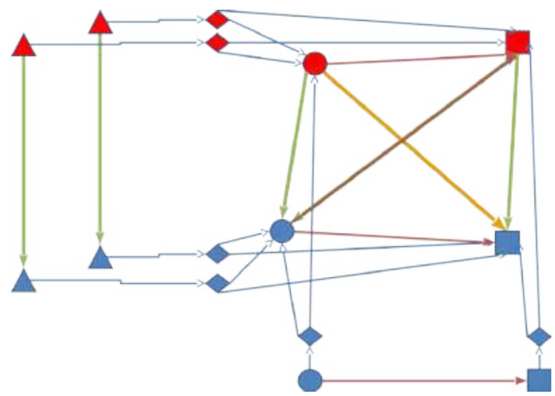

Figure 15. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as non-deterministic one (yellow and green lines) with the (symmetrical) divergent integration of deterministic knowledge processing operation as non-deterministic operation one (yellow and red lines).

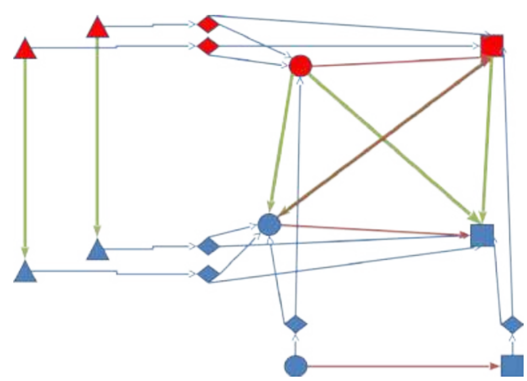

Figure 16. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

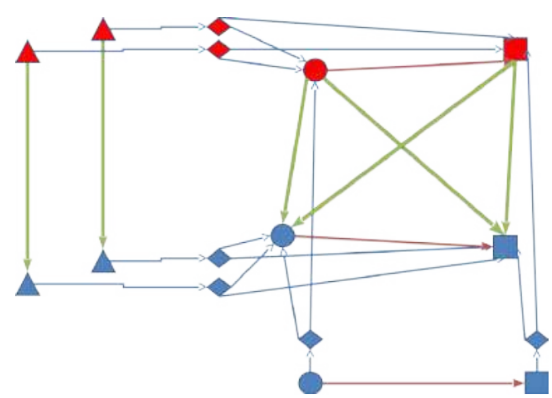

Figure 17. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the (symmetrical) divergent integration of deterministic knowledge processing operation as deterministic operation one (red lines).

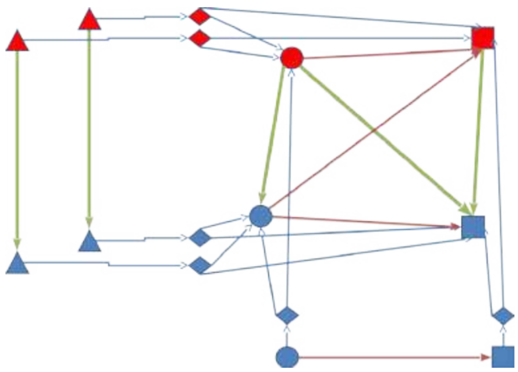

Figure 18. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

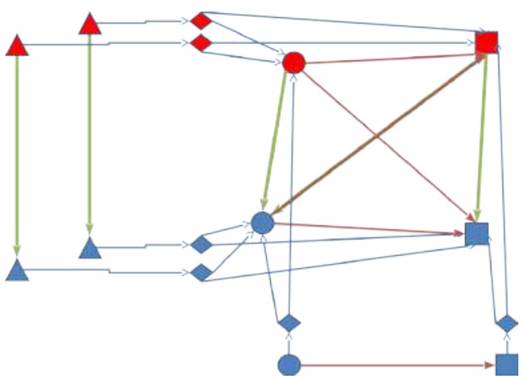

Figure 19. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the (symmetrical) divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

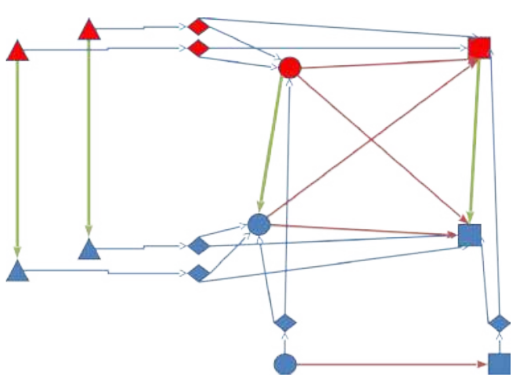

Figure 20. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as deterministic one (green lines) with the (symmetrical) divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

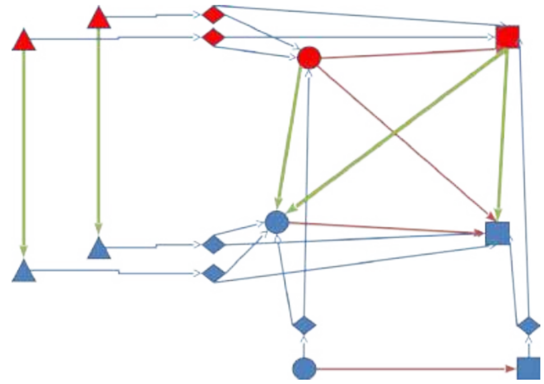

Figure 21. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

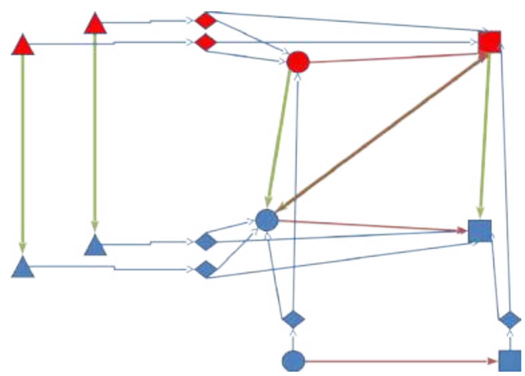

Figure 22. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

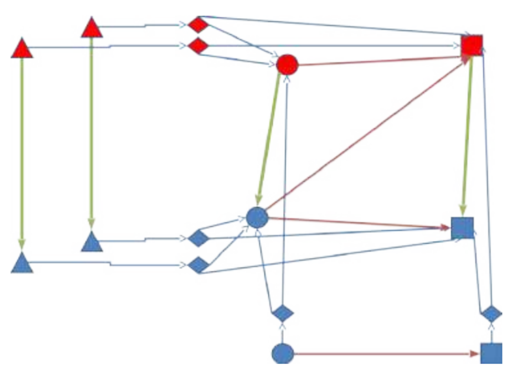

Figure 23. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

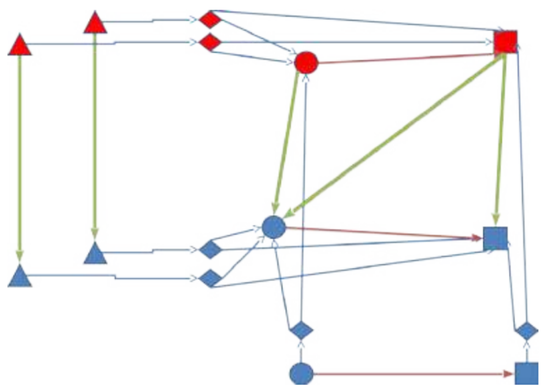

Figure 24. The asymmetrical reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the (symmetrical) divergent integration of deterministic knowledge processing operation as deterministic operation one (red lines).

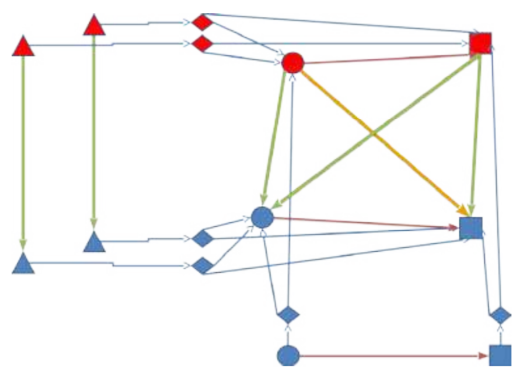

Figure 25. The (symmetrical) reconvergent integration of deterministic knowledge processing operation as non-deterministic one (green lines) with the asymmetrical divergent integration of deterministic knowledge processing operation as non-deterministic operation one (red lines).

states (sets of formulas), and in the second case, they are formulas.

$$\{(A \to B),(B \to C) \vdash (A \to B),(B \to C),(A \to C)\}$$
$$\{(D \to B),(B \to E) \vdash (D \to B),(B \to E),(D \to E)\}$$
$$\{(A \to B),(B \to C) \cup (D \to B),(B \to E)\}$$
$$\{(A \to B),(B \to C),(A \to C),(D \to C), (D \to B),(B \to E),(D \to E),(A \to E)\}$$

For classical logics and logical models of knowledge processing, it is possible to naturally introduce a metric on sets of literal conjuncts (of a given length), if we take a finite subject domain and accept the assumption (hypothesis) of a closed world, then the metric is introduced as the sum of exclusive-OR from each pairs of matching literals.

$$\mu(<x, y>) = \sum_{i=1}^{n} x_i \vee y_i$$

Moreover, if the conjuncts define a set-ring algebra, then we can speak of a normed space and a norm (valuation) over a vector space, where the field is GF(2). Any (meaningful) proposition over this domain, except for the identically false one, can be represented as (PDNF). Then for PDNF we get a metric vector. The proposition is true if and only if the metric vector contains 0. For PCNF, there is no 0.

$$\mu(<x, y>) = min_j \sum_{i=1}^{n} x_i j \vee y_i j$$

In addition to (null-local predicates) of literals (constants), unary (semantic) predicates for the type of an element of an sc-text and unary and binary (syntactic) predicates for element incidence tuples (variables) can be considered (by analogy of relation algebra [22], [23]). In the case of search by pattern (homomorphism), the metric is calculated on multisets. Possible task is to minimize (maximize) the metric from the pragmatic view of logics. Associated with the search for a relevant structure, this task is of practical importance in reference and testing (checking) (dialog) systems [21], [24]. Also, metrics with other quantor elimination approaches ([23], [25]) can be used for logical inference and theorem proving purposes. The system of natural inference and sequent calculus consider finite sets of formulas. One of the algorithms for solving inference problems is a conflict-driven (contradiction-driven) clause learning (CDCL) [26]. These techniques seemed to be promising. To express complex patterns and regularities, it is possible to construct a metatheory using metastructures. For this, meta-relations and modal operators are introduced. Such a formalism allows describing the complex introspective reasoning characteristic of modal logics (see Fig. 26–28 for the sages hat puzzle solution [27]). Applied logics [27]–[32] consider applications of classical logic to abstract and subject domains describing reality: logical theories about equality and order relations [28], [29], logical theories of arithmetic [28], logical theories of time [27], [31], logical proof theories [28], [30], graph and geometric theories [32], theories of natural and social systems [29]. Classification of logical theories corresponds to the classification of subject domains. Let us consider some concepts and examples that are considered within applied logics.

slot binary relation
$\Rightarrow$ *note**:
[slot binary relation is a slot sc-relation that is a set.]

non-slot binary relation
$\Rightarrow$ *note**:
[non-slot binary relation is a binary sc-relation that is a set but is not a slot sc-relation.]]

irreflexive slot binary relation
$\subset$ *irreflexive binary relation*
$\Rightarrow$ *note**: