

THE ELEMENTS OF THE LANGUAGE OF THOUGHT, by Arnold vander Nat (5/2009). For complete details see, "Neurons, Concepts, and Connections in Thinking," on-line at "orion.it.luc.edu/~avande1/connections"

CONNECTIONS There are three different kinds of physical connections among cognitive structures:

- analytic connections ($X \text{---} Y$), strong connections ($X \text{---} Y$), temporary links ($X \cdots Y$)

IDEAS

1. feature-units: $\{\#F\}, \{\#G\}, \{\#H\}, \dots$
2. simple concepts: $(\equiv_{\alpha}), (\equiv_{\beta}), (\equiv_{\gamma}), \dots$

$(\equiv_{\alpha}) \text{---} \{\#A\}, \text{---}(B_1 B_2 B_m), \text{---}(M_1 M_2 M_n), \text{---}\{W\}$

(\equiv_{α}) = the relay-node of the concept

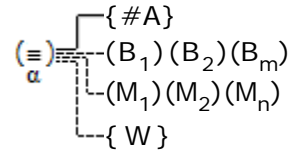
α = the activation wave pattern of the definitional part of (\equiv_{α})

$\{\#A\}$ = the analytically connected feature-unit that defines (\equiv_{α})

$B_1 B_2 B_m$ = the strongly connected concepts that further characterize (\equiv_{α}) , if any

$M_1 M_2 M_n$ = the strongly connected iconic-memory-units that utilize (\equiv_{α}) , if any

$\{W\}$ = the associated word unit for (\equiv_{α}) , if any; undenominated otherwise



- conceptual operators: negative $(\equiv)[\mathbf{non}]_k(\equiv)$, conjunctive $(\equiv)[\mathbf{\cap}]_k(\equiv)(\equiv)$, potentive $(\equiv)[\mathbf{can}]_k(\equiv)$
3. compound concepts: the definitional part is formed by an operator applied to concepts

$(\equiv_{\alpha}) \text{---}(A_1 A_2 A_k), \text{---}(B_1 B_2 B_m), \text{---}(M_1 M_2 M_n), \text{---}\{W\}$

(\equiv_{α}) = the relay-node of the concept

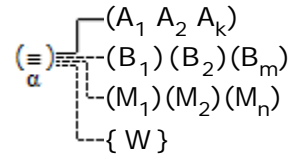
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$\{W\}$ = the associated word unit for (\equiv_{α}) , if any; undenominated otherwise



4. extemporaneous conceptualizations: $(\equiv_{\alpha_1}) (\equiv_{\alpha_2}) \dots (\equiv_{\alpha_n})$, concepts combined by temporary links

5. individuating pointers: $[\delta_1], [\delta_2], [\delta_3], \dots$ (demonstrative, personal, and other pronouns)

6. known individuals: $[\delta]$ with connected items X_1, X_2, \dots, X_r

$[\delta] \text{---} (\equiv_{\alpha}) \text{---} (A_1 A_2 A_k), \text{---}(B_1 B_2 B_m), \text{---}(M_1 M_2 M_n), \text{---}\{W\}$

$[\delta]$ = an individuating pointer (therefore, a unique referential structure)

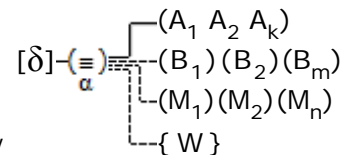
δ = the reference activation wave pattern that is unique for $[\delta]$

$A_1 A_2 A_k$ = the analytically connected concepts that are essential to $[\delta]$

$B_1 B_2 B_m$ = the strongly connected concepts that further characterize $[\delta]$, if any

$M_1 M_2 M_n$ = the strongly connected iconic memory units that utilize $[\delta]$, if any

$\{W\}$ = the associated word unit for $[\delta]$, if any; undenominated otherwise



PROPOSITIONAL FORMS

- term-variables and predicates: $[\equiv]_k, [\mathbf{is}]_k$
- quantifiers: $[\mathbf{some}]_k, [\mathbf{all}]_k$
- truth-value buffers: $(\parallel)_k$
- propositional operators: $(\parallel)[\mathbf{not}]_k(\parallel), (\parallel)[\mathbf{and}]_k(\parallel)(\parallel), (\parallel)[\mathbf{or}]_k(\parallel)(\parallel), (\parallel)[\mathbf{if}]_k(\parallel)(\parallel)$, all temporary links

1. simple individual propositional forms: $(\parallel) \text{---} [\equiv] \text{---} [\mathbf{is}] \text{---} [\equiv]$,

2. simple general propositional forms: $(\parallel) \text{---} [\mathbf{some}] \text{---} (\parallel) \text{---} [\equiv] \text{---} [\mathbf{is}] \text{---} [\equiv]$, $(\parallel) \text{---} [\mathbf{all}] \text{---} (\parallel) \text{---} [\equiv] \text{---} [\mathbf{is}] \text{---} [\equiv]$

3. compound propositional forms: array of forms that are temporarily linked through propositional operators

4. full propositions: propositional form all whose term-variables have a temporary link with an idea

$(\parallel) \text{---} [\equiv \dots [\mathbf{that} \delta]] \text{---} [\mathbf{is}] \text{---} [\equiv \dots (\mathbf{blue})]$, $(\parallel) \text{---} [\mathbf{some}] \text{---} (\parallel) \text{---} [\equiv \dots (\mathbf{events})] \text{---} [\mathbf{is}] \text{---} [\equiv \dots (\mathbf{change history})]$

5. judgments: full proposition whose truth-value has been evaluated through system-reference

$(\mathbf{F}) \text{---} [\equiv_r \dots (\mathbf{Rembrandt})] \text{---} [\mathbf{is}] \text{---} [\equiv_r \dots (\mathbf{French painter})]$

$(\mathbf{T}) \text{---} [\mathbf{some} \delta] \text{---} (\mathbf{T}) \text{---} [\equiv_{\delta} \dots (\mathbf{events})] \text{---} [\mathbf{is}] \text{---} [\equiv_{\delta} \dots (\mathbf{change history})]$

$(\mathbf{T}) \text{---} [\mathbf{all} \delta] \text{---} (\mathbf{T}) \text{---} [\equiv_{\delta} \dots (\mathbf{tigers})] \text{---} [\mathbf{is}] \text{---} [\equiv_{\delta} \dots (\mathbf{dangerous animals})]$

6. expressed propositions (primary sentences): full proposition all whose component ideas are denominated

SENTENCES

2. stylized sentences: conventional verbal transformation of a primary sentence