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GENERALIZED NET MODELS IN CHILD NEUROLOGY (CN061: DISCONTINUATION OF MEDICATION IN CHILDREN WITH EPILEPSY)[1]

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The aim of the present paper is to construct a Generalized Net (GN; see [1]) describing the process of diagnosing of discontinuation of medication in children with epilepsy. The paper will be an element of a future book prepared by the "Prof. M. Drinov" Academic Publishing House.

All GN-notations are used as in [1].

The described diagnostic process is based on a scheme from [2].

The tokens enter the GN with an initial characteristic "patient with discontinuation of medication in children with epilepsy".

$$Z_1 = < \{l_1\}, \{l_2\}, \begin{array}{c|c} & l_2 \\ \hline l_1 & TRUE \end{array} > .$$

The tokens obtain the characteristic "the medical history is necessary" in place l_2.

$$Z_2 = < \{l_2\}, \{l_3, l_4\}, \begin{array}{c|cc} & l_3 & l_4 \\ \hline l_2 & W_{2,3} & W_{2,4} \end{array} >,$$

$W_{2,3}$ = "the last seizure is < 2 years",
$W_{2,4} = \neg W_{2,3}$.

The tokens do not obtain any characteristic in places l_3 and l_4.

$$Z_3 = < \{l_3\}, \{l_5, l_6\}, \begin{array}{c|cc} & l_5 & l_6 \\ \hline l_3 & W_{3,5} & W_{3,6} \end{array} >,$$

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$W_{3,5}$ = "there is no mitigating factor",
$W_{3,6}$ = "there are medication side effects and symptomatic seizures".

The tokens obtain the characteristic "continue anticonvulsant medication" in place l_5 and they do not obtain any characteristic in place l_6.

$$Z_4 =< \{l_4, l_6, l_9, l_{11}\}, \{l_7\}, \begin{array}{c|c} & l_7 \\ \hline l_4 & TRUE \\ l_6 & TRUE \\ l_9 & TRUE \\ l_{11} & TRUE \end{array} > .$$

The tokens obtain the characteristic "consider discontinuing medication; EEG and assess risk factors are necessary" in place l_7.

$$Z_5 =< \{l_7\}, \{l_8, l_9\}, \begin{array}{c|cc} & l_8 & l_9 \\ \hline l_7 & W_{7,8} & W_{7,9} \end{array} >,$$

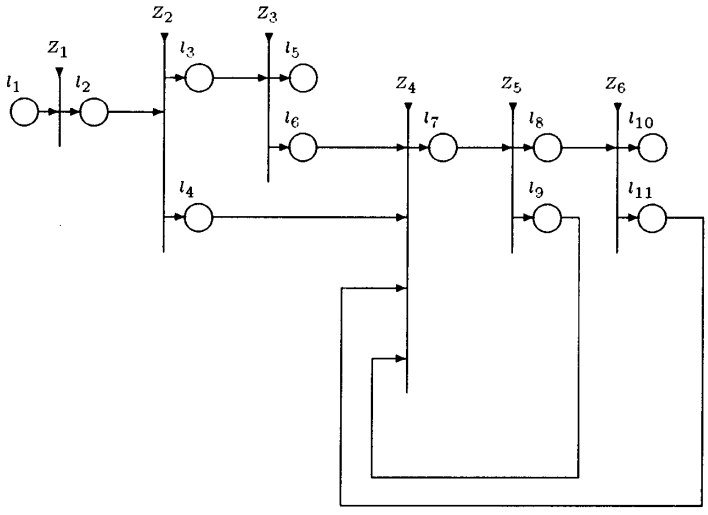
$W_{7,8}$ = "there is low risk of recurrence",
$W_{7,9} = \neg W_{7,8}$.

The tokens obtain the characteristic "it is necessary to taper the medication" in place l_8 and "observe and reassess the patient yearly" in place l_9.

$$Z_6 =< \{l_8\}, \{l_{10}, l_{11}\}, \begin{array}{c|cc} & l_{10} & l_{11} \\ \hline l_8 & W_{8,10} & W_{8,11} \end{array} >,$$

$W_{8,10}$ = "the treatment is successful",
$W_{8,11} = \neg W_{8,10}$.

The tokens obtain the characteristic "observe" in place l_{10} and "it is necessary to restart anticonvulsants; reassess after 2-4 years" in place l_{11}.



Reference:

[1] Atanassov, K. Generalized Nets. World Scientific, Singapore, New Jersey, London, 1991.

[2] Dunn D., L. Epstein, Decision Making in Child Neurology. B. C. Decker Inc., Toronto, 1987.