基于分层模型配电网结构知识表示的拓扑分析方法

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摘要：提出基于分层模型的配电网建模和拓扑分析方法，对配电网的结构知识表示采用了分层处理的方法，整个配电网分为厂站层、线路网络层。其中线路网络层又分成双层树结构，上层树结构表示出线断路器、分段开关、联络开关的逻辑连接关系，下层树结构表示负荷节点与邻近开关的逻辑关系。人工智能的框架表示法，可以方便的完成配电网结构知识表示，并且为实现了基于电网图搜索的拓扑分析方法打下基础，实践表明该方法实现简单，可靠实用。

关键词：配电网；知识表示；电网建模；拓扑分析；人工智能

A Method of Topological Analysis Based on Structure of Knowledge Representation for Distribution Network of Hierarchical Model

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Abstract: A novel method of distribution network modeling and connectivity analysis based on Hierarchical model of distribution is presented. The structure knowledge of distribution network is represent by hierarchical model. The entire distribution network is divided into plant station layer, network layer lines. Line network layer is divided into double-tree structure, the upper tree structure express Logical relationship of feeder breakers, switches, contact switches, the lower tree structure express load nodes and the logical relationship between the neighboring switch. Artificial intelligence framework for representation which suit to The structure knowledge of distribution network, so that create a very good condition for topological analysis based on the grid search method. Practice shows that the implementation of the method is simple, reliable and practical.

Key words: distribution network; express of knowledge; network modeling; topological analysis; artificial intelligence

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