

$$p_1(1) = 0.663; p_1(0) = 0.561;$$

$$p_2(1) = 0.718; p_2(0) = 0.474;$$

$$p_3(1) = 0.651; p_3(0) = 0.365.$$

The value of difficulty determines the bias of curves along the x-axis. Consider the transformation (14) for the formation of new values in the groups. Then the rules can be defined as follows:

If the item discrimination a is "high", **and** the item difficulty δ is "complex", **then** the encouragement – is "high";

If the item discrimination a is "average", **and** the item difficulty δ is "medium difficulty" **then** encouragement is "absent";

If the item discrimination a is "low" **and** the item difficulty δ is "simple", **then** penalty is "big".

All the linguistic variables are defined on appropriate domains. Fig. 6 shows the attribute function for the variable difficulty of the item.

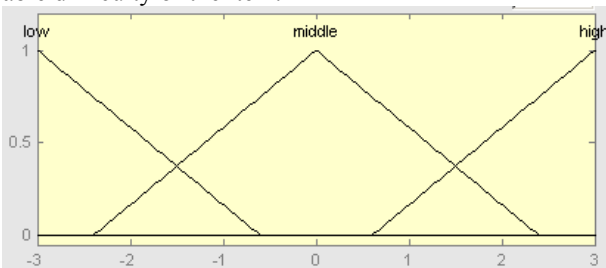


Fig. 6. Linguistic variable "difficulty of the item"

Figure 7 shows Mamdani Model for the set of rules for encouragement formation.

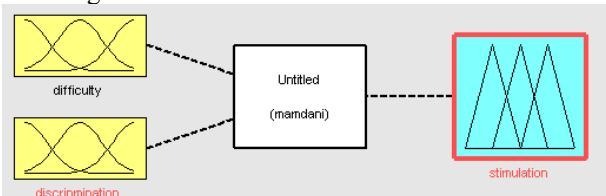


Fig. 7. A Rule Set Model

The inference mapping is shown in Fig.8.

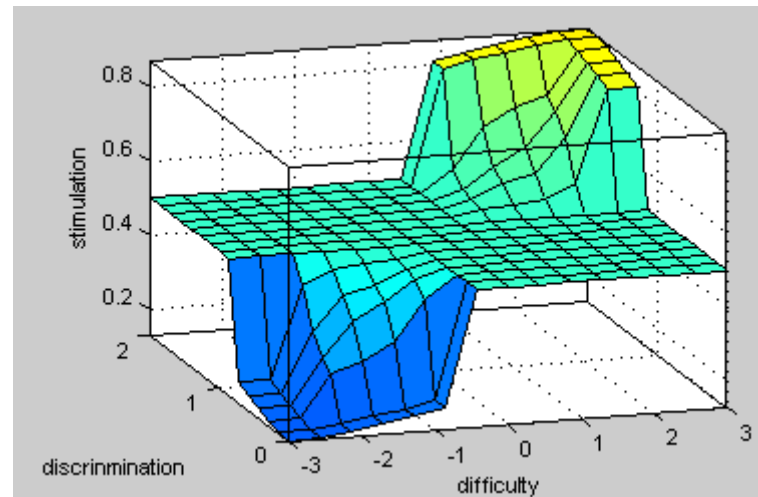


Fig.8. Mapping (14)

Conclusion

The application of classical test theory and modern IRT theory allows to improve the performance of comparability of test results. However, the best results can be achieved by modifying a modern test theory by ranking within the groups with the same score based on the difficulty of items. A fuzzy score modification model, that combines the properties of the estimates ranking lexicographic method and iterative procedure for calculating of additions to the estimates in the group have been proposed.

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