Notes on Relation Between Symbolic Classifiers

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Abstract. Symbolic classifiers allow for solving classification task and
simultaneously for understanding the reason of the classifier decision.
They were studied by a large number of researchers and known under
a number of names including Tests, JSM-hypothesis, Version Spaces,
Emerging Patterns, Proper Predictors of a target class, etc. Classifiers
with restrictions on counter-examples from these theories are considered
and discussed in terms of the language of Pattern Structures. We show
how classifiers from different theories are related including the equiva-
lence between Good Maximally Redundant Tests (GMRTs) and minimal
JSM-hyposethes and between minimal representations of Version Spaces
and Irredundant Tests, which are included in GMRTs.

Keywords: machine learning, symbolic classifier, version spaces, JSM
method, minimal JSM hypotheses, test theory, irredundant test, good
test, jumping emerging patterns, formal concept analysis, pattern struc-
ture, semiconcepts