

Comparison of classification tree methods

FEATURE	CRUISE	QUEST	CART	CHAID	C4.5
<i>Split variable selection</i>					
Unbiased selection	✓	✓			
Pairwise interaction detection	✓				
<i>Split types</i>					
Univariate (axis-orthogonal)	✓	✓	✓	✓	✓
Linear combinations (oblique)	✓	✓	✓		
<i>Choice of misclassification costs</i>					
Choice of misclassification costs	✓	✓	✓	✓	
<i>Choice of class prior probabilities</i>					
Choice of class prior probabilities	✓	✓	✓		
<i>Choice of impurity functions</i>					
Choice of impurity functions		✓	✓		✓
<i>Bivariate discriminant node models</i>					
Bivariate discriminant node models	✓				
<i>Bagging</i>					
Bagging			✓		
<i>Error estimation by cross-validation</i>					
Error estimation by cross-validation	✓	✓	✓	✓	
<i>Number of branches at each node</i>					
Always two		✓	✓		
Two or more	✓			✓	✓
<i>Missing value methods</i>					
<i>Imputation</i>					
Imputation	✓	✓			
<i>Alternate/surrogate splits</i>					
Alternate/surrogate splits	✓		✓		
<i>Missing value branch</i>					
Missing value branch				✓	
<i>Probability weights</i>					
Probability weights					✓
<i>Tree size control</i>					
<i>Stopping rule</i>					
Stopping rule				✓	
<i>Pre-pruning</i>					
Pre-pruning					✓
<i>Test-sample pruning</i>					
Test-sample pruning	✓	✓	✓		
<i>Cross-validation pruning</i>					
Cross-validation pruning	✓	✓	✓		
<i>Tree diagram formats</i>					
<i>Text</i>					
Text	✓	✓	✓		✓
<i>L^AT_EX</i>					
L ^A T _E X	✓	✓			
<i>allClear</i>					
allClear	✓	✓			
<i>Proprietary</i>					
Proprietary			✓	✓	
<i>Platforms</i>					
<i>Windows</i>					
Windows	✓	✓	✓	✓	✓
<i>Linux</i>					
Linux	✓	✓	✓		✓
<i>Sun</i>					
Sun	✓	✓	✓		✓
<i>Free compiled code</i>					
Free compiled code	✓	✓			
<i>Free source code</i>					
Free source code					✓

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CHAID is part of *SPSS AnswerTree*; C4.5 is due to R. Quinlan