1. Title: Cylinder bands

2. Sources:

(a) Creator: Bob Evans

RR Donnelley & Sons Co.

Gallatin Division

801 Steam Plant Rd

Gallatin, Tennessee 37066-3396

(615) 452-5170

(b) Donor: same

(c) Date: August, 1995

3. Past Usage:

Evans, B., and Fisher, D. (1994). Overcoming process delays with

decision tree induction. IEEE Expert , Vol. 9, No. 1, 60--66.

4. Relevant Information:n

Here's the abstract from the above reference:

ABSTRACT: Machine learning tools show significant promise for

knowledge acquisition, particularly when human expertise is

inadequate. Recently, process delays known as cylinder banding in

rotogravure printing were substantially mitigated using control rules

discovered by decision tree induction. Our work exemplifies a more

general methodology which transforms the knowledge acquisition task

from one in which rules are directly elicited from an expert, to one

in which a learning system is responsible for rule generation. The

primary responsibilities of the human expert are to evaluate the

merits of generated rules, and to guide the acquisition and

classification of data necessary for machine induction. These

responsibilities require the expert to do what an expert does best: to

exercise his or her expertise. This seems a more natural fit to an

expert's capabilities than the requirements of traditional

methodologies that experts explicitly enumerate the rules that they

employ.

5. Number of Instances: 512

6. Number of Attributes: 40 including the class attribute

-- 20 attributes are numeric, 20 are nominal

7. Attribute Information:

1. timestamp: numeric;19500101 - 21001231

2. cylinder number: nominal

3. customer: nominal;

4. job number: nominal;

5. grain screened: nominal; yes, no

6. ink color: nominal; key, type

7. proof on ctd ink: nominal; yes, no

8. blade mfg: nominal; benton, daetwyler, uddeholm

9. cylinder division: nominal; gallatin, warsaw, mattoon

10. paper type: nominal; uncoated, coated, super

11. ink type: nominal; uncoated, coated, cover

12. direct steam: nominal; use; yes, no \*

13. solvent type: nominal; xylol, lactol, naptha, line, other

14. type on cylinder: nominal; yes, no

15. press type: nominal; use; 70 wood hoe, 70 motter, 70 albert, 94 motter

16. press: nominal; 821, 802, 813, 824, 815, 816, 827, 828

17. unit number: nominal; 1, 2, 3, 4, 5, 6, 7, 8, 9, 10

18. cylinder size: nominal; catalog, spiegel, tabloid

19. paper mill location: nominal; north us, south us, canadian,

scandanavian, mid european

20. plating tank: nominal; 1910, 1911, other

21. proof cut: numeric; 0-100

22. viscosity: numeric; 0-100

23. caliper: numeric; 0-1.0

24. ink temperature: numeric; 5-30

25. humifity: numeric; 5-120

26. roughness: numeric; 0-2

27. blade pressure: numeric; 10-75

28. varnish pct: numeric; 0-100

29. press speed: numeric; 0-4000

30. ink pct: numeric; 0-100

31. solvent pct: numeric; 0-100

32. ESA Voltage: numeric; 0-16

33. ESA Amperage: numeric; 0-10

34. wax: numeric ; 0-4.0

35. hardener: numeric; 0-3.0

36. roller durometer: numeric; 15-120

37. current density: numeric; 20-50

38. anode space ratio: numeric; 70-130

39. chrome content: numeric; 80-120

40. band type: nominal; class; band, no band \*

8. Missing Attribute Values: yes, in 302 examples

9. Class Distribution: (out of 512 total instances)

-- 312 No band

-- 200 Band