## Ordinal variables

## MSc Further Statistical Methods, Lecture 3 Hilary Term 2005

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## **Ordinal variables**

			Response		
Centre	Status	Treatment	Poor	Moderate	Excellent
1	1	Active	3	20	5
		Placebo	11	14	8
	2	Active	3	14	12
		Placebo	6	13	5
2	1	Active	12	12	0
		Placebo	11	10	0
	2	active	3	9	4
		Placebo	6	9	3

Multicentre analgesic trial. Here are four variables C: Centre, S: Status, T: Treatment, and R: Response.

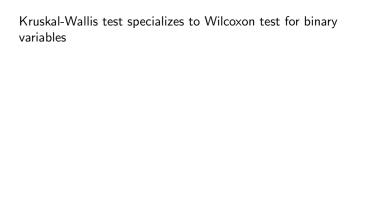
Wilcoxon test-statistic compares distribution of ranks between two distributions. Ranks are well-defined for

ordinal data.

## Several categories

	Response					
Drug regimen	None	Partial	Complete			
1	2	0	0			
2	1	1	0			
3	3	0	0			
4	2	2	0			
5	1	1	4			

Two variables D: Drug regimen, R: response. Kruskal-Wallis test statistic measure deviations from independence in direction of at least one distrubution stochastically larger than the others.



Two ordinal variables

Income	Very diss.	Little diss.	Mod. sat.	Very sat.
< 15,000	1	3	10	6
15,000-25,000	2	3	10	7
25,000-40,000	1	6	14	12
> 40,000	0	1	9	11

Job satisfaction

Two ordinal variables: J: Job satisfaction, I: Income. Jonckheere-Terpstra test measures deviations from independence in direction of all distributions being stochastically ordered.

The Jonckheere–Terpstra test specializes to the Wilcoxon test if one of the two ordinal variables are binary.