Analisis Residual pada ANAVA 1 jalan

Analisis Residual

$$y_{ij} = \mu + \tau_i + \varepsilon_{ij}$$

$$\varepsilon_{ij} = y_{ij} - (\mu + \tau_i)$$

$$\varepsilon_{ij} = y_{ij} - \hat{y}_{ij}$$

$$= y_{ij} - \bar{y}_{i\bullet}$$

diagnosis

1. Non constancy of error variance
2. Non independence of error term
3. Non normality of error terms

Contoh : Mesin

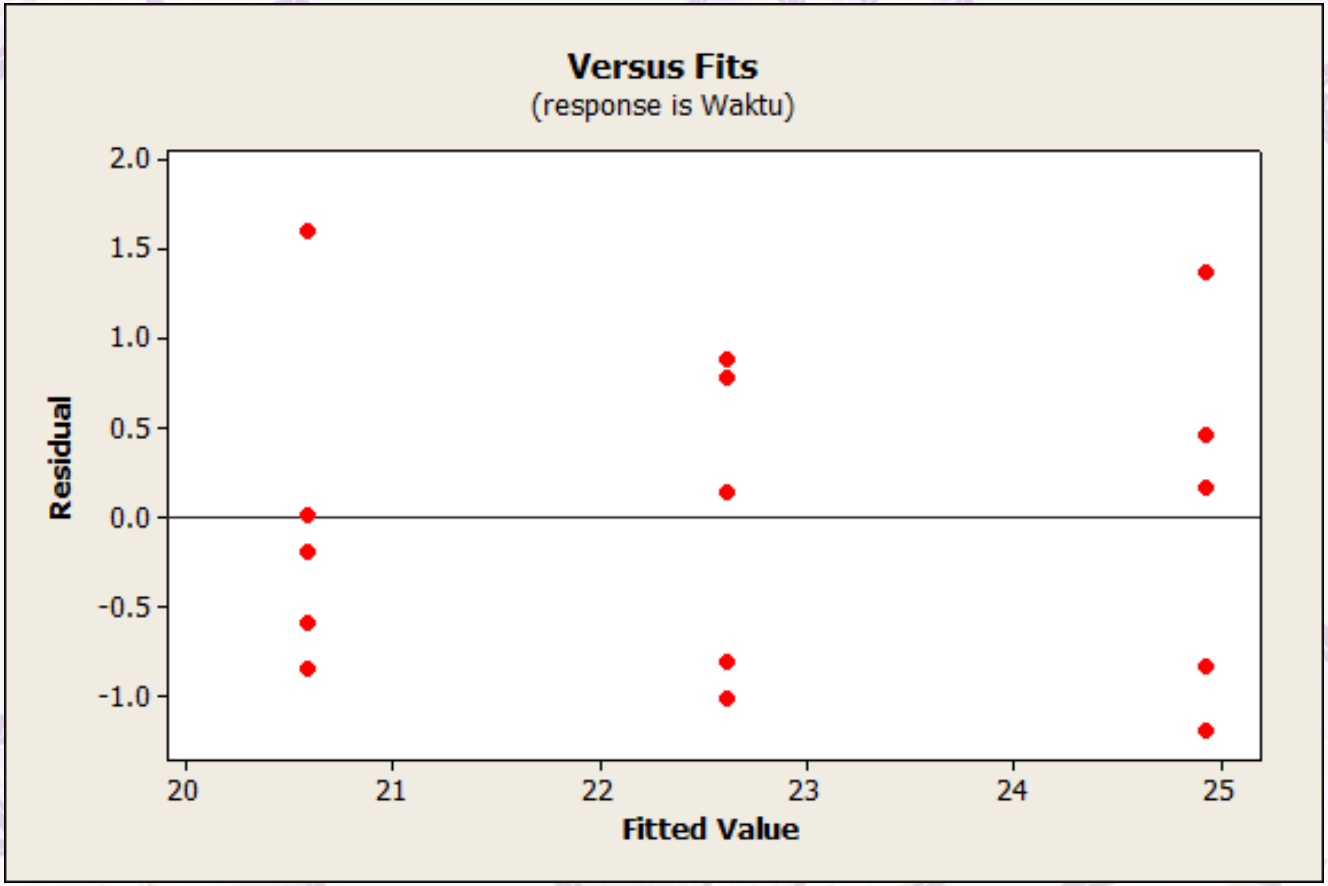
	i=1	i=2	i=3		
	25.4	23.4	20		
	26.31	21.8	22.2		
	24.1	23.5	19.75		
	23.74	22.75	20.6		
	25.1	21.6	20.4		
yi.=	124.65	113.05	102.95	y..=	340.65
	24.93	22.61	20.59		

$\bar{y}_{1\bullet} = 24.93,\ \bar{y}_{2\bullet} = 22.61,\ \bar{y}_{3\bullet} = 20.59$

e_{ij}	i=1	i=2	i=3
j=1	0.47	0.79	-0.59
j=2	1.38	-0.81	1.61
j=3	-0.83	0.89	-0.84
j=4	-1.19	0.14	0.01
j=5	0.17	-1.01	-0.19

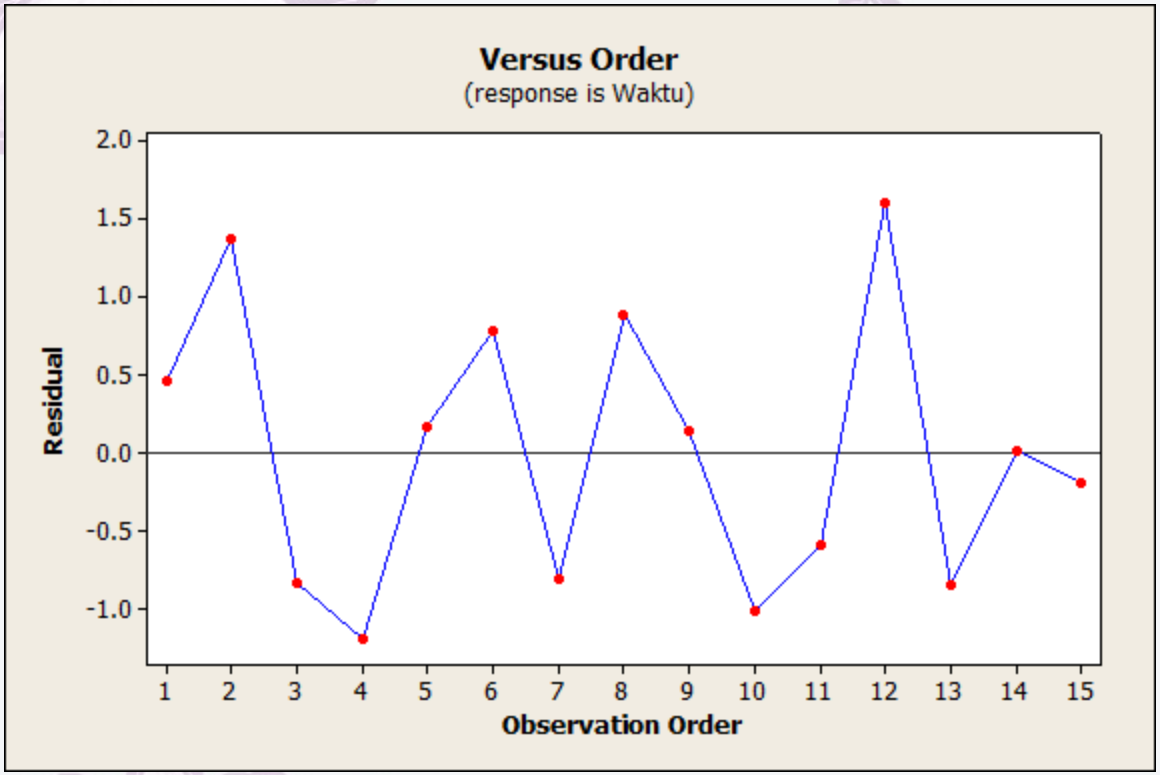
dengan Minitab, visualisasi residual

Nonconstancy of error variance



Error variance konstan jika titik-titik pada residual plot berada dipersekitaran 0 tiap perlakuan (Netter, pg 610)

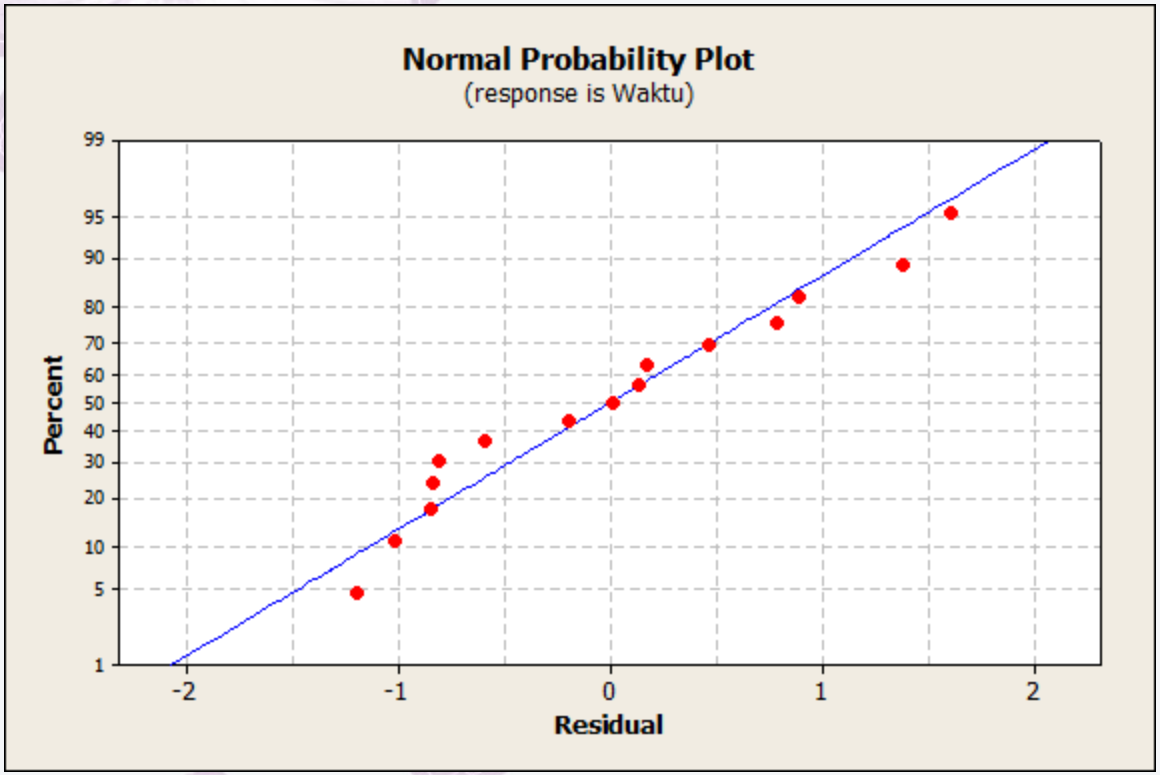
Non independence of error term



→Deteksi ada/ tidaknya korelasi antar residual

→Jika ada pola tertentu ; misal residual positif/ negatif mengindikasikan adanya korelasi positif (Montg, pg 79)

Nonnormality of error term



Asumsi kenormalan dipenuhi jika sebaran titik mengikuti garis lurus biru (Montg, pg 77)