Table 1

Three examples, one hypothetical and two real, of apparent "interactions" produced merely by the play of chance

Table 1(a). Hypothetical trial: FALSE NEGATIVE and EXAGGERATEDLY POSITIVE mortality effects in subgroups defined only by whether day of birth was even or odd

Birthdate category	Treatment group	Control group	Statistical significance
EVEN* birthdate only (almost no mortality reduction apparent)	18/500	22/500	NS
ODD* birthdate only (mortality appears to be almost halved)	22/500	38/500	2P<0.05
ANY birthdate (appropriate **overall** analysis)	40/1000	60/1000	2P<0.05

* The apparent discrepancy between these two results is not particularly unusual [15] as there would be about a one-in-eight probability of chance alone producing a contrast at least as extreme as (or, probably, more extreme than) this between the **apparent** effects of treatment in two categories of women. Much greater discrepancies could easily arise in **data-dependent** subgroup analyses, i.e., where the subgroups are selected for special emphasis in presentation of trial results partly because the apparent discrepancy between them is striking: see the two real examples that follow.

Table l(b). Real trial (ISIS-2): FALSE NEGATIVE mortality effect in a subgroup defined only by astrological "birth sign"

Astrological "birth sign"	Aspirin effect on day 0-35 mortality in acute myocardial infarction	
	Nos. of deaths by treatment group* ASPIRIN vs PLACEBO	Statistical significance (2P)
Libra or Gemini (taken together)	150 vs 147	0.5 (NS adverse)
All other signs (taken together)	564 vs 869	<0.000 0001
Any birth sign (appropriate **overall** analysis)	804 vs 1016	<0.000 001

*In ISIS-2. 8587 were allocated active asprin and 8600 were allocated placebo [17].

Table l(c). Real trial (ISIS-1): EXAGGERATEDLY POSITIVE mortality effect in a subgroup defined only by astrological "birth sign"

Astrological "birth sign"	Atenolol effect on day 0-1* mortality in acute myocardial infarction	
	Mortality reduction comparing Atenolol with Control group	Statistical significance (2P)
Leo (i.e., born between July 24 & August 23)	71% ± 23	<0.01
11 other birth signs (taken separately)	Mean 24%	Each >0.1 (NS)
Any birth sign (appropriate **overall** analysis)	30% ± 10	<0.004

* For day 0-7 mortality, the overall mortality difference was 313/8037 vs 365/7990 (2P<0.04), and analysis of each separate birth sign "revealed" significant benefit only for those born under the sign of Scorpio [18].