Dimension reduction analysis can be interpreted as follows: If the roots from n_o to s are not significant (in other words, if the s - n_o + 1 smallest canonical correlations are not significantly different from zero), we may say that the data do not provide evidence of association in more than n_o - 1 dimensions (only n_o - 1 discriminant functions are significant). In the dental calculus example, only one canonical correlation is significant at the 0.05 level for the TR effect.

5 Univariate analysis of variance results for each of the q response variables. In our example, Figure 1.32f gives the results obtained for the effect TR.

Figure 1.32f

UNIVARIATE F	-TESTS WITH (4,100	D) D. F.				
VARIABLE	HYPOTH. SS	ERROR SS	HYPOTH. MS	ERROR MS	F	SIG. OF F
RCAN RLI RCI	6.18306 28.07315 69.55358	137.89515 261.87433 423.98046	1.54577 7.01829 17.38839	1.37895 2.61874 4.23980	1.12097 2.68002 4.10123	.351 .036 .004

The sum of squares for the tested effect (HYPOTH. SS) and for the error (ERROR SS) of each response variable are the appropriate diagonal elements of S_h and S_c respectively. Output for the YEAR effect and the YEAR BY TR interaction is given in Figure 1.32g.

Figure 1.32g

EFFECT YE Wultivariate	AR BY TR TESTS OF SIGNIFI	CANCE (S = 1, M	= 1/2, N = 48)			
TEST NAME	VALUE	APPROX. F	HYPOTH. DF	ERROR DF	SIG. OF F	
PILLAIS HOTELLINGS WILKS ROYS	.02445 .02507 .97555 .02445	.81881 .81881	3.00 3.00 3.00	98.00 98.00 98.00	. 487 . 487 . 487	
EIGENVALUES	AND CANONICAL COR	RELATIONS				
ROOT NO.	EIGENVALUE	PCT. C	JM. PCT. CANON.	COR.		
1	.02507	100.00000 10	00.00000 .19	5637		
DIMENSION RE	DUCTION ANALYSIS					
ROOTS	WILKS LAMBDA	F	HYPOTH. DF	ERROR DF	SIG. OF F	
1 T O 1	.97555	.81881	3.00	98.00	. 487	
	T-TESTS WITH (1.10	-,			*	
VARIABLE	HYPOTH. SS	ERROR SS	HYPOTH. MS	ERROR MS	F	SIG. OF
RCAN RLI	.09862 1.08877	137.89515	.09862	1.37895	.07152	.79
	9.73563	261.87433 423.98046	1.08877 9.73563	2.61874 4.23980	.41576 2.29625	.52 .13
RCI Effect ye	9.73563	423.98046	9.73563			
RCI Effect ye Multivariate	9.73563 	423.98046	9.73563			
RCIYEFFECT YE MULTIVARIATE TEST NAME PILLAIS WILKS WILKS	9.73563 	423.98046	9.73563 = 1/2, N = 48) HYPOTH. DF 3.00 3.00	4.23980	2.29625 	
RCI BFFECT . YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS	9.73563 EAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923	423.98046 CANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843	9.73563 = 1/2, N = 48) HYPOTH. DF 3.00 3.00	4.23980 ERROR DF 98.00 98.00	2.29625 	
RCI EFFECT YE MULTIVARIATE TEST NAME TEST NAME HOTELLINGS WILKS ROYS EIGENVALUES	9.73563 EAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077	423.98046 CANCE (S = 1, M APPROX. F 1.38843 1.38843	9.73563 = 1/2, N = 48) HYPOTH. DF 3.00 3.00	4.23980 	2.29625 	
RCI EFFECT YE MULTIVARIATE TEST NAME TEST NAME HOTELLINGS WILKS ROYS EIGENVALUES	9.73563 CAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077 AND CANONICAL COR	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843 RRELATIONS PCT. C	9.73563 = 1/2, N = 48)	4.23980 	2.29625 	
RCI EFFECT . YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS EIGENVALUES ROOT NO . 1	9.73563 CAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077 AND CANONICAL COR	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843 RRELATIONS PCT. C	9.73563 = 1/2, N = 48)	4.23980 ERROR DF 98.00 98.00 98.00	2.29625 	
RCI FFFECT . YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS FEGENVALUES ROOT NO.	9.73563 EAR ETESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077 AND CANONICAL COREIGENVALUE .04250	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843 RRELATIONS PCT. C	9.73563 = 1/2, N = 48)	4.23980 ERROR DF 98.00 98.00 98.00	2.29625 	
RCI BEFFECT YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS BIGENVALUES ROOT NO. 1 DIMENSION RE ROOTS	9.73563 E TESTS OF SIGNIFI VALUE .04077 .95923 .04077 AND CANONICAL COF EIGENVALUE .04250 .04250	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843 RRELATIONS PCT. C 100.00000 16	9.73563 = 1/2, N = 48)	4.23980 ERROR DF 98.00 98.00 98.00 COR.	2.29625	
RCI EFFECT YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS EIGENVALUES ROOT NO. 1 DIMENSION RE ROOTS 1 TO 1	9.73563 EAR E TESTS OF SIGNIFI VALUE .04077 .95923 .04077 AND CANONICAL COF EIGENVALUE .04250 EDUCTION ANALYSIS WILKS LAMBDA	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 RRELATIONS PCT. C 100.00000 10	9.73563 = 1/2, N = 48)	4.23980 ERROR DF 98.00 98.00 98.00 COR. COR. ERROR DF	2.29625	
RCI EFFECT YE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS	9.73563 EAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077 AND CANONICAL COF EIGENVALUE .04250 EDUCTION ANALYSIS WILKS LAMBDA .95923	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 RRELATIONS PCT. C 100.00000 10	9.73563 = 1/2, N = 48)	4.23980 ERROR DF 98.00 98.00 98.00 COR. COR. ERROR DF	2.29625	
RCIYE MULTIVARIATE TEST NAME PILLAIS HOTELLINGS WILKS ROYS EIGENVALUES ROOT NO. 1 DIMENSION RE ROOTS 1 TO 1 UNIVARIATE F	9.73563 EAR E TESTS OF SIGNIFI VALUE .04077 .04250 .95923 .04077 AND CANONICAL COF EIGENVALUE .04250 EDUCTION ANALYSIS WILKS LAMBDA .95923	423.98046 CCANCE (S = 1, M APPROX. F 1.38843 1.38843 1.38843 RRELATIONS PCT. C 100.00000 16 F 1.38843	9.73563 = 1/2, N = 48) HYPOTH. DF 3.00 3.00 3.00 UM. PCT. CANON. 00.00000 .2 HYPOTH. DF 3.00	4.23980 ERROR DF 98.00 98.00 98.00 COR. 0192 ERROR DF 98.00	2.29625 SIG. OF F .251 .251 .251 .251 .251	.13