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The certainty of change : a research into the interactions of the decoration on the western walls of the cult chapels of the mastabas at Giza during the Old Kingdom

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Chapter V

The co-occurrence of (sub)themes on the western wall.

Two (sub)themes can occur at the same time on the western wall, which is called “co-occurrence”. This can be divided into their being together either on the western wall as a whole or on the same section of that wall. In this chapter only co-occurrences on the western wall as a whole are investigated. The degree of coexistence of two (sub)themes is expressed as “co-occurrence percentage” (CP), from which eventually the CPSD values of the interactions are calculated (see chapter III, section III.1.3).

I. Considerations concerning the co-occurrence of the (sub)themes.

When two (sub)themes are placed on the same wall of the chapel (co-occurrence), it can be interpreted as an indication of a association between them.¹

A first stage of the research project is to examine the co-occurrence of the (sub)themes on the western wall without considering the wall section on which those coinciding (sub)themes are placed; this is followed by an investigation into the co-occurrence of (sub)themes, this time taking into account the location of the wall section on which they appear (see chapter VI).

An important consideration is that the number of co-occurrences is determined by the number of times each of the (sub)themes occurs. The maximum number of co-occurrences between two (sub)themes is thus determined by the (sub)theme with the lowest number of occurrences. From the maximum and real number of co-occurrences the co-occurrence percentage (CP) can be calculated.

II. The determination of the CP of the (sub)themes on the western wall.

The FO values of the (sub)themes given in table IV.1a.Vol.2 are ordered according to increasing value. The result is compiled in figure V.1.

(Sub)theme	1	6	8	4	2	11	10	9	3	7	5
FO value	14	20	38	50	53	57	56	62	73	73	90
no. occurrences	5	8	15	20	25	24	25	29	33	33	52

Figure V.1: Ordering of FO values according to increasing value.

In these figures the following discrepancies are evident:

1. A comparison between the FO values and the number of occurrences reveals that they are directly proportional, although small discrepancies between the order of the FO values and the number of occurrences may occur (marked in grey). These are caused by the fact that the FO is calculated from the result of two direct measurements (number of occurrences (“x”) versus the number of co-occurrences (“x + -“)), while the number of occurrences is a direct measurement. The consequence is that the latter determines the order of the (sub)themes, because it is the most direct value of the two.
2. In figure V.1 (sub)themes 3 and 7 have the same number of occurrences, and the same FO value, in which case the order of the (sub)themes is unimportant.

¹ The difference between the co-occurrence of two (sub)themes and a association between them is that the co-occurrence is the observation on the wall and the association is a (hypothetical) conclusion from that observation.

This (sub)theme order is introduced into a table in a horizontal and a vertical direction (figure V.2). From chronological ordering IV.1.Vol.2 the CP values of all possible combinations of (sub)themes are determined and compiled in figure V.2.²

As discussed in chapter III, it is possible that the (sub)themes were placed on the wall with considerations given to their location, their content and the (sub)themes surrounding them, because

FO value.	14	20	38	50	53	57	56	62	73	73	90
no. occurrences	5	8	15	20	25	24	25	29	33	33	51
(sub)theme	1	6	8	4	2	11	10	9	3	7	5
1	-	---	40	20	0	20	60	40	40	60	100
6		-	50	13	100	13	---	38	0	63	88
8			-	33	80	7	13	33	20	67	87
4				-	35	50	50	55	75	60	85
2					-	8	12	44	24	64	84
11						-	63	50	83	54	71
10							-	60	80	56	88
9								-	59	55	93
3									-	61	82
7										-	88
5											-

Figure V.2: CP values of the (sub)theme interactions in chronological ordering IV.1.Vol.2.

FO value.	14	20	38	50	53	57	56	62	73	73	90
no. occurrences	5	8	15	20	25	24	25	29	33	33	51
(sub)theme	1	6	8	4	2	11	10	9	3	7	5
1	-	---	0.6	-0.5	-0.8	-0.5	1.6	0.2	0.0	0.0	1.3
6		-	1.4	-0.9	2.1	-0.7	---	0.4	-2.0	0.1	0.7
8			-	-0.6	1.2	-1.2	-1.1	-0.1	-1.1	0.2	1.0
4				-	0.0	0.7	1.0	0.9	1.4	-0.1	0.9
2					-	-1.4	-1.6	-0.3	-2.0	-0.1	1.2
11						-	1.1	-0.1	1.5	-0.7	0.1
10							-	-0.5	1.5	-1.0	1.2
9								-	-0.3	-1.2	1.3
3									-	-0.8	0.4
7										-	---
5											-

Figure V.3: The CPSD values of the (sub)theme interactions in chronological ordering IV.1.Vol.2.

² Of (sub)themes 3 and 7 both the FO value and the number of occurrences are identical, as a consequence the order of the (sub)themes can be either 9-3-7-5 or 9-7-3-5. This will have an influence on the CPSD values that can be calculated from these CP values. Because the proper order cannot be determined with either the FO value or the number of occurrences an other criterion, the mean FO/period of the (sub)themes can be used. This criterion determines that the order is 9-3-7-5 and not 9-7-3-5.

1. they were part of a group of (sub)themes forming a scene.
2. It is possible that (sub)themes were not placed together, because it was unacceptable to depict them on the same wall (perhaps for cultic reasons, perhaps for the prosaic reason that the (sub)themes were considered to be too large to be placed together).

These possible associations or dissociations between (sub)themes appear as CP values that differ markedly from the CP values that surround them. The degree of this difference is determined by calculating its CPSD value in the surrounding field (see appendices III.1 and III.2). These CPSD values are compiled in figure V.3.

Combinations that cannot be calculated because of an absent overlap over time are indicated in the matrix as “---“. The CPSD values incorporated in the table can either be positive, indicating various degrees of association between the (sub)themes, or negative, which means a degree of dissociation (figure III.11).

III. Conclusions about the co-occurrences on the western wall.

1. (Sub)theme 5 (offering bearers) has a positive interaction with all other (sub)themes. A possible interpretation is that the (sub)theme has no specific cultic content and can be combined with any (sub)theme. This might indicate that the (sub)theme has a unifying function. It is placed on those sections of the wall where a larger (sub)theme has left space to be filled, thus unifying (sub)themes.³
2. As already mentioned in chapter IV, section IV, point 6, (sub)themes 2, 6 and 8 (tomb owner with family, personified estates and scribes) probably form a group and that preliminary conclusion is corroborated by the high CPSD value of the interaction between (sub)themes 2 and 6 (CPSD = 2.1) and (sub)themes 2 and 8 (CPSD = 1.2). Furthermore, the CPSD value of the interaction between (sub)themes 6 and 8 (CPSD = 1.4) is high and positive, which indicates that they are regularly together, and at the same time connected with the main (sub)theme 2, which might be an indication that they really form a group.
3. Between (sub)themes 4 (members of the family) and 6 (personified estates) the CPSD value (CPSD = - 0.9) indicates a dissociation, while the CPSD value of the interaction of (sub)themes 2 (tomb owner with family) and 6 (CPSD = 2.1) indicates an association. Hence, one may conclude, that the personified estates brought their goods to the tomb owner, and not to members of his family.⁴

³ This should not be interpreted as the result of a mistake or an oversight of the designer of the layout of the decoration of the western wall. The designer was well aware which (sub)themes had to be placed on the wall, but some of them were considered less important. Although less important, they were nonetheless indispensable and they had to be incorporated in the total design. This required (sub)themes that could be placed next to and between (nearly) all other (sub)themes, a trait which, in this research project, is called “a unifying function”. However, the utilization of these (sub)themes is not due to a “horror vacui”, but to a strong wish to place them on the western wall, although they were not of prime importance. These (sub)themes were necessary on the western wall, but, because there were no rules concerning place and/or number, the number of offering bearers and priests could fluctuate, the pile of food could be made small or large when and where needed; consequently these (sub)themes with a unifying function were extremely versatile.

⁴ The statement of W. Helck “Bereits am Ende der 3. Dyn. verbindet man die Verwaltung eines Gutes mit dem Zweck, einen hohen Beamten mit zusätzlichen Einkünften auszustatten,...” and “Eins oder mehrere dieser Güter bzw. Dörfer konnte der Beamte für seinen Totenkult beiseite setzen,...” (LÄ, I, 1117-20, s.v. “Domänen”) indicates that two basic interpretations of the personified estates of (sub)theme 6 are possible.

4. (Sub)themes 2 (tomb owner with family) and 3 (tomb owner at the offering table) avoid each other strongly (CPSD = - 2.0). This can be interpreted as signifying that as prime (sub)themes they have opposite cultic characters.⁵
5. The interaction between (sub)themes 3 (tomb owner at offering table) and 6 (personified estates) (CPSD = - 2.0) and 3 with 8 (scribes) (CPSD = - 1.1) indicates that (sub)theme 3, considered to be the main cultic depiction on the western wall, avoids (sub)themes 6 and 8, which have a association with (sub)theme 2 (tomb owner with family). This corroborates the hypothesis that (sub)themes 2, 6 and 8 form a group.
6. The interaction between (sub)themes 7 (priests) and 2 (CPSD = - 0.1) and between 7 and 3 (CPSD = - 0.8) might indicate that the priests are not directly connected with the tomb owner at the offering table, but the CPSD values of these two interactions are not high enough to validate reliable conclusions.⁶
7. (Sub)theme 1 (tomb owner alone) does not interact with (sub)theme 3 (CPSD = 0.0) and has an dissociation with (sub)theme 2 (tomb owner with family) (CPSD = - 0.8) which might indicate that the role of this (sub)theme is not directly aimed at the cult itself.
8. (Sub)theme 4 (members of the family), which is not an attribute of (sub)theme 2 or 3, has no interaction with (sub)theme 2 (CPSD = 0.0) and a strong interaction with (sub)theme 3 (CPSD = 1.4).
9. The relatively small overlap in time of (sub)themes 2 and 11 (non-ideographic offering list) in chronological ordering IV.1.Vol.2 explains their apparent dissociation (CPSD = - 1.4).
10. At this stage of the research project the association between (sub)themes 1 (tomb owner alone) and 10 (piles of food offerings) (CPSD = 1.6) cannot be explained.

On the one hand, it could be that it has a cultic character, because the estates brought their products for the offerings during the cult for the tomb owner; on the other hand it could be that it is part of a scene from the daily life of the tomb owner. The conclusion that the personified estates bring their goods to the tomb owner and not to the family allows for both interpretations. However, if (sub)theme 6 depicts, in a personified form, the estates and villages from which the offerings for the cult for the deceased are brought to the chapel, it is of major importance for the function of the cult chapel, and, consequently, it would have a cultic character. But its complete disappearance early in the 5th dynasty makes the afore said highly unlikely, which would indicate that the character of the (sub)theme is non-cultic and that the group depicts a scene from the daily (and professional) life of the tomb owner.

⁵ This strong dissociation of (sub)themes 2 and 3 is not due to a poor overlap in time (see chronological ordering IV.1.Vol.2). The opposite cultic characters are that (sub)theme 2 is the main theme of a scene from the daily life of the tomb owner, thus showing the tomb owner while still alive, and (sub)theme 3 shows the tomb owner reacting to the offerings, thus as a deceased person. For the distinction between the terms “cultic” and “cultic character”, see “Technical terms and abbreviations”.

⁶ At a later stage of the research project, the result of a different method (see chapter VI) indicates that the priests of (sub)theme 7 are only connected with the offering table scene and not at all with the tomb owner and/or his family as depicted in (sub)theme 2.