

Did the set of names from the Talpiot tomb arise by chance?

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Introduction

Perhaps the most frequent reason given for rejecting the proposition that the Talpiot tomb is the family tomb of Jesus is that the individual names from the Talpiot tomb are common. Reaching this conclusion about the Talpiot tomb requires taking the logical step that if the individual names in the Talpiot tomb are common then the combination of names found in the Talpiot tomb also must be common – even expected.

This logic is flawed in two ways.

First, since Jesus and his family had common names, then if his tomb existed it would have to generate a set of common names. This is what we be expected. It can not be used as an objection to the authenticity of the tomb.

Second, the statistical literature (i.e. statistical re-identification) on identity theft makes this clear. Even if the individual names in a family meet some criteria for commonness, it is not necessarily true that the combination of names in the family would be common. This report demonstrates that the combination of names in the Talpiot tomb does not meet a reasonable criteria for commonness.

Method

A number of ways for measuring the commonness of a set of names have been suggested. This paper will offer a measure of “uncommonness” which is conceptually just the inverse of “commonness”. The “uncommonness” statistic will be represented by “U”. Two definitions for U will be given in this paper.

- First, borrowing from a paper by Kilty and Elliott² [hereafter KE], U_K will be defined as the estimated number of Talpiot-like tombs that one would need to inspect in order to find one tomb (i.e. a hit) that had the same exact relevant names as are assumed to be in the Talpiot tomb.
- Second, borrowing from a paper by Freuerverger¹, U_F will be defined as the estimated number of Talpiot-like tombs that one would need to inspect in order to find one tomb (i.e. a hit) that had a set of names that are at least as surprising as the set of names assumed to be in the Talpiot tomb

The U statistic has intuitive appeal because it can be argued that in the only real world trial that we have, there has been only one tomb that has been as surprising as the Talpiot tomb and that is the Talpiot tomb. The question is, did that event arise by chance?

The U_K version of the statistic is appealing in its simplicity. It is computed as

$U_K = 1/p_K$, where p_K is the probability that a randomly drawn name-set for a Talpiot-like tomb will exactly match the relevant names assumed to be in the Talpiot tomb – see pages 12 – 14 of KE for a description of this calculation

However, Freuerverger points out that methods such as this suffer from three significant problems: 1) they are not specified a priori, 2) the computational method allows some name combinations that are not likely to occur in the real world [e.g. fathers and sons should not have identical names] and most importantly 3) there are other combinations of names, other than the exact list found in the Talpiot tomb, that would have attracted the same level of attention (i.e. surprise).

This motivates us to calculate a statistic U_F as follows:

$U_F = 1/p_F$, where p_F is the probability that a randomly drawn name-set for a Talpiot-like tomb will exceed a threshold of “surprisingness” which is set equal to the surprisingness of the name set assumed to be in the Talpiot tomb – see pages 35 - 43 of Freuerverger for a description of how one computes “surprisingness” and detects when a randomly drawn name set exceeds this threshold.

A result of Freuerverger’s definition of the “surprisingness” threshold is that p_F will always be larger than p_K and consequently U_F will always be smaller (i.e. more conservative) than U_K .

Even though KE, as well as others, have pointed out some issues with the Freuerverger approach, it is the author’s conclusion that it is still the best method available for the question at hand. Therefore, the U_K values will only be offered for comparison purposes.

Both methods of computing U require us to make an assumption as to which relevant names are actually to be found in the Talpiot tomb. This is the subject of widespread and strenuous debate, as shown in both KE and Freuerverger.

KE show results for two assumed name sets:

<u>K&E 1</u>	<u>K&E 2</u>
Yeshua bar Yosef	Yeshua bar Yosef
Yosef	Yoseh
Mariam	Mariam

Freuerverger assumes that the relevant names present in the tomb are:

Yeshua bar Yosef
Yoseh
Marya
Mariamne

This paper will present results from eight scenarios which use a variety of possible relevant name sets, including the three scenarios shown above. The specifications for these eight scenarios are shown in Table 1b. The reader will notice that using different forms of names (e.g. Yoseh vs Yosef) leads to different scenarios.

In order to compute U_F (but not U_K) we need to make one additional assumption. We need to identify names that are “relevant”, but not already assumed to be in the tomb. That is, they would contribute to “surprisingness” if they were to be found in a Talpiot-

like tomb. For this paper we assume that Yaakov will be the only such relevant name added into every scenario. The results will also be shown with and without the name Cleopas added. Departing from Freuerverger, no additional females (e.g. possible sisters of Yeshua, such as Salome) are included.

In his paper Freuerverger offers several possible adjustments for computing “surprisingness”. None of these have been adopted. However, in order for a name set to be considered at least as surprising as the name combination in the Talpiot tomb the following inclusion rules have been adopted:

1. There must be a Yeshua in the name set
2. Fathers and sons can not have exactly the same name
3. The two females in the tomb can not have the same exact name
4. The two unrelated males assumed to be present can not have the same exact name

Results

The results for both methods under all scenarios are shown in Table 1a. Some general observations can be made about these results.

- The scenarios (1 – 5) are arranged in increasing order of U . That is, they are arranged in increasing order of the number of Talpiot-like tombs one would need to inspect in order to get one hit. This progression occurs because each successive scenario either adds a new name assumed to be present in the Talpiot tomb or it uses a less common rendition of a relevant name
 - The reader will note that U varies greatly across these scenarios
- As expected, within a given scenario, the U_K method always generates a larger value for U than the U_F method
- Also as expected, within a given scenario for the U_F method, adding Cleopas always yields a smaller value of U than when it is excluded

Following are some of the highlights from Table 1a. In each item below we will use the most conservative result for each scenario, which is always the U_F method including Cleopas in the name set.

- KE develop two scenarios in their article. They are shown as scenarios 1 and 2 in Table 1a. We see that one would need to inspect 238 Talpiot-like tombs under scenario 1 and 897 tombs under scenario 2 in order to expect one hit.
- Freuerverger shows results for many scenarios but his paper focuses on a scenario similar to scenario 5. The key feature of scenario 5 is that Yoseh and Mariamne are assumed to be in the tomb. As expected, this results in a dramatically higher U value, as one would need to inspect 183,769 Talpiot-like tombs in order to expect one hit.
- In scenario 6, we add a key element to scenario 1. In this scenario we assume that the name set from the tomb includes “Yaakov, son of Yosef”. This is a rendering of a

portion of the disputed inscription on the so called James Ossuary that can probably be accepted by most critics.

- Of course, it is not a settled matter that this ossuary actually is from the Talpiot tomb, but it is interesting to observe its impact on uncommonness if it could be placed there.
 - Using this assumption the U_F value for scenario 3 jumps dramatically from 238 to 64,576.
- Scenarios 7 & 8 are included only for comparison purposes. They represent names sets that most critics would accept as overly conservative. Still, even for these overly conservative scenarios the value of U is non-trivial.

Readers should be aware that the results shown in this paper will not exactly match those in KE, because in all cases the relative frequencies for individual names were taken from Freuerverger and they differ slightly from those presented in KE.

Discussion

One of the advantages of U , the “uncommonness” statistic, is that it lends itself to a straightforward intuitive interpretation. However, in order to give this measure more interpretability, KE suggest that the value of U be compared to the actual number of Talpiot-like tombs that could exist in the real world. They point out that the real world has produced exactly one tomb like the Talpiot tomb, so this should be a useful step.

So, how many Talpiot-like tombs are there? KE note that the Talpiot tomb has six inscribed ossuaries of which four contain males and two contain females. They estimate that there are about 30 tombs that meet this criterion, if you count both cataloged and non-cataloged ossuaries.

This is probably acceptable as a standard of comparison for U_K , but it does not work as well as a standard for U_F . This is because it is possible that smaller tombs can generate results of equal or greater surprisingness when compared to the Talpiot tomb.

Examination of the Rahmani catalog suggests that this criterion for judging the magnitude of U_F could be increased to about 100. That is any scenario that generates a value of U_F significantly greater than 100 – say 200, to be additionally conservative - should be considered uncommon.

Scenarios 1 - 6 all exceed this criterion. All except scenario 1 exceed it by a substantial amount. Recall that scenario 1 takes the highly conservative position that the only names that one can place in the Talpiot tomb are: Yeshua bar Yosef, Yosef and Mariam.

Conclusion

Unless one adopts a very conservative position regarding the names found in the Talpiot Tomb, it seems clear that names from the tomb did not arise due to chance combination of individually common names.

The reader must guard against over-interpreting this result. This analysis does not tell us what non-random process gave rise to the Talpiot tomb names. In particular, we can not use the above analysis to say whether or not the Talpiot tomb is the family tomb of

Jesus of Nazareth. Addressing that question would require an added analysis step which this author finds problematic – see Lutgen³. Also since this result was not achieved as a result of a designed experiment, we need to be careful that our thinking about this result does not get contaminated by unintended biases.

Table 1a. How common are the names in the Talpiot Tomb?

	Scenarios						Comparison only	
	(K&E_1) S1	(K&E_2) S2	S3	S4	(~Freuerverger) S5	(S1 + YbY) S6	S7	S8
	U --> Number of Talpiot-like tombs to expect Hits = 1							
U _K	1,630	7,987	16,645	97,366	2,920,968	255,464	84	314
U _F w/o Cleopas	279	1,080	2,270	16,220	385,482	128,698	22	44
U _F w/ Cleopas	238	897	1,617	6,468	183,769	64,576	21	42

~Freuerverger: Drops Freuerverger's assumption that Salome is a relevant name

Table 1b: Scenarios for computing U		Scenarios							
p	Name (in = 1, out = 0)	(K&E_1) S1	(K&E_2) S2	S3	S4	(~Freuerverger) S5	S1 w/7b S6	S7	S8
1a	4.03% Yeshua	0	0	0	0	0	0	0	0
1b	0.30% Yeshua bar Yohosef	1	1	1	1	1	1	1	1
2a	15.92% Mariam	1	1	0	0	0	1	0	1
2b	6.90% Marya	0	0	1	1	1	0	0	0
3a	7.47% Yohosef	1	0	0	0	0	1	0	0
3b	1.34% Yose	0	1	1	1	1	0	0	0
4a	6.82% Yehuda	0	0	0	0	0	0	0	0
4b	0.27% Yehuda bar Yeshua	0	0	0	0	0	0	0	0
5	2.47% Matya	0	0	0	0	0	0	0	0
6a	15.92% Mariam	0	0	0	1	0	0	0	0
6b	0.53% Mariamene	0	0	0	0	1	0	0	0
7a	1.71% Yaakov	0	0	0	0	0	0	0	0
7b	0.13% Yaakov bar Yohosef	0	0	0	0	0	1	0	0
7c	0.01% Yaakov bar Yohosef akhuyd Yeshua (sp?)	0	0	0	0	0	0	0	0
Other - Women		84.08%	84.08%	93.10%	77.19%	92.57%	84.08%	100.00%	84.08%
Other - Men		92.23%	98.36%	98.36%	98.36%	98.36%	92.10%	99.70%	99.70%
Tomb - Number of Women Inscribed		2	2	2	2	2	2	2	2
Configuration Number of Men - Inscribed		4	4	4	4	4	5	4	4
Family Number of Women - Named		1	1	1	2	2	1	0	1
Names Number of Men - Named		2	2	2	2	2	3	1	1

References

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