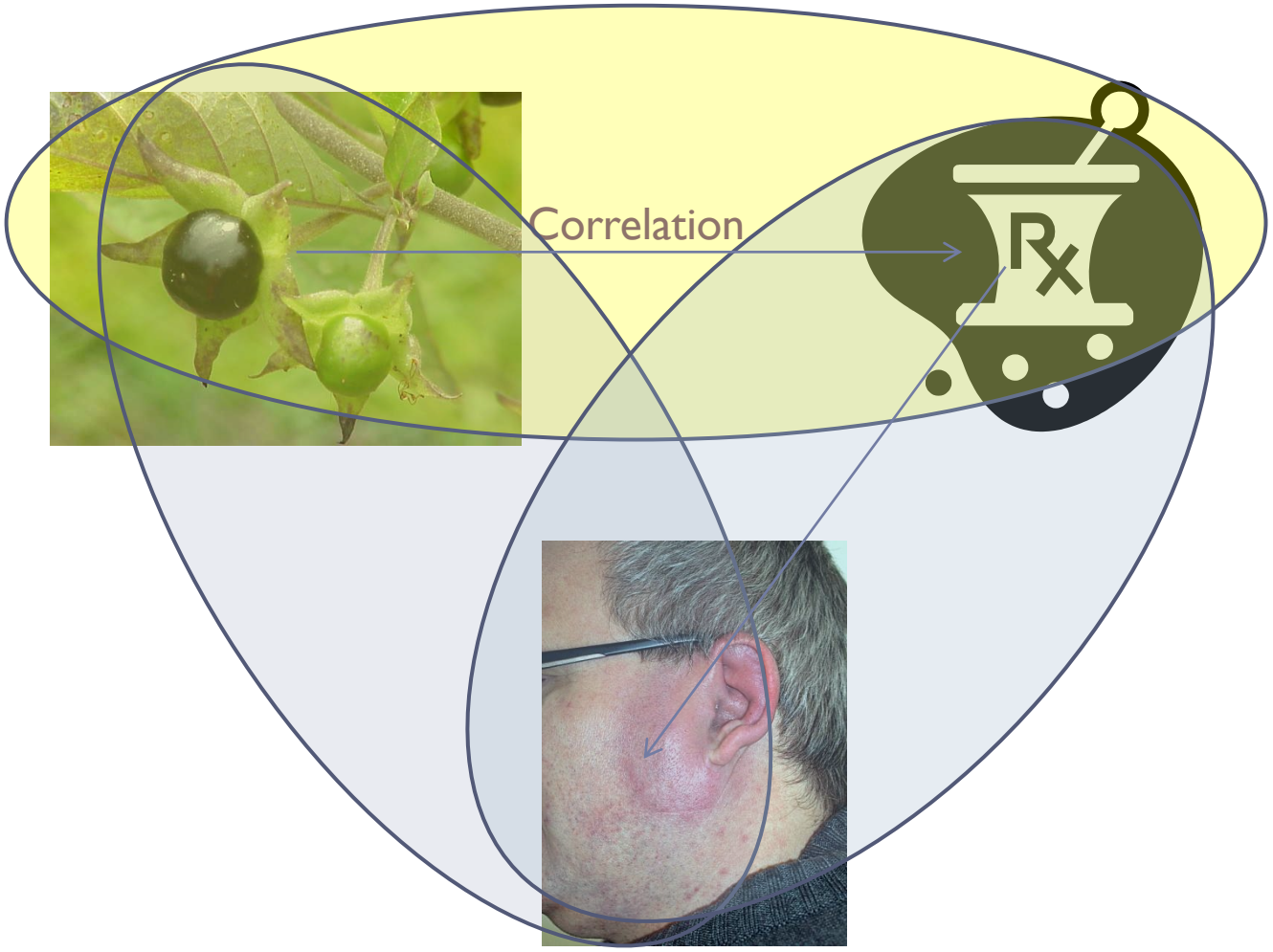
Non-Local Model of Homeopathy

Relationship via a correlation that is

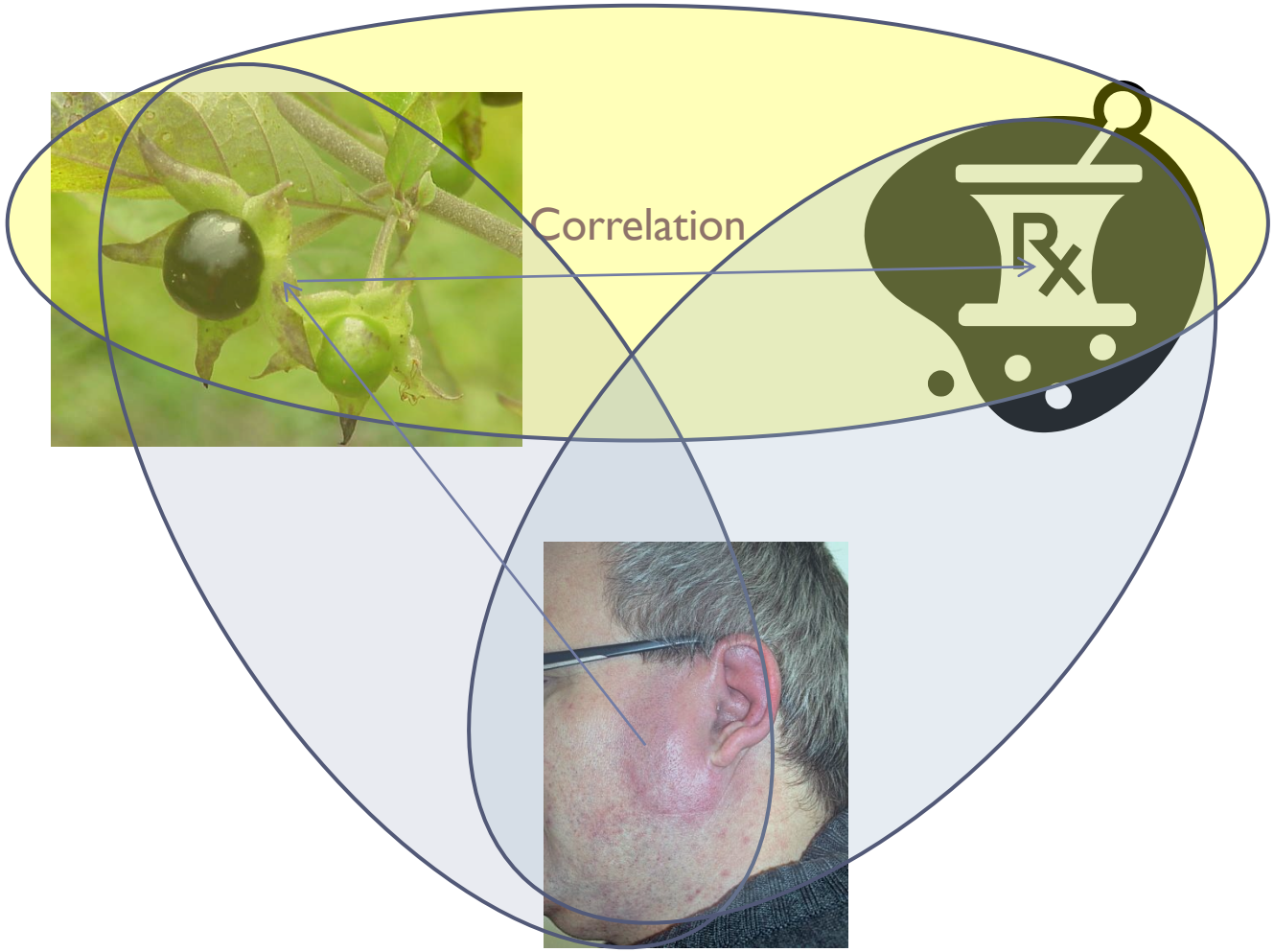
- regular, yet not causal
- non-local
- set up by the therapeutic ritual

Walach (2003) Entanglement Model of homeopathy
Forschende Komplementärmedizin 10: 192

Triple Correlation between Substance, Remedy and Symptom: From Proving to Materia Medica

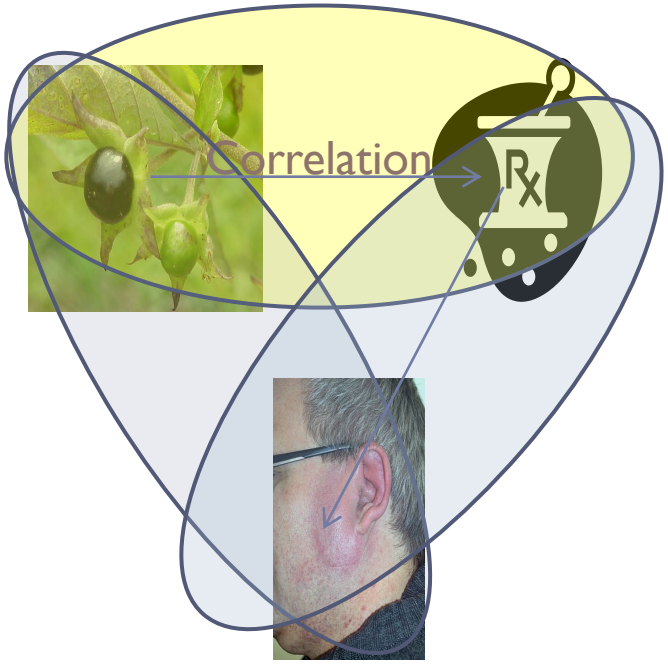


Triple Correlation between Substance, Remedy and Symptom: From Symptom to Remedy (and ideally: Cure)

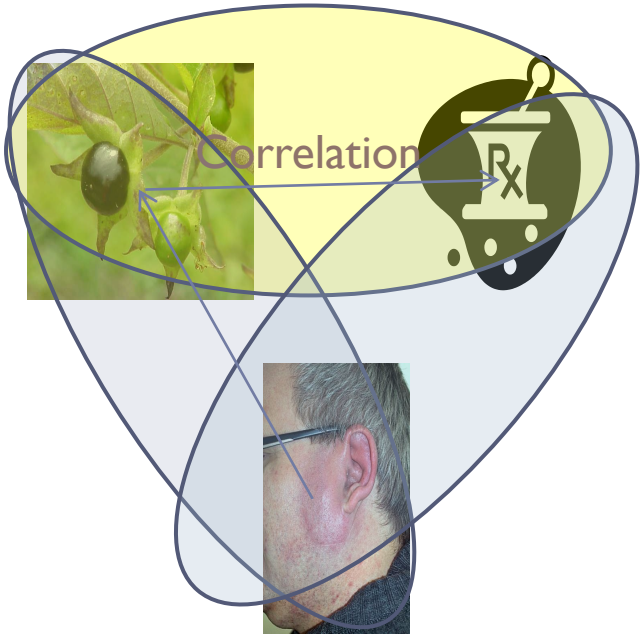


A Double Correlation Mediated by the Smilia Principle

Proving and Production:
From substance to symptoms

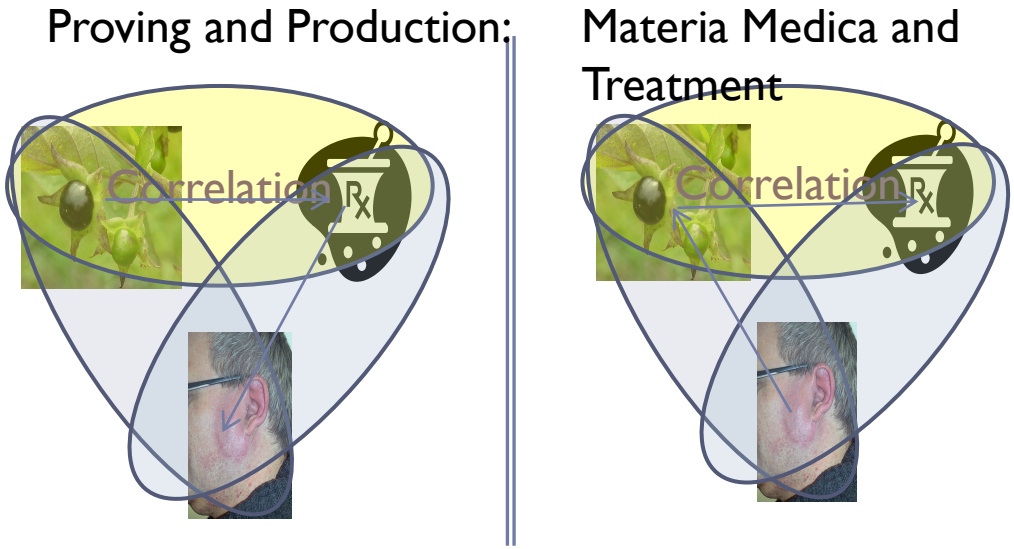


Materia Medica and Treatment
From symptom to remedy



Similia Principle

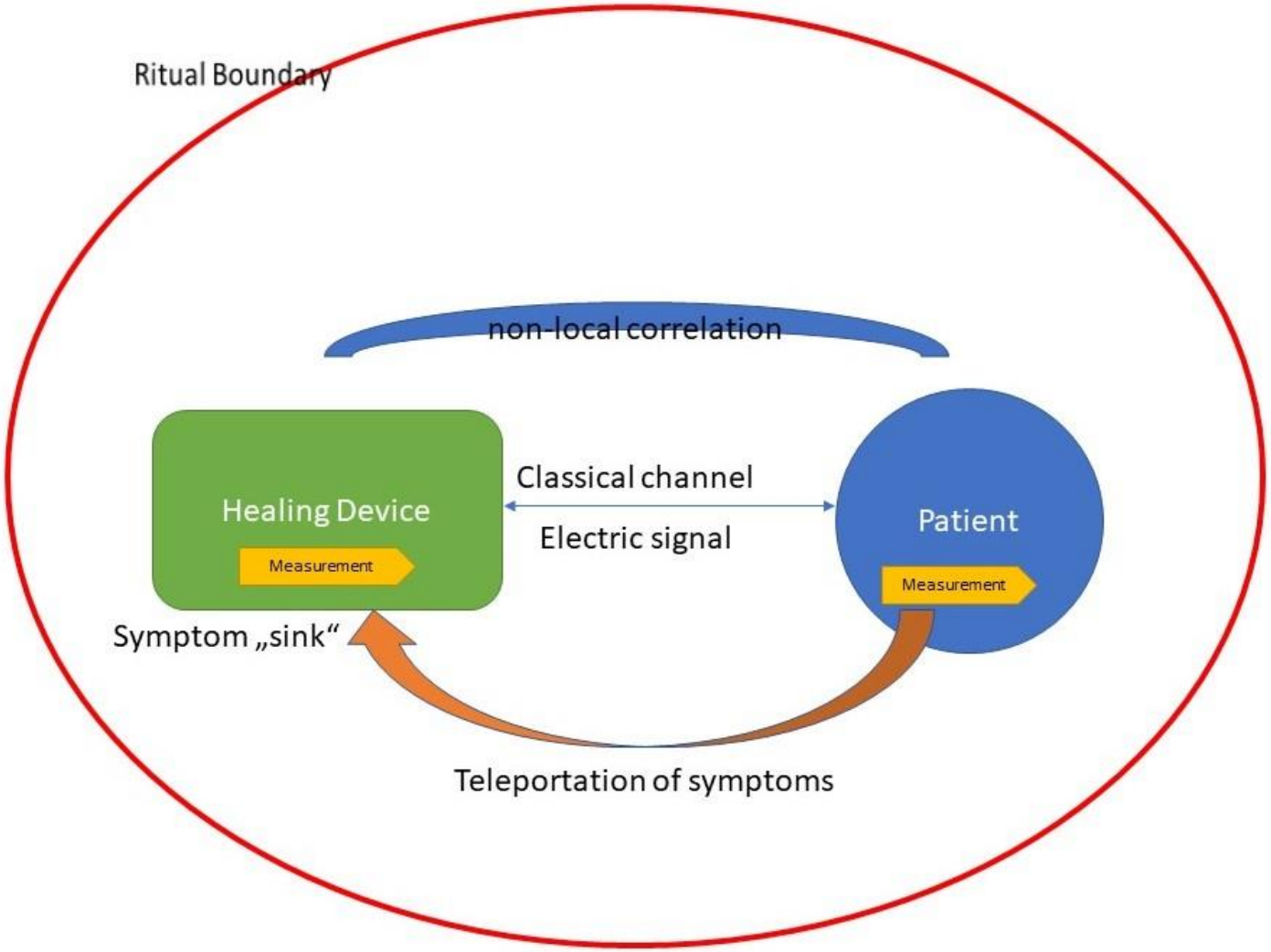
Absorption of Symptoms via Teleportation



Homeopathy and other instances of non-local healing

- Macroscopic analogue to quantum teleportation:
  - Either symptoms are drained into a „symptom sink“
    - In homeopathy the Materia Medica
  - Or some beneficial state is elicited
    - „Energy“ healing, intentional healin

Generic Principle of a Teleportation System

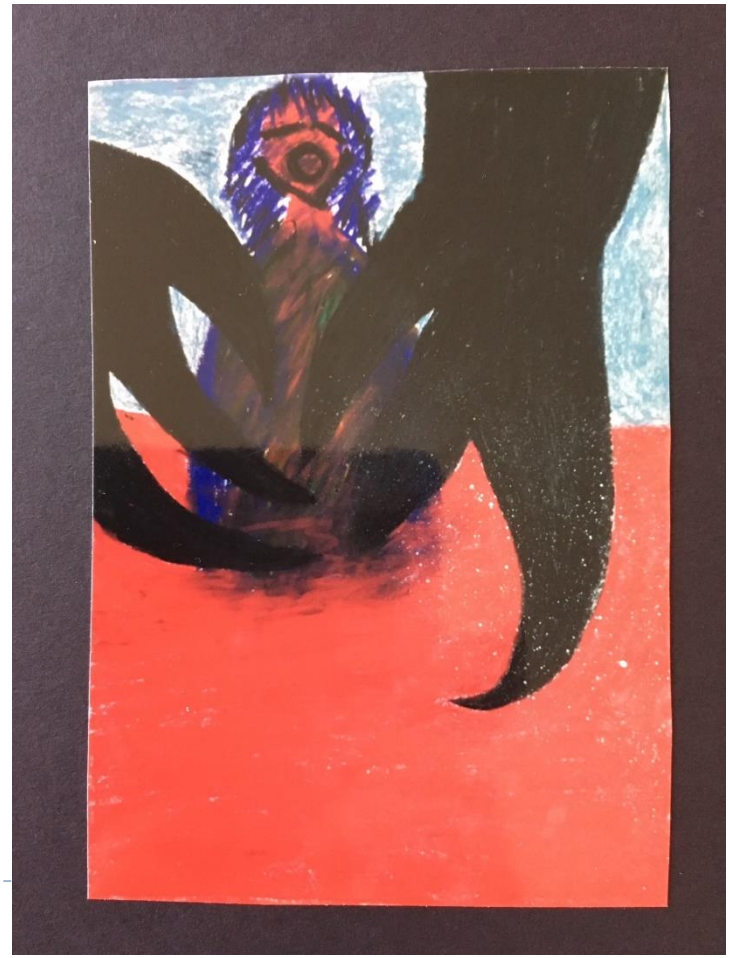


Application of this principle…

- in therapeutic rituals, in ritual healing and magic, as well as in religious rituals
  - For instance marriage rituals
- In psychotherapeutic rituals:
  - Burning, drowning, burying of important landmarks or symbols of trauma and hurt

Understanding of Traumatic Entanglement of Victims with Perpetrators

- In psychotherapy we often see entanglement of victims with perpetrators in traumatic stress and post-traumatic syndromes
- The perpetrator is still „present“
  - „He has taken part of my soul“
  - „He is still clinging on“



Understanding of Difficulties in Divorced Couples

- Often emotional ties are difficult to separate despite mutual will
  - Non-local connection due to the marriage ritual (?)
  - Perhaps a separation ritual is needed, as present in some religions

Theoretical Model for Some Parapsychological Phenomena

- Remote Viewing:
  - Someone reports what is happening in a place where he or she has never been (according to coordinates, according to a link with a target person)

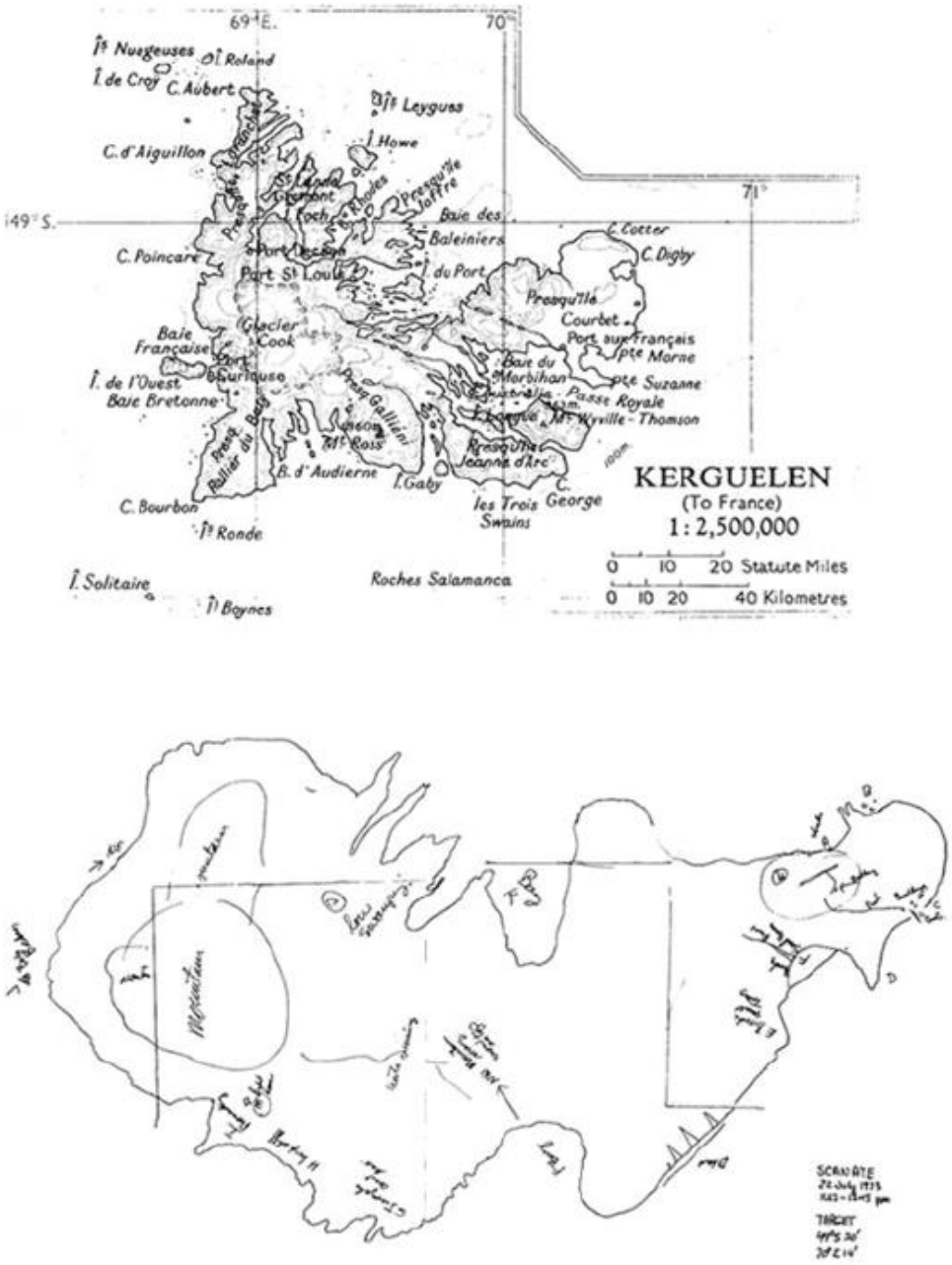


Figure 2. Kerguelen Island map and Swann's remote viewing sketch.

RV of Archeological Site Marea in Egypt
(Schwartz JSE 2019 33:451)

Figure 6. So that there would be no unclarity about exactly where the remote viewers meant the dig to be located, as well as to fix the location of corners and a door, McMullen (left) directed the placement of wooden stakes.

Figure 8. Within inches of the depth predicted, walls appeared. It was also possible to see there were multiple rooms, and that Hammid's strange column was in fact exactly where she had described it.

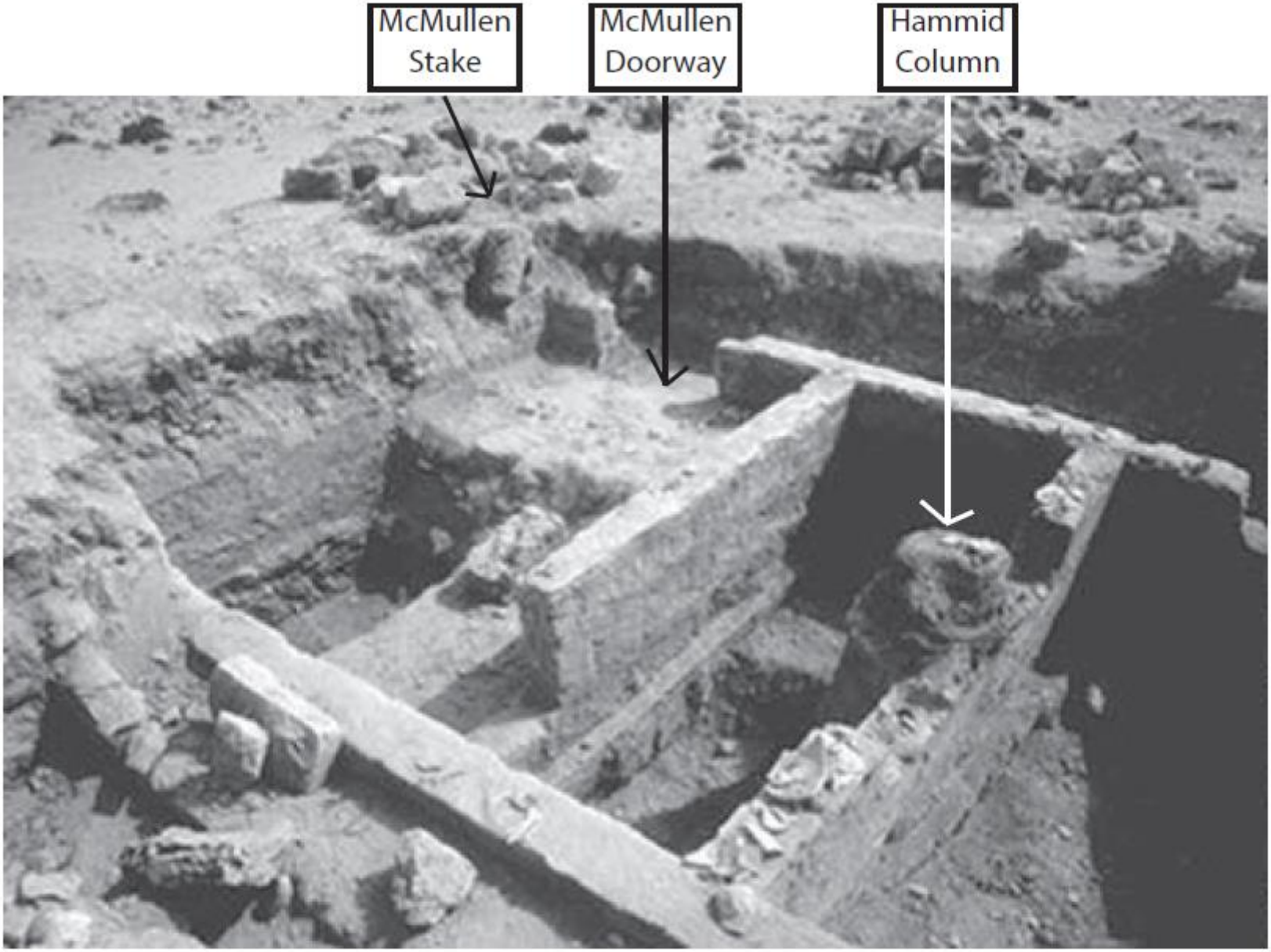


Figure 10. Dig in its final phase, showing all three rooms, doorways, ledges, and Hammid's "column."

Theoretical Reconstruction of PSI Phenomena

- Walach, H., Lucadou, W. v., & Römer, H. (2014). Parapsychological phenomena as examples of generalized non-local correlations - A theoretical framework. *Journal of Scientific Exploration, 28, 605-631.*
- Ritually closed system
  - The remote viewer and his target, combined via intention and conscious effort: Organisational closure
  - Incompatibility between connectedness (global observable) between the remote viewer and ist object and separation
  - Sets up a non-local correlation

Super-Coordination in Natural Systems

- In an organism
  - Hyperfast coordination of reactions across distances
    - Binding problem in neuroscience solved elegantly
    - Fast immunological recognition of antigenes
    - Would also lend itself to empirical tests
- Across organisms
  - Cooperative macroscopic behaviors
  - Understanding of evolutionary synergisms?
  - Mass-phenomena of coordination

Mixed Modes

- In natural system non-local and causal processes are nearly always mixed and combined
- Pure processes are very rare (experimental purification)
- Teleportation processes need a classical channel

NICE MODEL BUT IS IT TRUE?

Experimental Challenge

- Can there be a direct or indirect proof of the concept, except anecdotal or qualitative evidence?

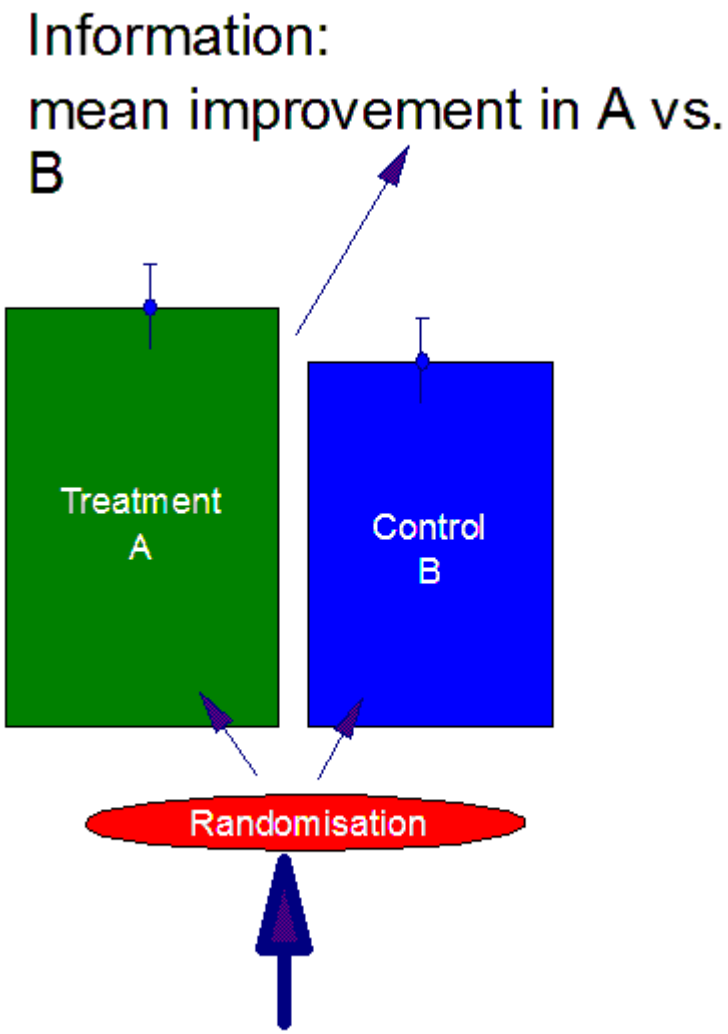
Challenge

- To circumvent the NT-Theorem: (Lucadou, Römer & Walach (2007) J Consc Stud 14(4) 50-74)
  - Generalised Entanglement Correlations must not be used as causal signals. If they are used as such they break down or change channels
    - Relevant for all replications

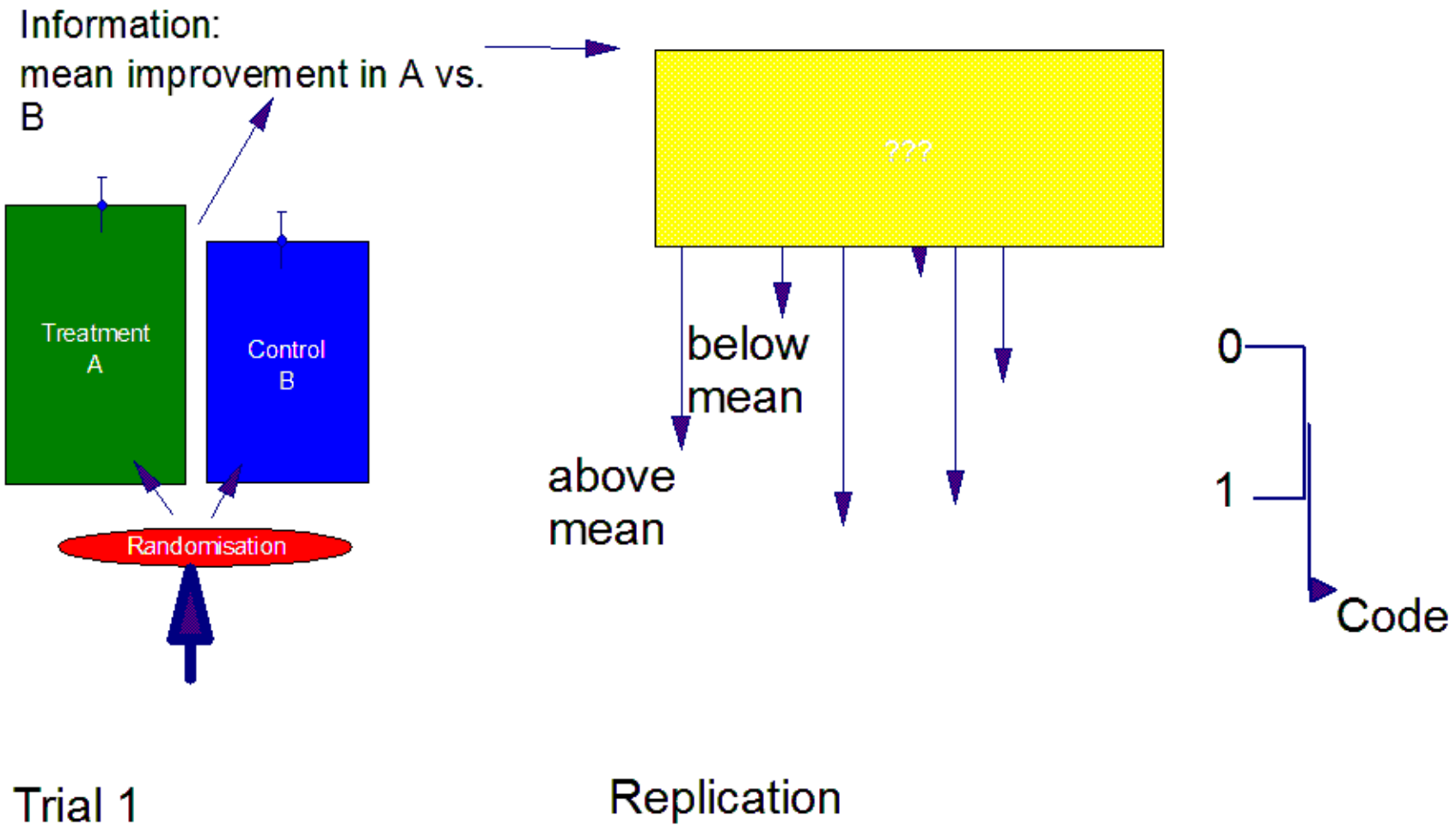
Experimental Test and Challenge

- To circumvent the NT-Theorem: (Lucadou, Römer & Walach (2007) J Consc Stud 14(4) 50-74)
  - Generalised Entanglement Correlations must not be used as causal signals. If they are used as such they break down or change channels
    - Relevant for all replications
- In QT proper entanglement correlations are tested by simple observations compared against a theoretical distribution (Bell-inequalities)
- But how to test for generalised entanglement correlations without violating the boundary conditions of non-signalling?

Experimental Studies are Cause Detectors…

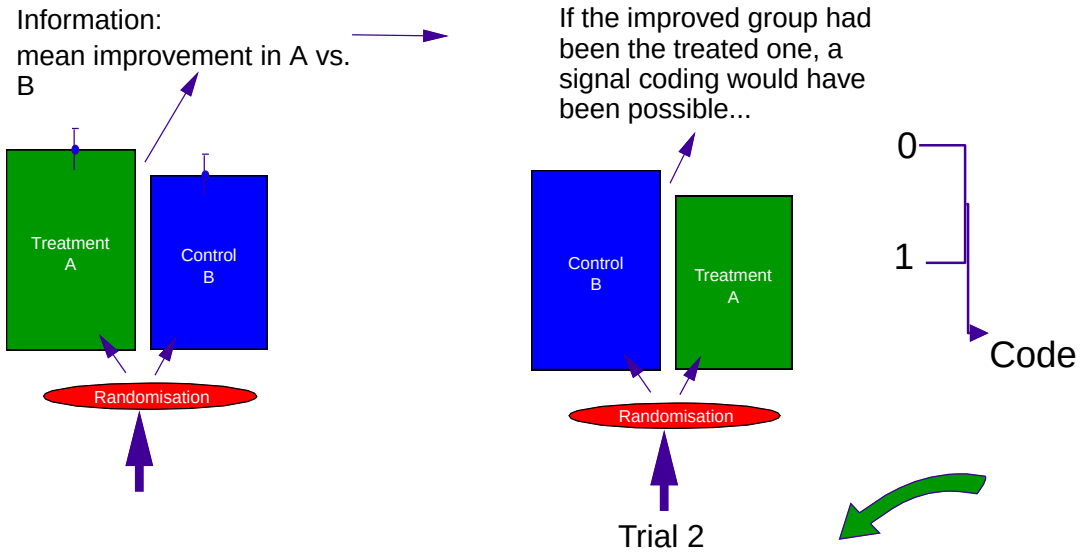


… that allow for signal coding



Hence replications often fail

Hence replications often fail...



Trial 1

... that could in principle violate special relativity & could be used to transmit a signal faster than light

Hence: Signal Transmission Prohibition Theorem (NT-Theorem)

Possible Solutions?

- Find an analogue to the physical Bell-test, i.e. a theoretical distribution whose violation is proof enough
  - For this the theory is not precise enough
- Find an experimental model that will preclude signal transmission
  - We tried that (below), but likely impossible
- Find natural instances of generalised entanglement and use those
  - Physiology: Is there faster than light communication in the body?
    - Immune reactions?
    - Neurological coordination (speed of reactions should be larger than speed of transmission)?

Possible Solutions? - 2

- Systemic constellation work:
  - Participants stand for elements of natural systems (families, companies, etc.)
  - Participatory perception
  - Participatory change
- Document changes in reality

Possible Solutions - 3

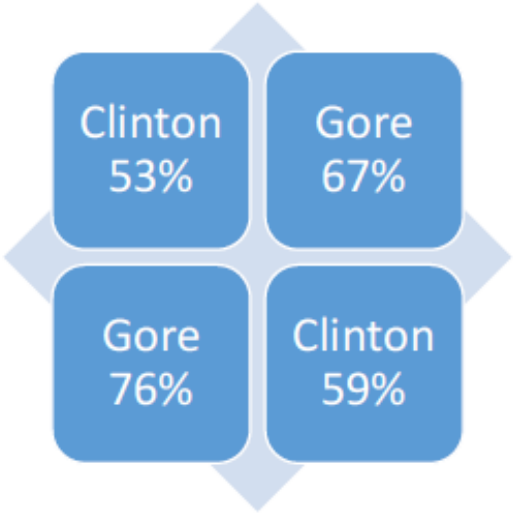
- Study the prediction that animals use generalised entanglement to coordinate their actions
  - Cooperation in ants
    - Experimentally study cooperative behavior, perhaps destroying distant senses such as smell and see whethey they still cooperate
  - Mathematically study the speed of evolutionary adaptation including terms for entanglement correlations

Possible Solutions - 4

- Study the non-local effect of rituals in clinical contexts with an open control
  - For instance, cancer patients after surgery, whose cancer is purposefully and ritually destroyed, should recover better and have longer disease free survival than others
    - Randomized, but only partially blinded

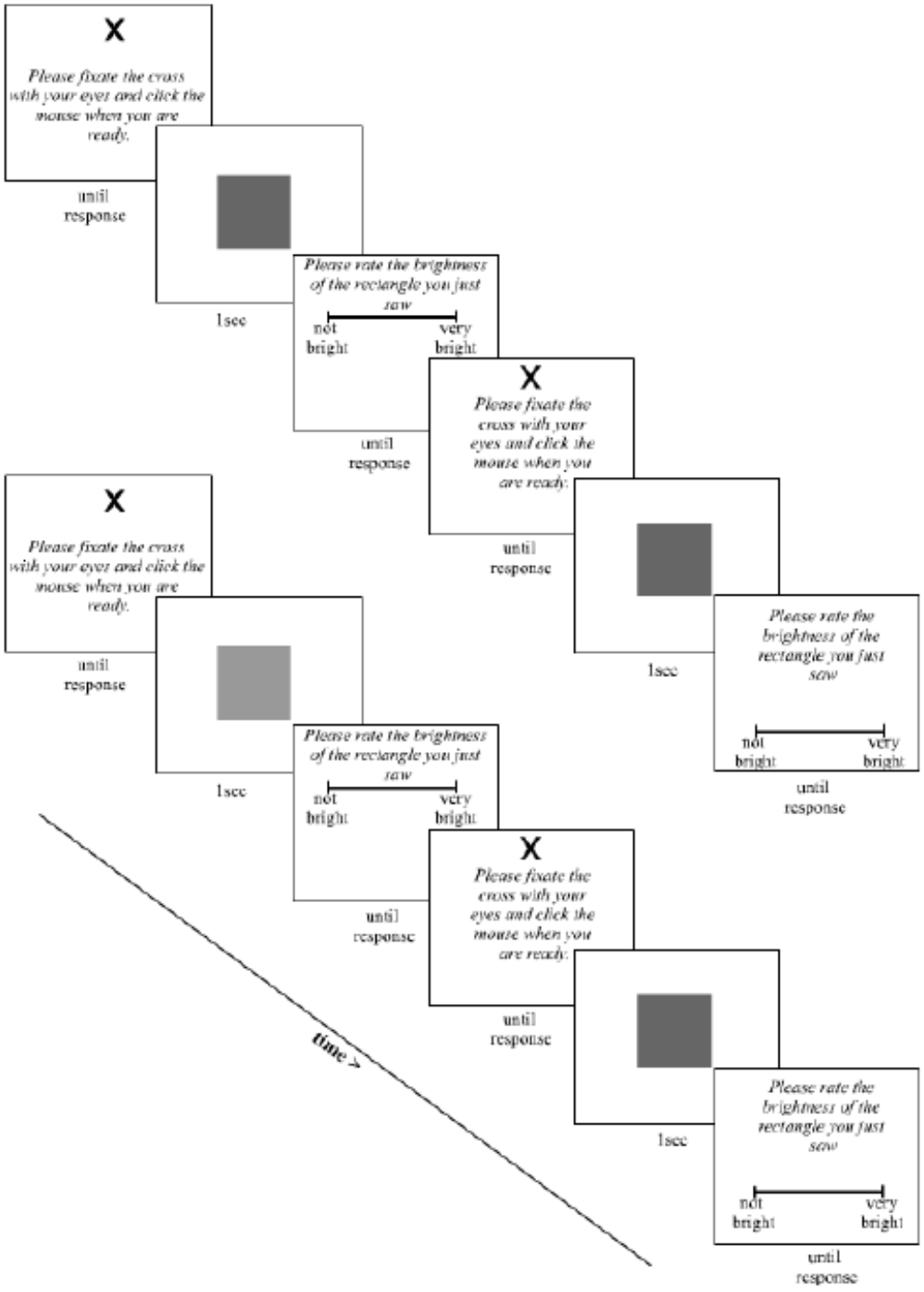
Possible Solutions - 5

- Stude position effects in cognition research
- e.g. PhD thesis of Christopher Germann (PhD Psychology Plymouth) https://christopher-germann.de/phd-dissertation/
- Non-commutativity in attitudinal decisions



Possible Solutions – 5 (ctd)

- Non-commutativity in cognitive or perceptual phenomena
  - Decisions on luminosity in an experimental set-up

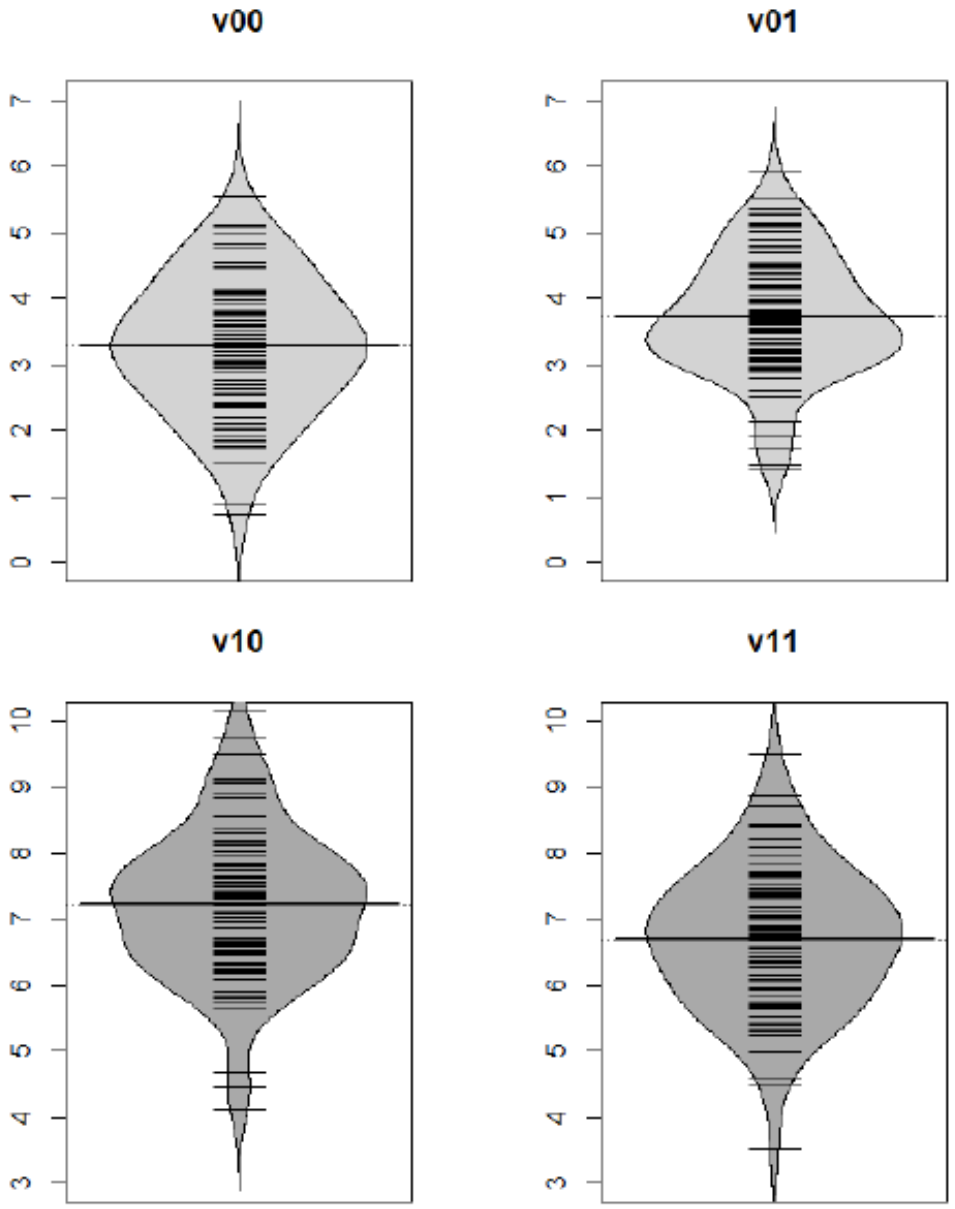

X
Please fixate the cross with your eyes and click the mouse when you are ready.
until response
1sec
Please rate the brightness of the rectangle you just saw
not bright
very bright
until response
X
Please fixate the cross with your eyes and click the mouse when you are ready.
until response
X
Please fixate the cross with your eyes and click the mouse when you are ready.
until response
1sec
Please rate the brightness of the rectangle you just saw
not bright
very bright
until response
X
Please fixate the cross with your eyes and click the mouse when you are ready.
until response
1sec
Please rate the brightness of the rectangle you just saw
not bright
very bright
until response
time

Results

Table 1

Descriptive statistics for experimental conditions.

	N	Mean	SD	SE
v00	82	3.290	1.010	0.112
v10	82	3.710	0.930	0.103
v01	82	7.220	1.130	0.125
v11	82	6.690	1.070	0.118



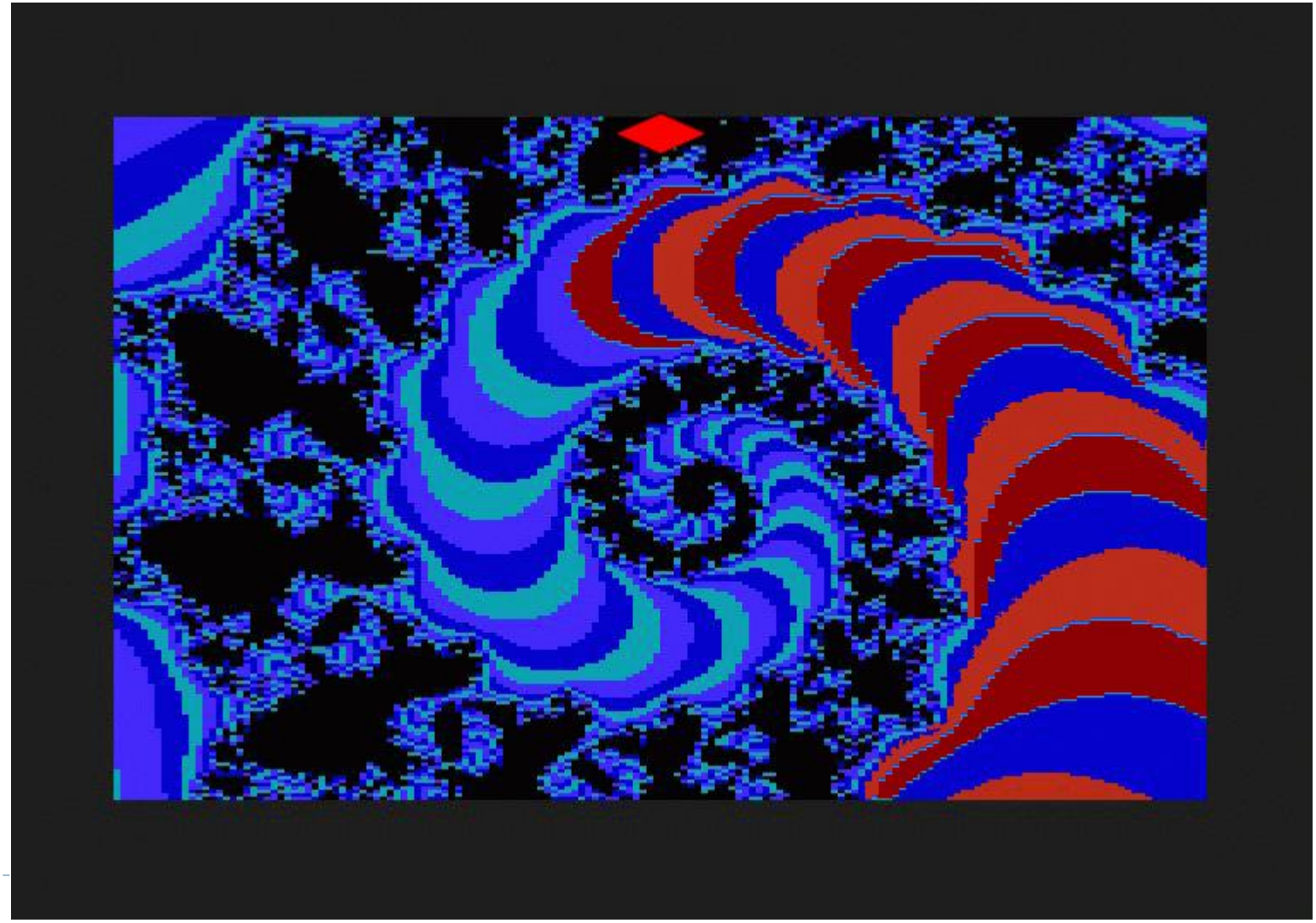
Another Potential Possible Solution: The Matrix Experiment

- Designed by Walter von Lucadou to obey the framework conditions
- No signal-coding possible
- Three (four) replications positive previously
- New experiment:
  - Follow as closely procedures used previously (display, program, stats)
  - Reengineer hardware
  - Predefine protocol, runs and numbers and stipulate analysis

New Experiment

- Principal setup of a micro PK experiment:
  - Zener diode drives random event generator (REG)
  - Random events are sampled via a Markov chain parsing (no Xoring!)
  - REG drives display (growing or shrinking fractal)
  - Participants are instructed to „intentionally change the growing or shrinking of the fractal according to instructions that appear on the screen“ (as arrows directed right, left, or middle)

Sample of Display



Difference to Standard PK Experiments

- NO targeting of random deviation directly
- Extraction of 5 physical variables and 5 psychological variables per run
- 3 runs per instruction (deviate right, left, keep centered), thus 9 runs forming an experiment
- Yielding a matrix of (9*5 physical) * (9*5 psychological) variables
  - 45 physical * 45 psychological variables
  - 2025 cell matrix of potential correlations

Variables

- Physical variables
  - Average deviation from randomness
  - Maximum deviation from target
  - Deviation of Markov process from ideal Markov chain behavior
  - Average voltage at REG output (#7)
  - Variance of voltage at REG output (#7)
- Psychological variables
  - Number of right shift-key presses
  - Number of left shift-key presses
  - Number of double key presses
  - Average time between key presses (i.e. speed of experiment)
  - Variance of time between key presses (i.e. stability of behavior)

Target

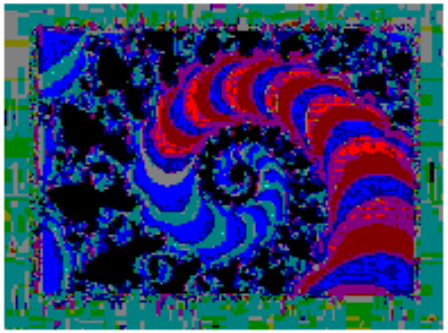
- Number of significant correlations
  - Between physical and psychological variables
  - Across all participants and experiments
- Significance level set to $p = 0.1$ (two-sided) or $p = 0.05$ (one-sided)
  - Because of the history of the experiment
- Other significance levels used for sensitivity analysis

Controls

- 1: Chance expectation
- 2: Control experiment
  - After each real experiment
    - Empty run by the system
      - Collects physical variables
    - Matched with psychological variables of the immediate predecessor experiment
  - In order to control for potential artefacts, dependency of data and potential causal correlations
- Other safeguards:
  - Protocol deposited before start of experiment
  - Prespecified Number of experiments or time

Summary of Experiment

Display of sampled information

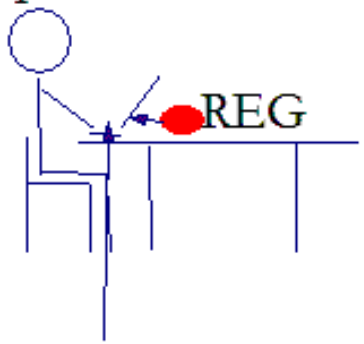


keep in middle

move right

move left

Participant



experiment is moved forward by key-presses

right, left, both

80 trials per sub-run
3 instructions per run

3 runs per experiment

physical variables

psychological variables

correlations

Study 1 (Walach, Horan, Lucadou, 2012/13)

- 243 participants did 503 experiments
  - 103 experiments by Walter von Lucadou
  - 400 experiments by Majella Horan
- Various settings:
  - Mostly:
    - Conferences
    - Seminars
    - Courses
  - Single participants coming to the lab
  - Few participants tested in their home
- Time taken: ca. 15-20 minutes per experiment

Exact Replications by Ana B. Flores

- **1st Study - 2016**
- **44 Participants** did **213 experiments**
- (ages between 23 & 80 years old)
- **2nd Study - 2017**
- **105 Participants did 200 experiments**
- (ages between 16 & 70 years old)
- Setting: friendly; colleagues and friends
- New: Programming of software, evaluation programme in R

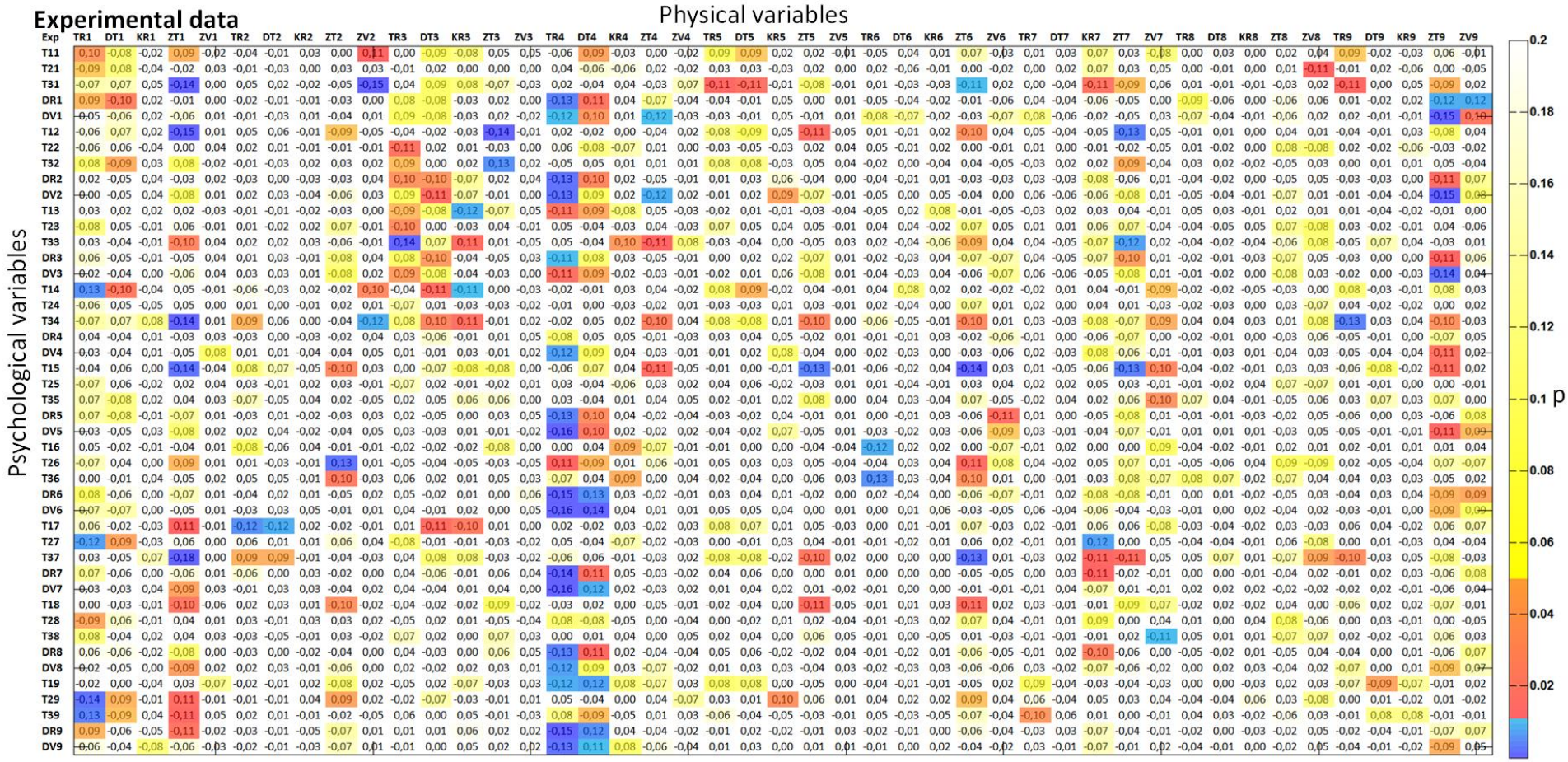
Evaluation

- Non-parametric
  - Using Monte-Carlo analysis
    - 10.000 randomly populated matrices
    - How often do the numbers of significant correlations detected by the experiment occur by chance?
  - True p = n(simulated significant correlations/10.000)

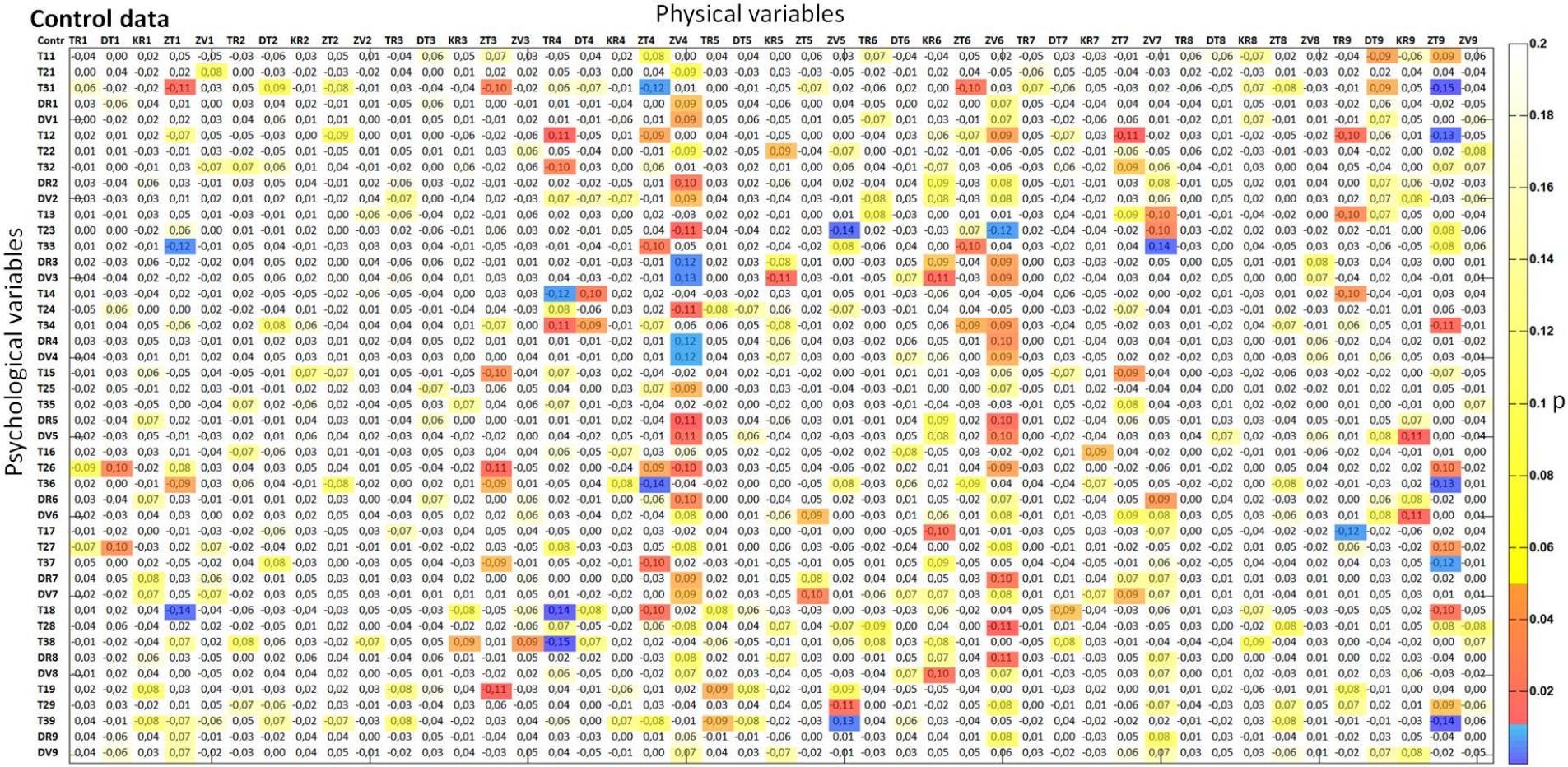
Results Original Replication

STUDY 1

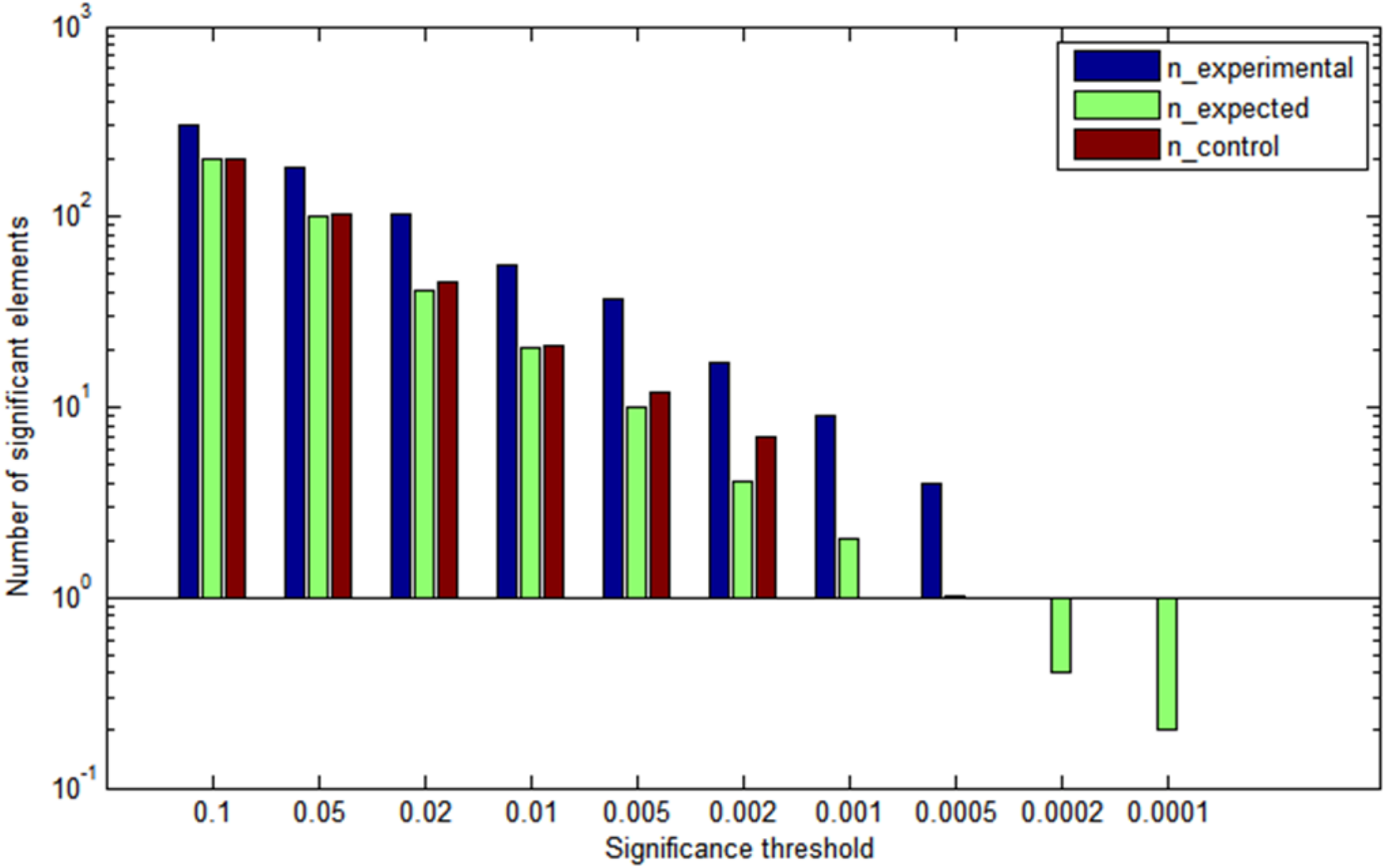
Results Experimental Matrix



Results Control Matrix



Sensitivity Analysis: Other Significance Thresholds



Radomisation Test using $D = CE - CD$

45x45

idx=2	45x45	alle								
iter=10000	sig_th	0,1	0,05	0,02	0,01	0,005	0,002	0,001	0,0005	0,0002	0,0001
full	z0	107,00	76,00	57,00	35,00	25,00	10,00	8,00	4,00	1,00	1,00
full	n_sim	177	169	47	78	73	287	162	276	696	341
full	p_sim	0,0177	0,0169	0,0047	0,0078	0,0073	0,0287	0,0162	0,0276	0,0696	0,0341
part	z0_part	52,00	20,00	19,00	8,00	7,00	3,00	2,00	0,00	0,00	0,00
part	n_part_sim	341	1409	493	1233	687	938	773	2288	1194	681
part	p_part_sim	0,0341	0,1409	0,0493	0,1233	0,0687	0,0938	0,0773	0,2288	0,1194	0,0681

27x45

idx=3	27x45	alle								
iter=10000	sig_th	0,1	0,05	0,02	0,01	0,005	0,002	0,001	0,0005	0,0002	0,0001
full	z0	95,00	69,00	43,00	29,00	18,00	6,00	5,00	3,00	0,00	0,00
full	n_sim	87	76	75	91	130	471	258	275	1343	784
full	p_sim	0,0087	0,0076	0,0075	0,0091	0,013	0,0471	0,0258	0,0275	0,1343	0,0784
part	z0_part	36,00	14,00	8,00	4,00	4,00	0,00	0,00	0,00	0,00	0,00
part	n_part_sim	532	1725	1564	1922	1014	3309	2380	1481	706	398
part	p_part_sim	0,0532	0,1725	0,1564	0,1922	0,1014	0,3309	0,238	0,1481	0,0706	0,0398

18x27

idx=4	18x27	alle								
iter=10000	sig_th	0,1	0,05	0,02	0,01	0,005	0,002	0,001	0,0005	0,0002	0,0001
full	z0	30,00	20,00	15,00	17,00	12,00	5,00	5,00	3,00	0,00	0,00
full	n_sim	782	828	455	93	103	229	98	96	591	318
full	p_sim	0,0782	0,0828	0,0455	0,0093	0,0103	0,0229	0,0098	0,0096	0,0591	0,0318
part	z0_part	8,00	-1,00	0,00	3,00	3,00	0,00	0,00	0,00	0,00	0,00
part	n_part_sim	2330	5199	4439	1180	564	2023	1264	691	299	156
part	p_part_sim	0,233	0,5199	0,4439	0,118	0,0564	0,2023	0,1264	0,0691	0,0299	0,0156

Sensitivity Analysis

- Results stable across various significance levels
- Results stable also in time-forward (upper part) of the matrix
  - In the classical analysis following the protocol
- Results also significant with smaller matrices, matching the old analysis
  - In full only in the classical analysis

Results

REPLICATIONS: STUDY 2 & 3

44 participants 213 sessions

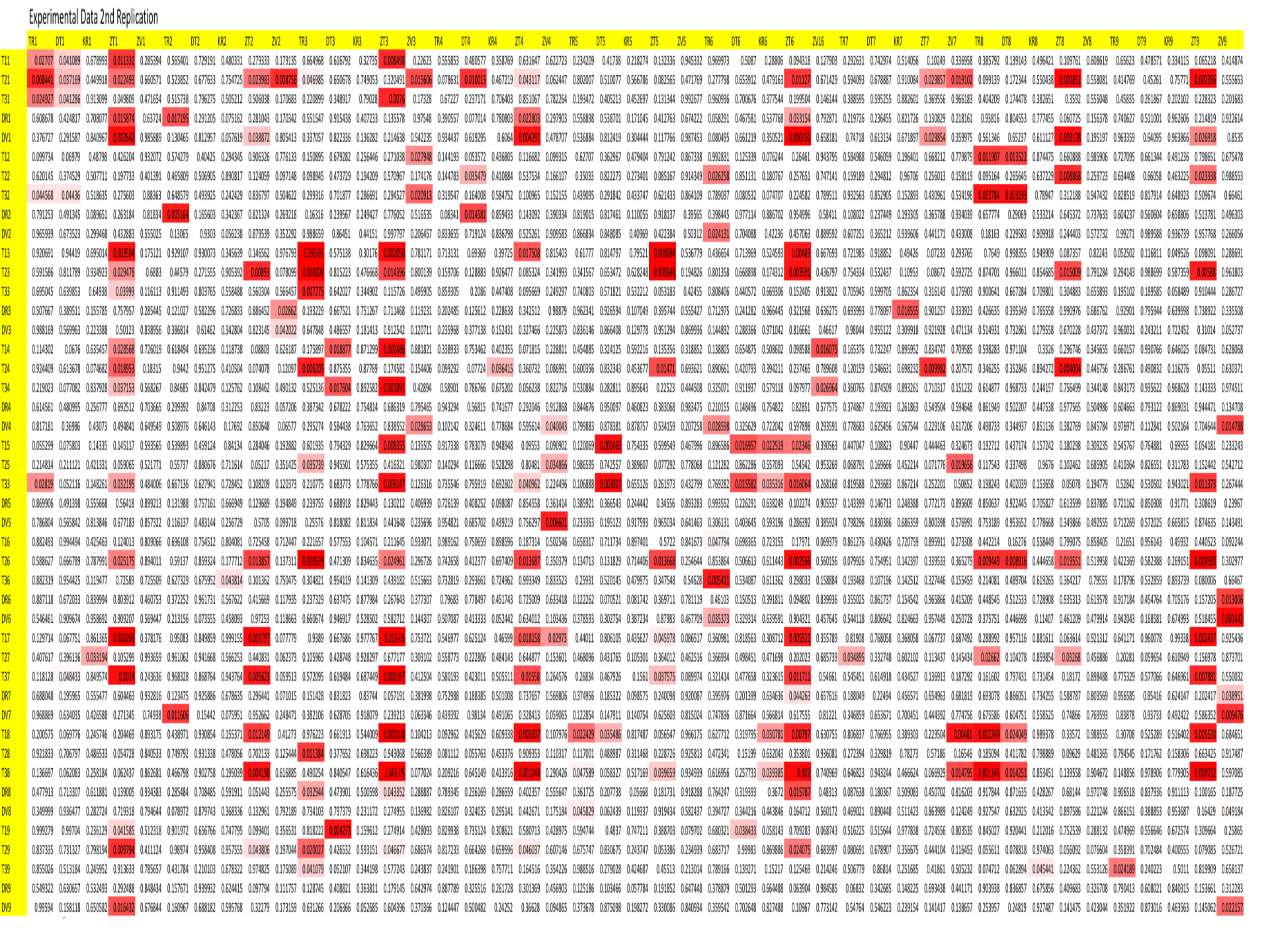
All Matrix **1st Replication**	P 0.1	P 0.05	P 0.01	P 0.001
Experimental cor	365	226	78	21
Control cor	173	88	14	0
Number cells	2025	2025	2025	2025
Z=	**10.793**	**10.636**	**12.095**	**#######**

105 participants 200 sessions

All Matrix **2nd Replication**	P 0.1	P 0.05	P 0.01	P 0.001
Experimental cor	315	187	66	13
Control cor	205	108	23	2
Number cells	2025	2025	2025	2025
Z=	**5.7303**	**5.52461**	**6.34**	**5.5027**

Diagonal superior **1st Repl**	P 0.1	P 0.05	P 0.01	P 0.001
Experimental cor	170	106	29	5
Control cor	80	39	5	0
Number cells	900	900	900	900
Z=	**7.4541**	**7.7562**	**7.6106**	**#######**

Diagonal superior **2nd Rep**	P 0.1	P0.05	P 0.01	P 0.001
Experimental cor	123	72	28	5
Control cor	80	36	6	0
Number cells	900	900	900	900
Z=	**3.5614**	**4.33013**	**6.37213**	**#DIV/0!**


Experimental Data 2nd Replication

Control Data 2nd Replication

	TR1	DT1	KR1	ZT1	ZV1	TR2	DT2	KR2	ZT2	ZV2	TR3	DT3	KR3	ZT3	ZV3	TR4	DT4	KR4	ZT4	ZV4	TR5	DT5	KR5	ZT5	ZV5	TR6	DT6	KR6	ZT6	ZV16	TR7	DT7	KR7	ZT7	ZV7	TR8	DT8	KR8	ZT8	ZV8	TR9	DT9	KR9	ZT9	ZV9
T11	0.033484	0.084329	0.853375	0.036966	0.134001	0.856879	0.669944	0.280743	0.942767	0.604023	0.610229	0.811531	0.630954	0.480092	0.87214	0.359572	0.519835	0.410932	0.940204	0.129791	0.11223	0.367206	0.167583	0.749276	0.967661	0.893308	0.889375	0.102742	0.294819	0.838098	0.096472	0.27394	0.274452	0.446861	0.180013	0.25851	0.492451	0.946415	0.410146	0.139119	0.850893	0.251033	0.096532	0.472606	0.146097
T21	0.662649	0.484723	0.364877	0.252714	0.911246	0.185724	0.316509	0.737759	0.468368	0.672929	0.412534	0.715464	0.252513	0.468529	0.347359	0.913742	0.854808	0.956243	0.892702	0.521909	0.359755	0.734344	0.385248	0.403047	0.275896	0.133586	0.221944	0.143071	0.439559	0.896551	0.753299	0.865226	0.236978	0.18657	0.206682	0.020644	0.009339	0.651404	0.2532	0.524723	0.96164	0.097354	0.259118	0.409638	0.321086
T31	0.021638	0.071199	0.919961	0.039141	0.12208	0.406543	0.776363	0.365641	0.932938	0.861274	0.589822	0.990011	0.798451	0.41482	0.921479	0.377197	0.624068	0.62226	0.823052	0.128451	0.199094	0.444453	0.269141	0.753837	0.941602	0.582047	0.903349	0.032407	0.281371	0.762481	0.154929	0.39068	0.23436	0.426951	0.345135	0.686504	0.999038	0.972002	0.457197	0.154322	0.798601	0.071299	0.067795	0.476314	0.313447
DR1	0.962987	0.522371	0.746504	0.459546	0.623042	0.043025	0.008306	0.935783	0.753781	0.652224	0.029787	0.547394	0.809741	0.749452	0.618187	0.678992	0.811846	0.20421	0.757717	0.119777	0.766604	0.845054	0.849384	0.944287	0.990716	0.766961	0.457481	0.00793	0.287264	0.399336	0.750468	0.835699	0.164889	0.987007	0.149836	0.355465	0.134664	0.48645	0.618588	0.467114	0.797047	0.65389	0.279567	0.388384	0.589172
DV1	0.782636	0.899703	0.55834	0.458912	0.508846	0.097375	0.015762	0.720889	0.635764	0.929565	0.249315	0.285396	0.694957	0.831506	0.698857	0.892862	0.714765	0.054553	0.252554	0.357417	0.878626	0.982138	0.722231	0.619823	0.880586	0.696277	0.579673	0.039797	0.226043	0.662139	0.595786	0.721491	0.111209	0.808425	0.065591	0.514476	0.390409	0.62097	0.89837	0.289755	0.939842	0.734952	0.094026	0.462186	0.310776
T12	0.045755	0.055514	0.316791	0.717135	0.312336	0.399556	0.860023	0.396366	0.981712	0.259392	0.907891	0.889126	0.772114	0.588075	0.323222	0.449619	0.266322	0.79118	0.780026	0.017865	0.680456	0.980458	0.14239	0.573002	0.898192	0.077345	0.778939	0.163327	0.24344	0.490805	0.33573	0.270948	0.575956	0.741597	0.928538	0.859302	0.626041	0.33376	0.709643	0.074999	0.34282	0.099619	0.104562	0.620399	0.488383
T22	0.205774	0.392949	0.130029	0.280879	0.910255	0.301694	0.215471	0.506378	0.409768	0.321245	0.758806	0.777387	0.444566	0.241402	0.150016	0.197208	0.166157	0.636161	0.256988	0.198439	0.546204	0.924644	0.313407	0.276587	0.189313	0.995431	0.477495	0.20932	0.855417	0.597581	0.646307	0.454823	0.654432	0.24879	0.456636	0.256404	0.04868	0.578492	0.186578	0.417293	0.477084	0.167031	0.176353	0.532365	0.527303
T32	0.044773	0.039235	0.307897	0.720984	0.314763	0.154262	0.503159	0.291934	0.835249	0.578601	0.865975	0.855449	0.660595	0.692256	0.428215	0.434336	0.268359	0.829486	0.61789	0.032875	0.639514	0.847324	0.21079	0.5052	0.924563	0.07971	0.69907	0.233265	0.312465	0.551313	0.242978	0.174682	0.612654	0.796103	0.752927	0.801309	0.963715	0.243662	0.726795	0.063715	0.372912	0.138875	0.14687	0.724894	0.33253
DR2	0.395334	0.093722	0.916347	0.544755	0.563609	0.01935	0.006016	0.617012	0.652809	0.839162	0.002961	0.442761	0.710298	0.798834	0.74151	0.844531	0.983639	0.261579	0.986881	0.043173	0.99411	0.783441	0.791335	0.859408	0.873987	0.789003	0.461018	0.102017	0.752179	0.519556	0.955521	0.636053	0.544825	0.942596	0.293294	0.160407	0.031749	0.630116	0.618565	0.271155	0.467293	0.222628	0.840628	0.484184	0.440519
DV2	0.105374	0.126097	0.648146	0.453867	0.06175	0.058751	0.012152	0.09972	0.715378	0.625185	0.046294	0.946507	0.294083	0.843474	0.379441	0.185896	0.240231	0.218807	0.630379	0.016763	0.75863	0.246592	0.237656	0.877685	0.728726	0.904691	0.715576	0.779679	0.149484	0.825049	0.241911	0.077784	0.366947	0.549519	0.324356	0.474515	0.295056	0.510751	0.819315	0.396169	0.083477	0.305378	0.69495	0.219993	0.512272
T13	0.355484	0.307895	0.088379	0.176769	0.319452	0.050204	0.189801	0.147231	0.669391	0.570631	0.676663	0.575376	0.578433	0.316077	0.636992	0.873342	0.771407	0.460685	0.892666	0.430311	0.985024	0.321665	0.540763	0.897276	0.557957	0.947253	0.121563	0.996221	0.810712	0.890353	0.77828	0.76578	0.925093	0.60036	0.479476	0.991669	0.774583	0.449507	0.660248	0.394043	0.307541	0.253894	0.444126	0.547543	0.191664
T23	0.354081	0.360635	0.234206	0.036789	0.463342	0.014837	0.02088	0.346276	0.444607	0.270494	0.087529	0.177442	0.335911	0.051561	0.874759	0.199056	0.195795	0.488858	0.309282	0.244605	0.757808	0.439683	0.790166	0.232143	0.06406	0.829734	0.181728	0.252042	0.25341	0.285535	0.953085	0.918968	0.711818	0.032761	0.336243	0.131154	0.146601	0.810473	0.294037	0.360675	0.932987	0.18497	0.154572	0.078407	0.059323
T33	0.615968	0.611343	0.119395	0.152653	0.885863	0.64801	0.477312	0.282777	0.302353	0.683636	0.456604	0.749553	0.918473	0.108329	0.255453	0.38588	0.350301	0.293662	0.357633	0.893239	0.545578	0.228198	0.592448	0.992996	0.035465	0.715372	0.303293	0.180928	0.94681	0.683217	0.748084	0.859685	0.471951	0.830123	0.977658	0.099818	0.136001	0.557787	0.503527	0.289413	0.642436	0.985274	0.907591	0.348819	0.961612
DR3	0.089634	0.075617	0.982172	0.199454	0.991119	0.00324	0.02165	0.700716	0.624549	0.9387	0.033947	0.426774	0.316001	0.428581	0.276872	0.167807	0.122062	0.510641	0.36856	0.054486	0.671055	0.565971	0.096099	0.436797	0.434166	0.517062	0.926217	0.150853	0.220898	0.860857	0.84462	0.99902	0.815826	0.487322	0.051606	0.335709	0.099286	0.669828	0.315817	0.176718	0.796812	0.223055	0.317402	0.234195	0.410914
DV3	0.372309	0.736251	0.416705	0.488681	0.833119	0.013817	0.120539	0.914908	0.55205	0.567408	0.047105	0.696625	0.548457	0.920212	0.657547	0.571874	0.727642	0.143087	0.101199	0.3116	0.632528	0.317013	0.215042	0.545899	0.663401	0.266474	0.512476	0.053174	0.487754	0.760333	0.62381	0.500287	0.763258	0.456628	0.39093	0.079041	0.03723	0.749772	0.179011	0.041795	0.564642	0.263563	0.582705	0.509205	0.943171
T14	0.069379	0.233743	0.52369	0.234168	0.287168	0.050386	0.114744	0.601234	0.94417	0.685627	0.040229	0.468732	0.276758	0.748499	0.210196	0.741326	0.793354	0.42251	0.773992	0.735062	0.040555	0.167986	0.477793	0.41863	0.318614	0.903935	0.584572	0.074187	0.885604	0.656441	0.049969	0.207574	0.443247	0.633309	0.418489	0.667522	0.867245	0.306686	0.54442	0.690484	0.854088	0.964349	0.852826	0.979668	0.300011
T24	0.366277	0.684971	0.510034	0.96918	0.859904	0.506315	0.08908	0.535394	0.563583	0.174743	0.355817	0.600657	0.219897	0.945089	0.348573	0.008937	0.002788	0.316053	0.947647	0.241087	0.541166	0.6248	0.531307	0.67601	0.652752	0.923911	0.17331	0.744504	0.522056	0.734612	0.138394	0.142159	0.593368	0.752769	0.535427	0.172728	0.069069	0.319664	0.458899	0.865802	0.093731	0.992502	0.296824	0.418291	0.427335
T34	0.058309	0.258906	0.518858	0.190933	0.432427	0.267912	0.489073	0.352192	0.514224	0.95348	0.053546	0.387008	0.09657	0.477541	0.290418	0.188196	0.22295	0.757741	0.59712	0.705194	0.054172	0.209193	0.434773	0.641371	0.405584	0.509485	0.735263	0.008544	0.49874	0.983195	0.104224	0.29245	0.259104	0.785294	0.154086	0.79203	0.503673	0.295239	0.343483	0.852802	0.360369	0.65911	0.8416	0.776853	0.835609
DR4	0.17828	0.028754	0.389739	0.528943	0.731262	0.018606	0.017499	0.532486	0.876097	0.858381	0.000234	0.873827	0.250954	0.804132	0.499839	0.035835	0.032048	0.129621	0.592005	0.047654	0.998668	0.677773	0.034415	0.82752	0.358733	0.751064	0.808443	0.448954	0.591539	0.184492	0.695477	0.645114	0.392483	0.952524	0.028411	0.343433	0.339058	0.940009	0.747613	0.616967	0.269394	0.968683	0.942676	0.182054	0.640813
DV4	0.202638	0.233727	0.134728	0.197186	0.41818	0.11058	0.323287	0.650567	0.262368	0.28537	0.007244	0.980321	0.144904	0.593436	0.21547	0.88851	0.767695	0.941887	0.18838	0.137691	0.943412	0.494583	0.37272	0.680365	0.843373	0.461097	0.882082	0.5406	0.036882	0.404976	0.697334	0.938884	0.435404	0.405929	0.289475	0.241285	0.701744	0.855981	0.233817	0.116111	0.82581	0.944291	0.908029	0.044906	0.292241
T15	0.199974	0.398594	0.677801	0.426611	0.947185	0.163806	0.981668	0.613177	0.416142	0.077393	0.300804	0.956296	0.549763	0.20327	0.957296	0.465821	0.590067	0.657145	0.365858	0.28299	0.926189	0.727774	0.47204	0.551744	0.500268	0.791984	0.557708	0.038219	0.26406	0.043966	0.29241	0.222783	0.782952	0.183318	0.956478	0.343247	0.194069	0.109377	0.461174	0.900219	0.825035	0.14681	0.318593	0.523815	0.867942
T25	0.608981	0.658404	0.111918	0.989025	0.38332	0.504618	0.199742	0.836437	0.238344	0.104675	0.600208	0.499924	0.700425	0.337841	0.279353	0.010025	0.045446	0.133492	0.269873	0.203422	0.603545	0.792749	0.993435	0.262561	0.537458	0.241958	0.862872	0.079884	0.134428	0.087578	0.30576	0.342948	0.981718	0.75992	0.851005	0.020432	0.00535	0.382243	0.399151	0.912933	0.761761	0.081182	0.658504	0.792465	0.943335
T33	0.171262	0.346257	0.66122	0.439668	0.999078	0.073555	0.698802	0.724967	0.447278	0.174309	0.317217	0.853669	0.523553	0.230309	0.68352	0.546099	0.648773	0.794606	0.59214	0.472286	0.979365	0.803832	0.52131	0.722665	0.551146	0.695071	0.596443	0.080613	0.412213	0.076914	0.276295	0.159343	0.542466	0.210243	0.729208	0.738038	0.466927	0.075786	0.526632	0.769314	0.829668	0.236554	0.38997	0.642002	0.827033
DR5	0.166309	0.028781	0.481023	0.737338	0.363989	0.071427	0.08012	0.849632	0.193759	0.781523	0.009175	0.786231	0.730176	0.344134	0.960481	0.124165	0.190933	0.450018	0.183651	0.222422	0.468756	0.5159	0.101757	0.138594	0.330611	0.484457	0.837423	0.325	0.388604	0.541025	0.898018	0.96489	0.601668	0.423361	0.198039	0.075243	0.071238	0.589368	0.29647	0.344091	0.66211	0.423694	0.899905	0.778732	0.916129
DV5	0.105194	0.190664	0.318716	0.602204	0.534811	0.123931	0.555733	0.498586	0.496565	0.415046	0.047394	0.389953	0.573199	0.883331	0.837004	0.864882	0.692054	0.537942	0.529254	0.510914	0.493591	0.276468	0.133951	0.977187	0.969807	0.611604	0.868938	0.418636	0.162592	0.175837	0.639222	0.612962	0.716134	0.497788	0.154552	0.272577	0.297533	0.347652	0.705098	0.145758	0.777315	0.229854	0.68432	0.238752	0.315349
T16	0.752368	0.346522	0.656947	0.126151	0.226321	0.996298	0.652625	0.668791	0.912151	0.885194	0.68937	0.551664	0.566422	0.964719	0.10562	0.160295	0.34084	0.192272	0.523373	0.313186	0.226212	0.879561	0.77725	0.782863	0.463891	0.613512	0.385176	0.471473	0.885377	0.132878	0.76109	0.621959	0.489996	0.617351	0.085542	0.267884	0.311874	0.644869	0.67292	0.556593	0.584324	0.412405	0.413277	0.785507	0.421417
T26	0.75937	0.368102	0.25941	0.101822	0.299068	0.115065	0.383975	0.565108	0.644807	0.537878	0.521186	0.117198	0.367913	0.37442	0.394433	0.17548	0.334796	0.540213	0.91278	0.964723	0.468277	0.755221	0.975606	0.628704	0.326928	0.232386	0.243144	0.948894	0.596551	0.415334	0.257052	0.110053	0.580703	0.359284	0.479607	0.397758	0.279703	0.328972	0.445867	0.35215	0.879422	0.583095	0.27132	0.344932	0.290629
T36	0.834109	0.731084	0.857871	0.160146	0.714592	0.079595	0.087386	0.488142	0.344605	0.493888	0.252524	0.852831	0.495394	0.83621	0.1613	0.68472	0.648893	0.332796	0.526447	0.105114	0.840547	0.677245	0.948755	0.301626	0.836061	0.696416	0.121068	0.992379	0.625475	0.093028	0.381636	0.465461	0.67057	0.390005	0.103978	0.573435	0.420019	0.256379	0.540706	0.584891	0.114803	0.551853	0.788351	0.758506	0.901063
DR6	0.213081	0.058699	0.802998	0.127308	0.97348	0.007408	0.014792	0.494801	0.572193	0.873962	0.038506	0.397987	0.442507	0.456564	0.752284	0.097614	0.157633	0.514319	0.384194	0.148759	0.508771	0.374331	0.235674	0.445853	0.718403	0.687478	0.921963	0.554663	0.330685	0.347332	0.478842	0.396776	0.596074	0.602211	0.067509	0.987453	0.833894	0.640836	0.416789	0.558446	0.81244	0.652821	0.852632	0.190017	0.454708
DV6	0.456912	0.2824	0.662613	0.422683	0.67222	0.0654	0.251246	0.630716	0.365842	0.955735	0.116506	0.540201	0.618752	0.258126	0.094743	0.725924	0.890056	0.456226	0.405822	0.233784	0.432844	0.172409	0.400318	0.336481	0.961111	0.206391	0.727619	0.863815	0.243966	0.278654	0.909194	0.762063	0.16529	0.623482	0.073905	0.581509	0.54628	0.361042	0.20155	0.09824	0.911025	0.524413	0.626553	0.083868	0.873356
T17	0.042216	0.110719	0.749023	0.174006	0.89717	0.65167	0.537903	0.262831	0.686369	0.250887	0.048982	0.807014	0.638044	0.954475	0.037864	0.808177	0.895331	0.408137	0.735481	0.994682	0.198371	0.504897	0.699994	0.365017	0.702722	0.357473	0.365707	0.129344	0.69488	0.221388	0.992218	0.734513	0.516696	0.682349	0.774199	0.520505	0.63921	0.691335	0.90682	0.54327	0.163342	0.99737	0.88592	0.576542	0.049032
T27	0.487238	0.930851	0.864351	0.919174	0.406345	0.351956	0.514465	0.832981	0.577907	0.248804	0.366537	0.878146	0.921549	0.680581	0.294777	0.346244	0.157928	0.327691	0.971802	0.675866	0.891849	0.64089	0.828528	0.888599	0.593872	0.556095	0.654836	0.425204	0.636309	0.851605	0.439181	0.39038	0.754983	0.936539	0.843177	0.081908	0.02022	0.787287	0.701464	0.409928	0.863833	0.687924	0.110879	0.971901	0.860235
T37	0.015417	0.059541	0.488841	0.253914	0.480811	0.602929	0.592388	0.436706	0.53384	0.147682	0.027494	0.915341	0.821212	0.960562	0.12637	0.697687	0.754359	0.834632	0.780487	0.926737	0.200932	0.401382	0.629878	0.423134	0.852195	0.188749	0.762994	0.01241	0.662729	0.236279	0.885954	0.841104	0.582461	0.613939	0.869164	0.912395	0.633585	0.753696	0.984457	0.46195	0.303112	0.754714	0.695421	0.586703	0.150799
DR7	0.389675	0.054069	0.515778	0.787082	0.519755	0.017196	0.01762	0.918547	0.963984	0.710872	0.005952	0.669597	0.310009	0.879314	0.956155	0.200785	0.188972	0.861926	0.67252	0.263624	0.562853	0.431002	0.264031	0.760534	0.247907	0.495959	0.587891	0.247326	0.599136	0.085542	0.49774	0.638407	0.359066	0.841948	0.429729	0.619457	0.719472	0.614608	0.823785	0.402738	0.964117	0.957353	0.985687	0.373321	0.863069
DV7	0.581236	0.494237	0.501895	0.307449	0.193207	0.145142	0.288535	0.527577	0.105835	0.16922	0.602609	0.688601	0.06196	0.380089	0.16436	0.726155	0.733256	0.68639	0.015385	0.209659	0.529864	0.311128	0.821775	0.382285	0.924473	0.2564	0.498116	0.413252	0.026113	0.708281	0.761004	0.424234	0.821283	0.088822	0.450804	0.372849	0.785912	0.996401	0.505242	0.225645	0.237628	0.478551	0.552579	0.029309	0.561466
T18	0.282188	0.707558	0.553143	0.438542	0.309582	0.476541	0.426965	0.127326	0.342334	0.031722	0.228776	0.202154	0.205738	0.514807	0.292003	0.349326	0.771592	0.686096	0.877778	0.144644	0.606771	0.835512	0.985258	0.82366	0.741033	0.276342	0.353675	0.111196	0.474193	0.3029	0.917346	0.573472	0.185825	0.384612	0.909438	0.139617	0.244438	0.831883	0.942667	0.312686	0.675932	0.686787	0.183866	0.609301	0.510312
T28	0.176668	0.471314	0.118013	0.91148	0.867605	0.951522	0.84255	0.129472	0.605949	0.603046	0.261731	0.923474	0.591836	0.641214	0.101888	0.020433	0.051454	0.138622	0.544943	0.392362	0.852097	0.556683	0.471666	0.609353	0.6534	0.711526	0.860158	0.57719	0.19612	0.177824	0.933712	0.886304	0.740233	0.837379	0.752396	0.008977	0.019211	0.430655	0.380445	0.54485	0.90729	0.545566	0.266142	0.671143	0.254806
T38	0.406994	0.835904	0.700628	0.403	0.217753	0.374292	0.39105	0.135339	0.340477	0.038604	0.307197	0.282186	0.148843	0.635212	0.511436	0.534633	0.847716	0.854235	0.997931	0.160425	0.767559	0.753521	0.973399	0.928569	0.714981	0.330874	0.353224	0.128116	0.531039	0.397962	0.98363	0.640853	0.103343	0.463357	0.929312	0.329073	0.43528	0.786776	0.89908	0.272553	0.78997	0.752869	0.266961	0.65368	0.574818
DR8	0.194881	0.082172	0.1811	0.915903	0.314574	0.005465	0.00825	0.218863	0.432722	0.840406	0.002737	0.703133	0.613896	0.374303	0.531412	0.124992	0.136122	0.447152	0.280763	0.894342	0.301131	0.367977	0.356181	0.675131	0.221764	0.721391	0.921465	0.461497	0.993634	0.282723	0.423845	0.545062	0.363967	0.964677	0.137257	0.182591	0.134534	0.284582	0.493996	0.160657	0.900541	0.237696	0.365024	0.459194	0.392963
DV8	0.438376	0.895457	0.36083	0.38623	0.90165	0.031126	0.090906	0.485155	0.50168	0.429149	0.058523	0.634114	0.237896	0.954224	0.569333	0.167155	0.172506	0.980726	0.817079	0.428385	0.067169	0.04361	0.255939	0.373072	0.839252	0.48357	0.655417	0.312304	0.034763	0.202627	0.79314	0.958027	0.697874	0.643692	0.105313	0.729038	0.555719	0.387791	0.68442	0.015061	0.437807	0.754165	0.873805	0.044329	0.556738
T19	0.185627	0.38027	0.410797	0.583285	0.887575	0.859974	0.39798	0.368007	0.910339	0.630049	0.325852	0.022828	0.008536	0.817321	0.887299	0.640918	0.555525	0.217753	0.998227	0.303336	0.02147	0.34263	0.375786	0.470991	0.460978	0.733297	0.68664	0.662779	0.798887	0.437503	0.587621	0.811417	0.647927	0.919277	0.505627	0.001959	0.023661	0.825244	0.884503	0.912096	0.814684	0.329617	0.546136	0.956875	0.403449
T29	0.84949	0.851104	0.603034	0.626977	0.570741	0.603117	0.785778	0.592755	0.937982	0.513498	0.558548	0.950704	0.760972	0.819994	0.531957	0.042154	0.076652	0.91432	0.411383	0.137969	0.077336	0.198226	0.728001	0.719604	0.132804	0.471641	0.418702	0.74987	0.418986	0.170743	0.777267	0.443136	0.513563	0.843529	0.290028	0.140482	0.101761	0.342077	0.937759	0.389826	0.529801	0.133827	0.075628	0.784139	0.584709
T39	0.70211	0.355068	0.44534	0.56887	0.486046	0.624044	0.41331	0.195564	0.878877	0.817087	0.106123	0.079034	0.00976	0.882176	0.301324	0.012316	0.063942	0.070075	0.26724	0.489032	0.634045	0.683861	0.425592	0.352441	0.320503	0.743994	0.198773	0.869508	0.199529	0.960807	0.901292	0.20013	0.364435	0.827565	0.861281	0.02771	0.108075	0.805665	0.813884	0.496341	0.26476	0.579075	0.777697	0.670128	0.951327
DR9	0.365801	0.114198	0.485841	0.854984	0.811237	0.063972	0.130408	0.932522	0.587761	0.938088	0.041863	0.96307	0.487528	0.852003	0.921417	0.256555	0.34827	0.663822	0.604315	0.31751	0.216946	0.360265	0.34408	0.846981	0.359653	0.983937	0.483763	0.295487	0.778287	0.461343	0.625181	0.503328	0.457376	0.938566	0.441052	0.357786	0.34127	0.607277	0.717567	0.069609	0.642762	0.457437	0.941351	0.476866	0.288926
DV9	0.315921	0.713153	0.27516	0.681123	0.7248	0.085319	0.383936	0.059383	0.180468	0.445223	0.101732	0.532894	0.662345	0.727767	0.515021	0.230102	0.19177	0.597766	0.08222	0.090358	0.944733	0.408922	0.502305	0.21582	0.46734	0.238014	0.394297	0.401936	0.064762	0.991582	0.110381	0.22037	0.577402	0.419	0.830487	0.32407	0.4783	0.642362	0.40024	0.008951	0.022153	0.491673	0.481208	0.116852	0.164402

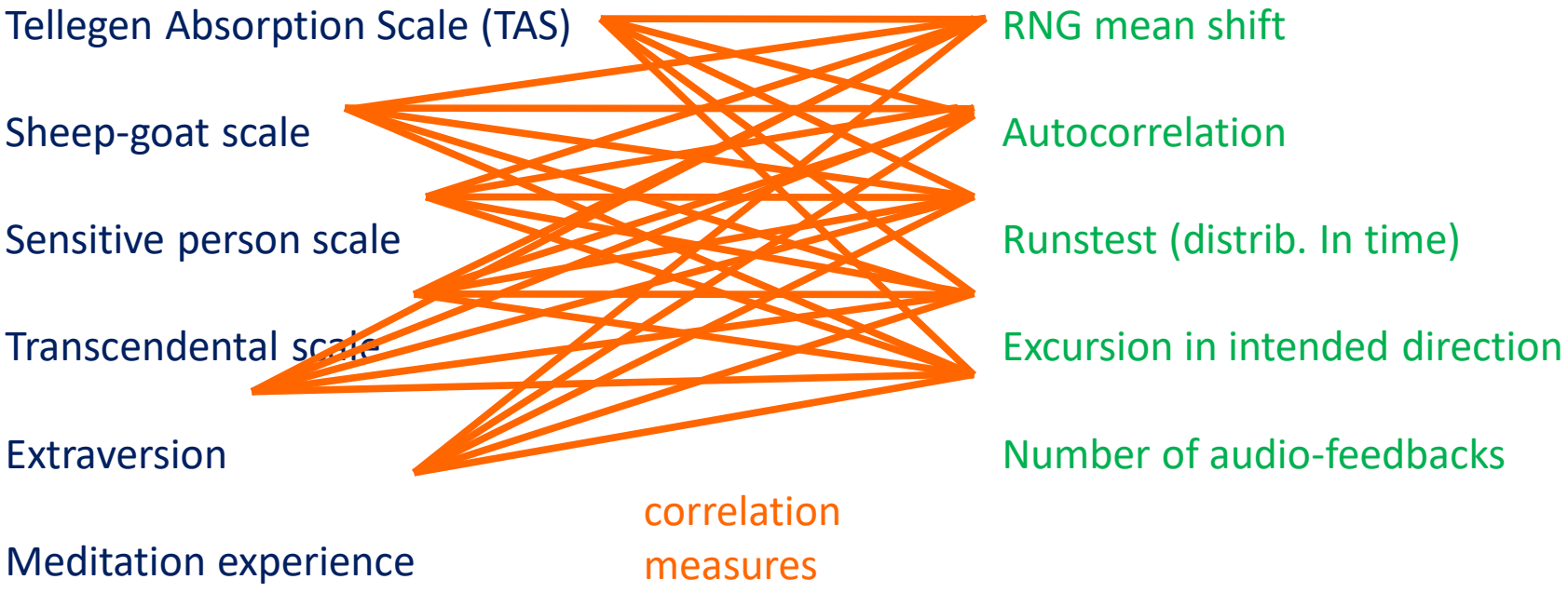
Results - Summary

- Robust significant result: more significant correlations under experimental than under control conditions
  - Also when only looking at time-forward correlations
- Standard statistical analysis insufficient
- Monte-Carlo analysis more conservative, but also significant

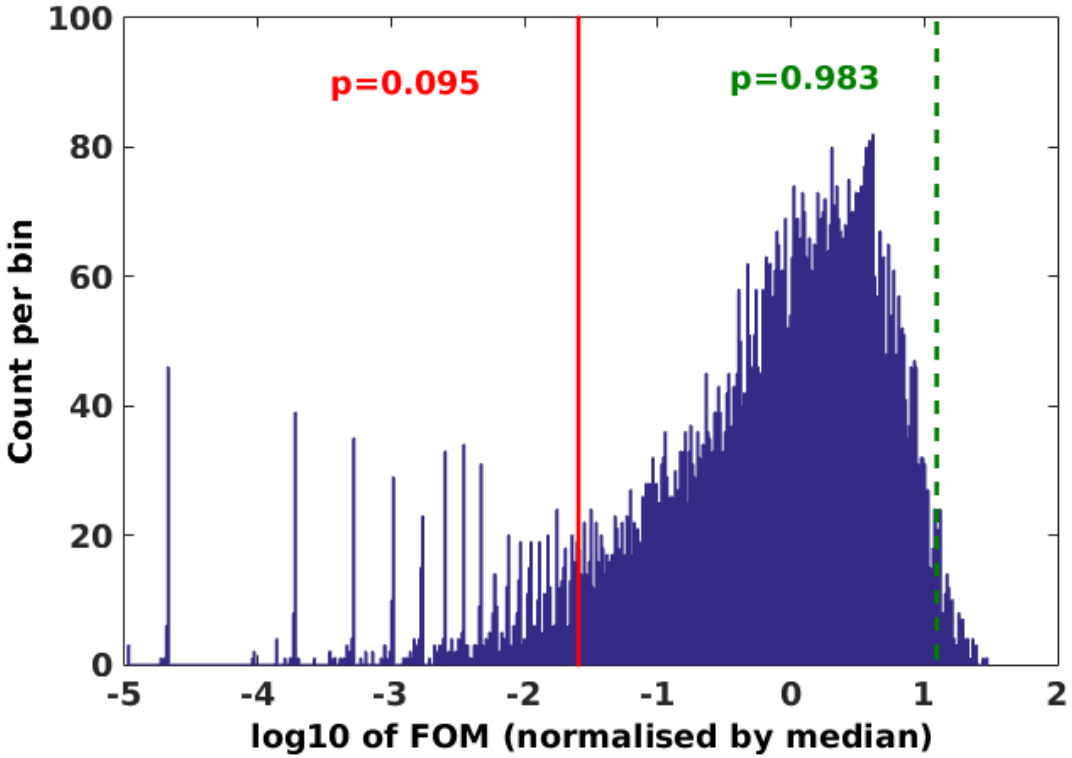
Independent Experiments

HARTMUT GROTE

Psychological and Physical Variables



Independent CMM Experiment



Post-hoc: p = 0.01 for difference between Experimental (red) and control data (green)

H.Grote: *Multiple-analysis correlation study between human psychological variables and binary random events*,
JSE Vol. 31, No. 2, (June 15th, 2017)

Looking Forward

- Independent experiments by Hartmut Grote
  - Published in JSE yield external support
- Consortium replication world-wide in planning
  - Hartmut Grote, Max-Planck Institute, Hannover
  - Dick Bierman and Jacob Jolij, Groningen, NL
  - Jonathan Schooler, UCSB, USA
  - HW & WvL, Germany
  - Patrizio Tressoldi, Padua, Italy
  - Pierre Uzan, Paris, France

A Pinch of Scepticism

- NT-Theorem perhaps unavoidable in any system that is not making predictions based on a stringent theoretical model that allows for Bell inequalities
  - Perhaps the decay of the effect can be spread and made an essential ingredient of the prediction and the model
  - Slight alterations in the set-up of the matrix will make it a new experiment each time

Summary

- New paradigmatic model
- Allows for generalised non-local correlations
- Could explain many „strange“ phenomena
  - Telepathy and extrasensory perception
  - Strange transference and systemic effects in families and other groups
  - Correlation effects in biological system (organismic coordination in bodies) and/or mind-body interactions
  - Non-classical coordination behavior
    - Groups of individuals (bacteria, social animals)
    - Antigen-recognition in the immune system
    - Hyperfast communication system within the body
  - Various other correlation effects (placebo-treatment)
- Naturalisation of spirituality and morality?
- Experimental tests promising

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- Majella Horan (data collection)
- Thilo Hinterberger (statistical analysis)
- Walter von Lucadou (help with set-up)
- Nikolaus von Stillfried (protocol development)
- Bial Foundation (funding and patience)

Thank you for your attention!

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