אוניברסיטת בן-גוריון בנגב
Ben-Gurion University of the Negev

Communication between the researcher and the statistician is essential for research

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PROLOG

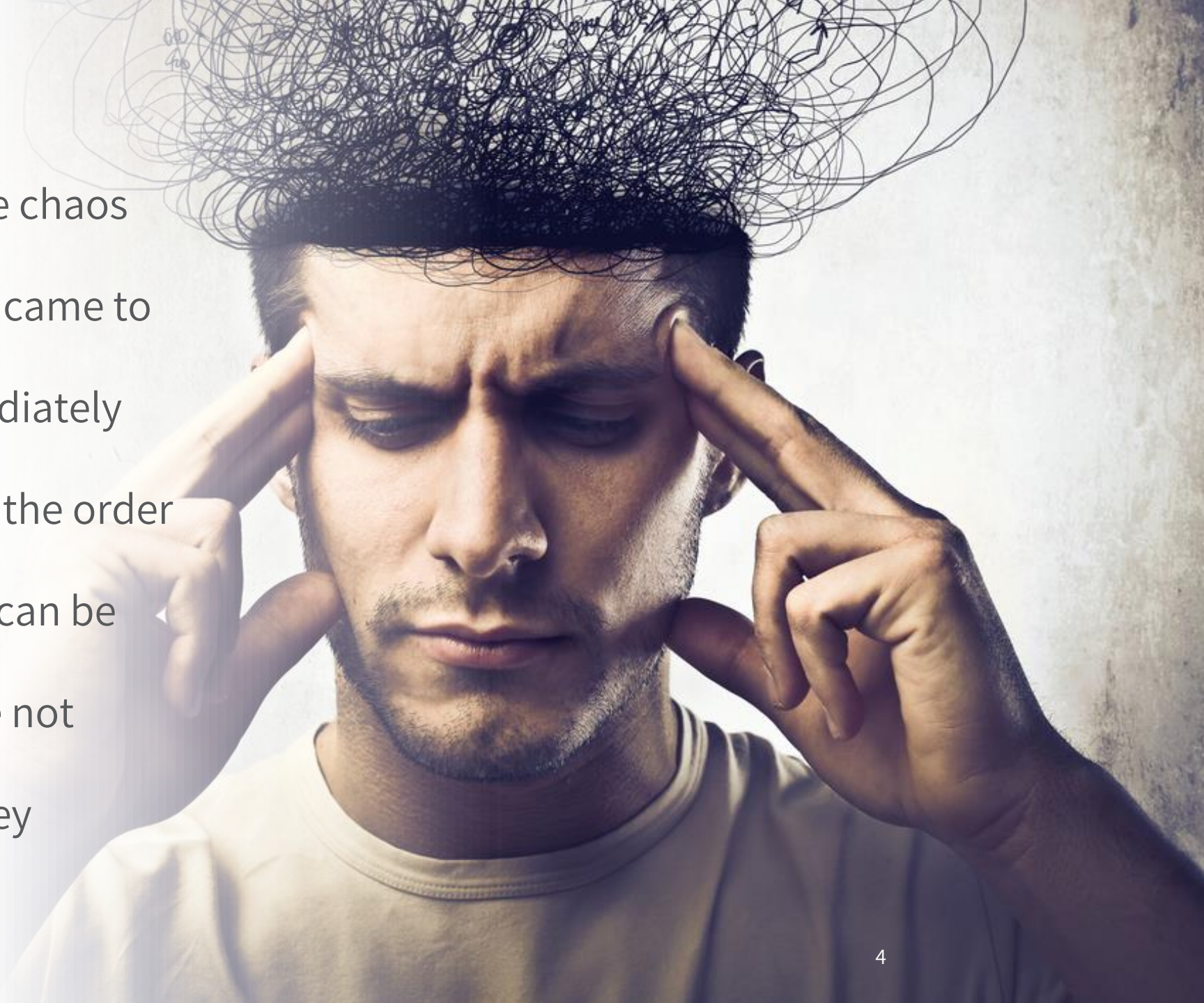
When Ron approached me and asked if I wanted to speak at the conference he is organizing on the topic "On the foundations of applied statistics", I gladly accepted the request. I thought to myself, "No problem." I have been dealing with the applied side of statistics for more than 30 years. But of course, when I started thinking about what to say and how to say it, on the one hand, ideas came up, and on the other hand, they came in a chaotic manner, and I needed to put things in order, and of course, I realized that, as always, the task is more time consuming than it seems.

PROLOG ....

The (applied) statistician meets many researchers from many fields and must know how to quickly switch from one research field to another, from one research question to another, and stay alive and contribute. Being a human chameleon is not an easy task, but it is possible.

PROLOG ….

As part of trying to sort out the chaos that had formed in my mind, I came to some insights that I will immediately present. I will present them in the order that made sense to me, but it can be discussed. Also, the points are not mutually exclusive, nor are they independent.



KEY POINTS

- Listening
- Abstraction
- Simplicity

LISTENING (LEARNING)

- Listen
- Ask questions to understand and clarify
- Learn
- Don't be judgmental and opinionated. Be cooperative.

The Research Cycle

Our job is to listen to the researchers, to understand the research topic to the point where we understand the goals and research questions, not to teach the researchers the field they are researching, to explain our opinion on its importance and what we think about their research questions and goals.

It's "not our research", it's their research, and **we sit on the seam between the questions and the answer, between research design and data analysis.**

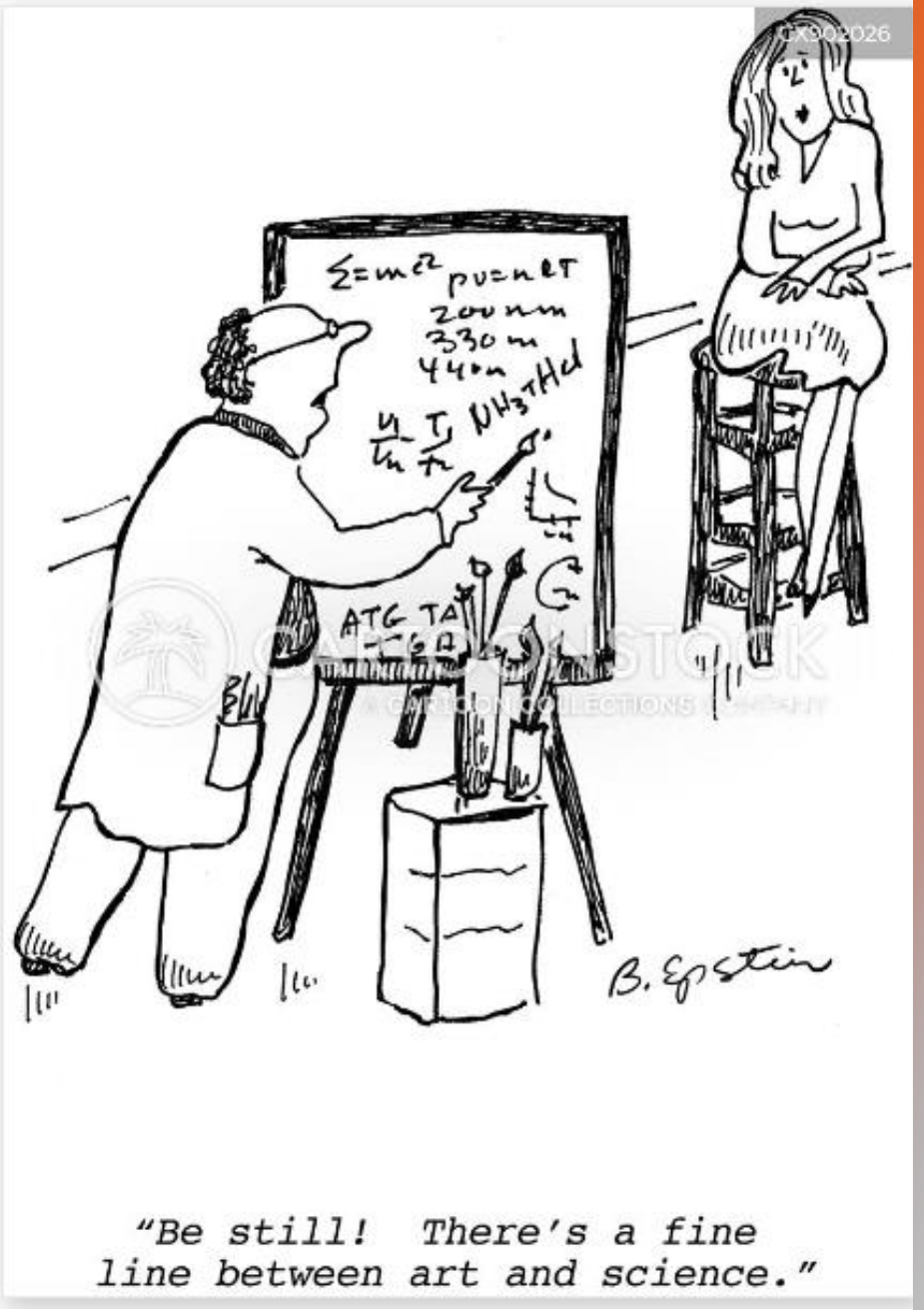
ABSTRACTION

Abstraction is the process of translating the "story" told to me by my colleagues into my language, my imagination, and my world.

Trying to peel the "complicated" words into ”Lay-men" simpler terms with the help of the researchers.

By doing this, I create a common ground with the researchers, and from experience, the following

can be achieved.



ABSTRACTION is good for:

1. Better understanding the research goals, its questions, and hypotheses.
2. Understanding what the dependent variable(s) is (are) and what the independent variable(s) is (are).
3. Choosing the statistical method/s that will be used.
4. And last and not less important than its predecessors, to translate the results from the statistical analysis into ‘a story’ - the research goals/questions/hypotheses.

SIMPLICITY

Always choose the simplest possible statistical analysis method. There is a known acronym that will be used here with one change, and that is "KISS".

Keep It

Simple,

and Smart

Simplicity does not equal to stupidity; choosing a simple analysis method and not complicating it does not equal stupidity, on the contrary, it is the smart thing to do, it is wisdom.

Simplicity

Complicated statistics are not necessarily more accurate or smart. Experience has taught me that many researchers find the subject of statistics difficult, and that is why they call us. ***The goal should be to analyze the data in the simplest way that will be appropriate for the problem***. The goal is not to analyze it in the most complicated fashion so that no one will understand anything and everyone will think we are the smartest kids in town. **Our job is to help and promote the research, nothing more and nothing less. Statistics is the tool and not the goal.**

SUMMARY

This presentation can be summarized in the following sentence:

Remember the role of the applied statistician in the "food chain" in the research cycle.

1. The statistician should maintain humility and not be arrogant and condescending. Not to advise the research team about what to research or how wrong they are. It is their area of expertise, not ours.
2. Our area of expertise is data. So, we must be active and lead from the design stage to the data analysis stage.

SUMMARY cont.

3. Since we are responsible for the data analysis stage, we must be part of the writing team that summarizes the research and the insights that can be learned from it.
4. We have to follow the KISS idea. Keep our doing as simple as possible, which means being smart.
5. Don’t be afraid to introduce new methods gradually, if there is a good reason

Thank You.

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