

Principles of Data Analysis, and Anti- Principles



Idea of principles and anti-principles taken from

Changing the Conversation: The 17 Principles of Conflict Resolution by Dana Caspersen



Principle: Get to know the data on its own terms, as you would get to know a person



Principle: Get to know the data on its own terms, as you would get to know a person

Anti-principle: Approach the data with expectations, hoping it will be what you want it to be



Principle: Keep your eyes sharp. Be on the lookout for unexpected patterns, mysteries, and problems



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Anti-principle: Single-mindedly focus on one aspect of the data and ignore all others



Principle: Examine the data with the simplest possible methods at first, and gradually add complexity as needed



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Anti-principle: Begin by applying a fancy method you don't really understand using code that somebody else wrote



**Principle: Keep your mind open to
alternate interpretations and other
possible explanations**



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Anti-principle: Unconsciously assume that the first idea that came to you must be the right one



Principle: Try to hold multiple points of view simultaneously



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Anti-principle: Be content with the default view, the one you currently hold



Principle: Find a way to look at the data in such a way that it “collapses” or simplifies, revealing structure



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Anti-principle: Look at the data in such a way that it becomes less compact or more complicated, obscuring structure



**Principle: Follow your hunches, intuition,
and curiosity tenaciously until you reach a
definitive conclusion**



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Anti-principle: Abandon hunches at the first sign of discouragement or difficulty. Be paralyzed by “black hat” thinking



Principle: As evidence accumulates for a particular hypothesis, try to critique it more strongly, looking for holes



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Anti-principle: Let your favorite hypothesis get an “easy pass”. View the evidence in best possible light



Principle: As the story solidifies, honestly assess the limits of what can be proven, what is suggested, and what is not clear



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Anti-principle: Overreach your conclusions, and feel the wrath of the reviewers. Understate, and lose impact



Principle: Learn to see the natural silhouette of a unit of scientific progress



Principle: Learn to see the natural silhouette of a unit of scientific progress

Anti-principle: Try to say too much, or too little, without telling a story



**Principle: Come to terms with the fact that
all units of scientific progress leave
unanswered questions**



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Anti-principle: Strive to answer all possible questions, and therefore never finish anything



Principle: Tell the easy or “low-hanging fruit” story first, and then build on it



Principle: Tell the easy or “low-hanging fruit” story first, and then build on it

Anti-principle: Get lost in possibilities, or obsessed with the difficult stories



**Skillful qualities: Objective, impartial,
open, cautious, creative, nimble, fluid,
determined, prudent, meticulous**

