

# The Form of a Paper

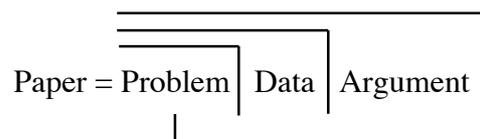
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"Bateson's Conditions of Discovery:  
1. Some data flowing through the system.  
(A remedy for ill-drawn abstractions.)  
2. Always the multiple approach.  
(What is true of all of them is the formal truth.)"<sup>1</sup>

*Caveat:* Before you think about writing a paper or a thesis, make sure to indicate three or four books or articles, which deal with the issues and/or problems you have in mind. They are your reference books or papers. They help you to sharpen your argument. They lead, challenge, and support the ideas you may wish to develop, and the methods you choose to employ.<sup>2</sup>

This handout is about how to structure a paper written for purposes of academic knowledge production. It is about how to call, to cross, and to re-enter a scientific argument, i.e., to give form to a paper.



Argument is pivotal but contextual. There is no argument if you do not check your problem within data that depend on coding (aka method) and state of research (aka scientific community).

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<sup>1</sup> Stewart Brand, For God's Sake, Margaret: Conversation with Gregory Bateson and Margaret Mead, in: CoEvolution Quarterly 10 (Summer 1976), pp. 32–44, quote p. 38.

<sup>2</sup> Paul Auster once wrote that a private detective accepting a job at once has to deal with two cases, viz. with the case he has to solve and with himself as part of the solution or, possibly, of the problem. Writing a paper means to have to deal with at least four cases, viz. with the selected subject, the chosen approach, the textual arrangement and styling of the argument, and the writer's moods, resistances, and inclinations.

In your paper or thesis, make sure all of the following items are specified by your outline, their sequence being variable to some extent:

(1) Abstract:

Others may not have the time to read your paper. What do they miss?

(2) Key Words:

Without tags, nobody would know how to taxonomize (or folksonomize) your paper.

(3) Statement of the problem and introduction:

Arguably this is the most difficult part of the exercise since what problem may you have if you already have the time, the imagination, and the education to think about a scientific paper? Give others a chance to join you in seeing your problem as a problem. Tell a "representative anecdote"<sup>3</sup> to give yourself and others a picture, scheme, or story of what you are up to. Note that this anecdote will be representative also for the possible scope (with respect to terminology) and necessary reduction (with respect to reality) with which you will state your problem.

(4) State of research:

Others already thought and wrote about your issue. What did they find out? Which questions remain open?

(5) Thesis:

What is it you think you have to tell others? You need arguments to highlight the risk you are going to take and to control it with respect to the work done by others. The risk consists in an attempt to determine the indeterminate.

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<sup>3</sup> See Kenneth Burke, *A Grammar of Motives* [1945], Reprint Berkeley, CA: California UP, 1969, p. 60.

(6) Data:

Data are everywhere, depending on coding. They come as numbers, stories, cases, semantics, and in other forms. Which data are yours?

(7) Method and Heuristics:

There is a host of quantitative and qualitative, correlative and interpretative, comparative and statistical, case-based and historical, ethnographic and cartographic, narrative and discursive, experimental and intervening methods. State yours. Method tells how to get and how to code data (see *appendix 1* on an observing systems research methodology).

There are various heuristics available, which give you a terminology to develop a calculus consisting of metadata, which are able to identify, distinguish, and relate data (appendix 2).<sup>4</sup>

For any project, select but one of them, or compare but two or three of them. Take care not to schematically apply one or several of these heuristics uncritically. They have to be tested with and within the empirical phenomena, such as to make them as reflexive as any cultural phenomenon.

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<sup>4</sup> For a start see Kenneth J. Burke, *A Grammar of Motives* [1945], Reprint Berkeley, CA: California UP, 1969, Introduction: The Five Key Terms of Dramatism, about *act*, *scene*, *agent*, *agency*, and *purpose*, adding, sixth, *attitude*; Robert K. Merton, *The Sociology of Knowledge* [1945], in: idem, *Social Theory and Social Structure*, rev. and enl. ed., New York: Free Press, 1968, 510-542, about the *where*, *what*, *how*, *why*, and *when* of suspicion; Talcott Parsons, *The Social System*, New York: Free Press, 1951, about *adaptation*, *goal-attainment*, *integration*, and *latent-pattern maintenance and conflict-regulation* as functional requisites for both the system's differentiation with respect to an environment and its reproduction with respect to time; Niklas Luhmann, *Soziale Systeme: Grundriß einer allgemeinen Theorie*, Frankfurt am Main: Suhrkamp, 1984, about the *factual* (boundary/horizon), *temporal* (before/after), and *social* (ego/alter ego) dimension of meaning; Michael E. Porter, *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, New York: Free Press, 1980, about five *competitive forces* that shape strategy: threat of new entrants, bargaining power of buyers, threat of substitute products or services, threat of new suppliers, all four of them driving the fifth, which is rivalry among existing competitors; Michel Foucault, *Qu'est-ce que la critique?* In: *Bulletin de la Société Française de Philosophie* 84, 1990, understanding *discourse* as a power related to a knowledge shared by agents with respect to procedures to be applied; Harrison C. White, *Identity and Control: Structural Theory of Action*, Princeton, NJ: Princeton UP, 1992, distinguishing three disciplines, as there are *interface*, valuating quality, *arena*, valuating purity, and *council*, valuating prestige, all three of them describing a specific calculus of how a network is done, or of how a social formation emerges; and see Howard S. Becker, *Tricks of the Trade: How to Think About Your Research While You're Doing It*, Chicago, IL: Chicago UP, 1988; Andrew Abbott, *Methods of Discovery: Heuristics of the Social Sciences*, New York: W. W. Norton, 2004; and John Law, *After Method: Mess in Social Science Research*, London: Routledge, 2004.

(8) Modeling:

Try to formulate a model, which makes explicit a calculus you implicitly had already in mind or began to develop when becoming familiar with the redundancy of the information you collected. The model gives you the calculus, which according to the observer's perspective you are choosing is bringing forth the subject you are dealing with.

Make sure to distinguish at any moment heuristic and architectonic procedure to distinguish how your subject relates to other phenomena from how it articulates its unity.

Call culture theory any model, which gives you the calculus of how a culture works, if 'culture' according to Yuri M. Lotman means any object brought about by the complexity of the combination of at least two elements that are not reducible to each other.<sup>5</sup> Culture analysis identifies these elements according to one of the heuristics given above. Culture combines decoupling and re-embedding, or communication and control, or action, talk, and power.

(8) Findings:

So what did you find out?

(9) Discussion:

Look back at the problem stated, the research done, and the findings related, and put them into perspective regarding work done by others, practices and techniques used by others, and beliefs possibly held by others. Look at the data being different as soon as they are coded differently.

(10) Bibliography (Literature and Sources):

Books, papers, data.

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<sup>5</sup> See Yuri M. Lotman, *Universe of the Mind: A Semiotic Theory of Culture*, transl. Ann Shukman, New York: Tauris, 2001.

Add consistent quoting rules and style-sheeting standards of your own or go to the style guide of the American Sociological Association.<sup>6</sup>

See for further tips also The Writing Center at the Faculty of Arts and Sciences of Harvard University.<sup>7</sup>

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<sup>6</sup> [http://www.asanet.org/students/Quick Style Guide.pdf](http://www.asanet.org/students/Quick%20Style%20Guide.pdf).

<sup>7</sup> <http://www.fas.harvard.edu/~wricntr/resources.html>

## Appendix 1: Observing Systems Research Methodology

We may call an *Observing Systems Research Methodology* a research methodology that

- i. makes choices of explicit *systems references* both for the observation to be carried out, usually that of a scientific discipline, entertained by one or more authors, and for the subject to be observed.<sup>8</sup> Note that there are only two options for any subject to be observed within a systems reference. It can either be considered to be itself a system or a structure of a system or it can figure in the environment of a chosen system. Either assumption cannot just be postulated but must empirically be shown;
- ii. considers the subject to be observed to be possibly an *observing system* in itself;<sup>9</sup>
- iii. considers the subject *complex* if it defies causal and statistical analysis. The subject then may be assumed to be a self-organizing system, relegating any observation of it not to understanding but to control, that is to interaction relying on a memory of its own;<sup>10</sup>
- iv. collects quantitative or qualitative, correlative or interpretative, ethnographic or cartographic, narrative or discursive *data* and gives them a coding, framing, scripting, or modeling due to *metadata* taken from any kind of heuristics, including general or specific systems theories;
- v. and identifies the *audience* the results of the research are to be presented to, be it a scientific community, the (observing) subject, a third party (a principal or client, a wider public, a vested interest to be invoked), itself to be considered an observing system, or the author of the paper reading it again when old and reminiscent of better days.

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<sup>8</sup> For Parsons' *action frame of reference* see Talcott Parsons, *The Social System*, New York: Free Press, 1950.

<sup>9</sup> See Heinz von Foerster, *Observing Systems*, Seaside, CA: Intersystems, 1981 (most papers reprinted in: *idem*, *Understanding Understanding: Essays on Cybernetics and Cognition*, New York: Springer, 2003).

<sup>10</sup> See W. Ross Ashby, *Requisite Variety and Its Implication for the Control of Complex Systems*, *Cybernetica* 1 (1958), 83-99.

## Appendix 2: Social Sciences Heuristics, If Any

For the first four and the general context regarding heuristics, i.e. ways to come up with ideas and appropriate theories and methods, see Andrew Abbott (2004: 80-109), but there are many more:

Aristotle's *causalities* (*Physics* 195a): material, formal, effective, and final.

Kant's *categories* (*KrV*, B105): quantity (unity, plurality, totality), quality (reality, negation, limitation), relation (substance/accidents, causality/dependence, reciprocity), and modality (possibility/impossibility, existence/nonexistence, necessity/contingency).

Kenneth Burke's (1945) five *keys of dramatism*: act, scene, agent, agency, and purpose.

Charles Morris' (1938) three *aspects of symbolic systems*: syntactic, semantic, and pragmatic.

Adam Smith's (1776) *interests* forcing any self-interested individual to emphatically (even if grudgingly) sympathize with the self-interest of the other if to satisfy any interest, thus defining egoism in terms of altruism, and vice versa.

Auguste Comte's (1830, leçon 48) distinction between the *statics* of social order and the *dynamics* of social progress (toward increasing imperfection) telling us that any social phenomenon, incidentally never to be studied in isolation, at once displays a specific solidarity with all other social phenomena and changes within some kind of development.

Charles Darwin's (1895) three *mechanisms of evolution*, distinguishing the chance and mass events of variation from the structure of selection and the system's re-stabilization by retention. See Karl E. Weick (1979) for an application of the calculus of evolution to processes of organizing, and Niklas Luhmann (1997, chap. 3), to communication in interaction, organizing, and society.

Fritz Heider's (1926) *physiology of perception*, which asks for any thing for the medium it is formed in, 'thing' being the rigid coupling of the same elements, the 'medium' is their loose coupling. The distinction of thing and medium gives a general theory of media if applied not only to perception, but to communication and possible other operations as well.

Fritz Heider's *theory of attribution* (1958), telling us that any observer has a choice and must take a decision to attribute a cause either to an agent or a situation.

Martin Heidegger's (1927) *fundamental ontology*, calling 'being' the framing of empty self-reference (*Dasein*) by (a) being-in-the-world, (b) being-somebody-in-the-world even if that somebody (*Man*) is only a proxy for empty self-reference, (c) being-in-sorrow-for-itself (*Sorge*), and (d) the time, which counts and thereby identifies and distinguishes the variables brought together to determine 'being'.

Robert K. Merton's (1945) sociology of knowledge, framed as a systematization of suspicion if not outright rejection, but nevertheless asking for the *where, what, how, why, and when* of the attribution of mental productions to an existential basis.

Robert K. Merton's (1949) distinction of *manifest* from *latent functions*, the former being intended and recognized as consequences of the actions of participants that contribute to the adaptation and adjustment of a social system, the latter being neither intended nor recognized as such (but being recognized by an observer from some perspective). Merton knows also dysfunctions but is tacit about manifest versus latent versions of those.

Talcott Parsons' *action system* (1951): adaptation, goal-attainment, integration, and latent-pattern maintenance and conflict-regulation as functional requisites for both the system's differentiation with respect to an environment and its reproduction with respect to time; the four functions repeat self-similarly for all four systems of the human condition (Parsons 1978), as there are the physico-chemical system (*A*), the human organic system (*G*), the action system (*I*; itself being differentiated into behavioral system, personality system, social system, and cultural system), and the telic system (*L*), giving us a scalable calculus of the human condition appropriate for cognitive sciences' research programs.

George Spencer-Brown's (1969) *calculus of indications*, re-entering any indication into its form, which marks the distinction that is being drawn to make the indication. Any identity, to be indicated, has to be distinguished and thus to be supplemented by something else. – Note that Spencer-Brown gives us a notation to write down forms comprising concatenated distinctions.

Erving Goffman's (1974) *frameworks* to analyze the organization of experience, as there are primary and secondary frameworks, keys and keyings, fabrications, out-of-frame activities, anchoring of activities, ordinary troubles, and breakings of frames.

Michel Serres' (1980) *parasitic relation*, an arrow pointing in one direction, not knowing any going back, relying on finding a host who gives it a niche to exploit.

Niklas Luhmann's (1984) three *dimensions of meaning* and three *types of social systems*: factual (boundary/horizon), temporal (before/after), and social (ego/alter ego); the three types of social system being interaction, or communication among people present and perceiving each other; organization, or communication about decisions among members of organization; and society, or communication among people absent. – Note systems theory's basic injunction, which calls to deal with any issue in terms either of the structure of a system or of an object in the environment of a system. Specification of systems reference in any case comes first.

Michael E. Porter's (1980) five *competitive forces* that shape strategy: threat of new entrants, bargaining power of buyers, threat of substitute products or services, threat of new suppliers, all four of them driving the fifth, which is rivalry among existing competitors.

Michel Foucault's (1990) *discourse analysis*: understanding 'discourse' as a power related to a knowledge shared by agents with respect to procedures to be applied (such as procedures to be applied to the insane, to the prisoner, to the sick, to the deviant, or to sexuality).

Harrison C. White's (1992) *disciplines*: interface, valuating quality, arena, valuating purity, and council, valuating prestige, all three of them describing a specific calculus of how a network is done, or of how a social formation emerges (White 2008).

Michael C. Jensen's (2000) *principal/agent-theory*, stating that for any principal, there is no perfect agent, and allowing for the supplement which states that for any agent, there is no perfect principal either.

Bruno Latour's (2005) list of *five uncertainties* distinguishing the observer's perspective from the object's perspective: who is constituting the group; who or what acts; what other agencies are in force; what controversies underlie the constructions; and who is reporting to whom?

Note, however, that there is no way to deduce your key ideas or insights from any previous idea; heuristics are inventive and creative, depending more on luck than on method; methodological control applies only afterwards, to embed your idea or insight within scientific argumentation (Popper 1935, Feyerabend 1975, Glaser/Strauss 1967). Thus, you start with prejudice, correct it, and come up with another (Gadamer 1960). That is why the

‘mess’ in social science research is only to be dealt with relying on ‘tricks of the trade’ (Law 2004, Becker 1988). Everything depends on how you manage to relate knowledge and ignorance, and how you are able to account for both in your subject as well (Luhmann 1997: 36-43).

## Literature

Abbott, Andrew (2004): *Methods of Discovery: Heuristics of the Social Sciences*, New York: W. W. Norton.

Aristoteles (1987): *Physik*, 2 Bde, griech.-deutsch, übers., mit einer Einleitung und mit Anmerkungen hrsg. von Hans Günter Zekl, Hamburg: Meiner.

Ashby, W. Ross (1958): Requisite Variety and Its Implication for the Control of Complex Systems, *Cybernetica* 1, 83-99.

Baecker, Dirk (2012): Die Texte der Systemtheorie, in: Matthias Ochs and Jochen Schweitzer-Rothers (eds.), *Handbuch Forschung für Systemiker*, Göttingen: Vandenhoeck & Ruprecht, 153-186.

Becker, Howard S. (1988): *Tricks of the Trade: How to Think About Your Research While You’re Doing It*, Chicago, IL: Chicago UP.

Burke, Kenneth (1945): *A Grammar of Motives*, Reprint Berkeley, CA: California UP, 1969.

Comte, Auguste (1830): *Leçons sur la sociologie: Cours de philosophie positive*, Leçons 47 à 51, introduction et notes Juliette Grange, Paris: Flammarion, 1995.

Darwin, Charles (1859): *On the Origin of Species By Means of Natural Selection, or the Preservation of Favoured Races in the Struggle for Life*, Reprint Cambridge, MA: Harvard UP, 1964.

Feyerabend, Paul (1975): *Against Method: Outline of an Anarchistic Theory of Knowledge*, London: New Left Books (dt. 1983).

Foucault, Michel (1990): Qu’est-ce que la critique? *Bulletin de la Société Française de Philosophie* 84 (German transl. Berlin: Merve, 1992, English transl. in *Semiotext(e)* 2007, 41-82).

Gadamer, Hans-Georg (1960): *Wahrheit und Methode: Grundzüge einer philosophischen Hermeneutik*, 6<sup>th</sup> ed., Tübingen: Mohr, 1990.

- Glaser, Barney G, und Anselm L. Strauss (1967): *The Discovery of Grounded Theory: Strategies for Qualitative Research*, 2<sup>nd</sup> pbk. printing, New Brunswick, NJ: Aldine, 2007.
- Goffman, Erving (1974): *Frame Analysis: An Essay on the Organization of Experience*, Cambridge, MA: Harvard UP.
- Heidegger, Martin (1927): *Sein und Zeit*, 12<sup>th</sup> ed., Tübingen: Niemeyer, 1972.
- Heider, Fritz (1926): *Ding und Medium*, Neudruck Berlin: Kulturverlag Kadmos, 2005.
- Heider, Fritz (1958): *The Psychology of Interpersonal Relations*, London: Wiley.
- Jensen, Michael C. (2000): *A Theory of the Firm: Governance, Residual Claims, and Organizational Forms*, Cambridge, MA: Harvard UP.
- Kant, Immanuel (1781/7): *Kritik der reinen Vernunft*, Werke in zwölf Bänden, vols. III-IV, Frankfurt am Main: Suhrkamp, 1956
- Latour, Bruno (2005): *Re-Assembling the Social: An Introduction To Actor-Network Theory*, Oxford: Oxford UP (German 2007).
- Law, John (2004): *After Method: Mess in Social Science Research*, London: Routledge.
- Luhmann, Niklas (1984): *Soziale Systeme: Grundriß einer allgemeinen Theorie*, Frankfurt am Main: Suhrkamp (English transl. Stanford, CA: Stanford UP, 1995).
- Luhmann, Niklas (1997): *Die Gesellschaft der Gesellschaft*, Frankfurt am Main: Suhrkamp.
- Merton, Robert K. (1945): The Sociology of Knowledge, in: idem, *Social Theory and Social Structure*, rev. and enl. ed., New York: Free Press, 1968, 510-542.
- Merton, Robert K. (1949): Manifest and Latent Function, in: idem, *Social Theory and Social Structure*, rev. and enl. ed., New York: Free Press, 1968, 73-138.
- Morin, Edgar (1974): Complexity, *International Social Science Journal* 26, 555-582.
- Morris, Charles (1938): Foundations of the Theory of Signs, in: *Foundations of the Unity Sciences: Toward an International Encyclopedia of Unified Science*, ed. Otto Neurath, vol. 1, no. 2.
- Parsons, Talcott (1950): *The Social System*, New York: Free Press.
- Parsons, Talcott (1978): *Action Theory and the Human Condition*, New York: Free Press.
- Popper, Karl (1935): *Logik der Forschung*, 11. Aufl., Tübingen: Mohr Siebeck, 2005.

- Porter, Michael E. (1980): *Competitive Strategy: Techniques for Analyzing Industries and Competitors*, New York: Free Press.
- Serres, Michel (1980): *Le parasite*, Paris: Grasset (German 1981, English 1982).
- Smith, Adam (1776): *An Inquiry into the Nature and Causes of the Wealth of Nations*, London: Pinguin Classics, 1982.
- Spencer-Brown, George (1969): *Laws of Form*, international ed., Leipzig: Bohmeier, 2008.
- Von Foerster, Heinz (1981): *Observing Systems*, Seaside, CA: Intersystems (most papers reprinted in: idem, *Understanding Understanding: Essays on Cybernetics and Cognition*, New York: Springer, 2003).
- Weick, Karl E. (1979): *The Social Psychology of Organizing*, 2<sup>nd</sup> ed., Reading, MA: Addison-Wesley.
- White, Harrison C. (1992): *Identity and Control: Structural Theory of Action*, Princeton, NJ: Princeton UP (2<sup>nd</sup> ed., Princeton, NJ: Princeton U P, 2008).