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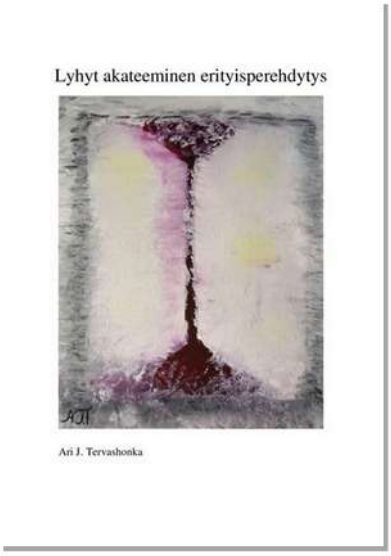
Contents

Cover photo:
Venetian Carousel
in Kuopio
by Lenka Dvořáková.

Osta suosittu Ari Tervashongan Lyhyt akateeminen erityisperehdytys Ebook (noin 60 sivua). NYT vain 4,99 €



Oletko pohtinut mikä on optimaalinen tie akateemiseen menestykseen? Akateemiselle kehittymiselle on loputtomasti erilaisia reittejä, mutta monia näistä yhdistää holistinen ja generalistinen ote. Tässä kirjassa ei siksi esitetä asioita yleistettyinä self help näkökulmina, vaan aiheina joita lukija itse kehittää omien tarpeidensa mukaan. Tarkoituksena on havahduttaa lukija kehityksen kokonaisuuteen. Rasituksesta väsynyt mieli ei opi samalla tavalla kuin huolehdittu, avara ja intuitiota käyttävä mieli. Kirjoituksilla avataan aiheita, joiden yhteisenä pyrkimyksenä on akateemisesta elämästä huolehtiminen, sekä kauniin mielen intuition synty.

Kirjan voi ostaa esimerkiksi verkkosivulta
https://www.bod.fi/kirjakauppa/lyhyt-akateeminen-erityisperehdytys-ari-tervashonka-9789528005254

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Call For Papers

We call for all the scientific essays, unpublished abstract papers, philosophical writings, and summaries or research with the authors' name on it. If you are a member of DSA, staff member of the UEF or otherwise interested in themes of science and philosophy you can submit your paper in all these categories. We will start our science paper in the following UEFDSA Newspaper issues. Do you want to publish more general material? Do you wish to fatten your writer portfolios? Now there is a great chance to do that and also let other people actually know about your research.

One reason for this call of papers is to promote doctoral students and researchers alike for the wider audience and also promote the constant effort that we do during the doctoral studies. We also want to open this forum for methodological development and general scientific reference frame development that requires more philosophical reach than many of the peer-review papers would allow. This includes also themes that are still within the realm of speculation and try-out phases. Send papers to aritervashonka@hotmail.com for the edit.

Science categories will be

I. Scientific essays
II. Philosophical writings
III. Summaries of research
IV. Unpublished abstract papers
V. Methodological essays
VI. Book reviews

Freedom for the scientific essays!

Ari J. Tervashonka – vice editor in chief

Is the making of PhD a competition?

By ARI J. TERVASHONKA — A PERSON WHO READS LORD BYRON

In many ways doctoral dissertations are measured with grades and in a way bidded against each other so that the grades can be given. Also when the post-doc phase begins new doctors of that and that compete on the national and global markets of surplus academics. But is the making of the PhD a competition?

In principle, every thesis should be unique, because of the standard demand for the new science. We are creating something new that did not exist before. New measurements, new hypotheses and theories, new interpretations and qualitative measures of certain phenomena. Bidding these unique creations against each other feels subjectively artificial. It can only be a raw estimate of immediate functional value or methodological merit within the field of study.

I would not, however, lose the spirit of competition. It can fuel any individual to give their very best for their causes and clarify the importance of their deeds. The scientific writer must always believe what they write. It would be unbearable to write 4 years or more without feeling the essence of urgency and the call of the agency. This competition is a very specific kind. It is not a competition against others or in comparison to others. It is not competition only against yourself to be a bit better at what you are doing. In so to speak nature of this competition it is not watered by the outside criteria, it is the selfless competition towards the maximum potential. Nothing more, nothing less.

It is arduous competition against laziness, generalization, bad sources and lower standards. It is an utter onslaught of the merciless bombardment of realities trying to inhibit scientific progress. It can mean arguable and dubious occurrences, methodological endless deconstruction, proud chivalry of peers, and above all, philosophical foundation building.

Do not ever forget your mentors and peers, those who helped your growth. Be kind and just, full of valour and shield those peers who face the hardships of being an intellect. The sword that you can gain after the dissertation is not a mere piece of metal. It is reminder of darker times when the ideal of Universitas needed defenders. If you are able, remember your task not only to research or teach but also remember the name of the word of science. Remember to defend the efforts of centuries, and the global academic community regardless of the country, regardless of the names. Defend the scientific inquiry in society.

To those who are struggling in the valley of shadows, I dare say your time will come. Gather yourself from the reclus of the boredom and misery, find new companions and better corners of the World to continue where you were left off. Do absolutely everything in your power to succeed because this is only one life. Be intellectual heavyweight, do everything, try all, question the World and never stop writing.

Ari J. Tervashonka
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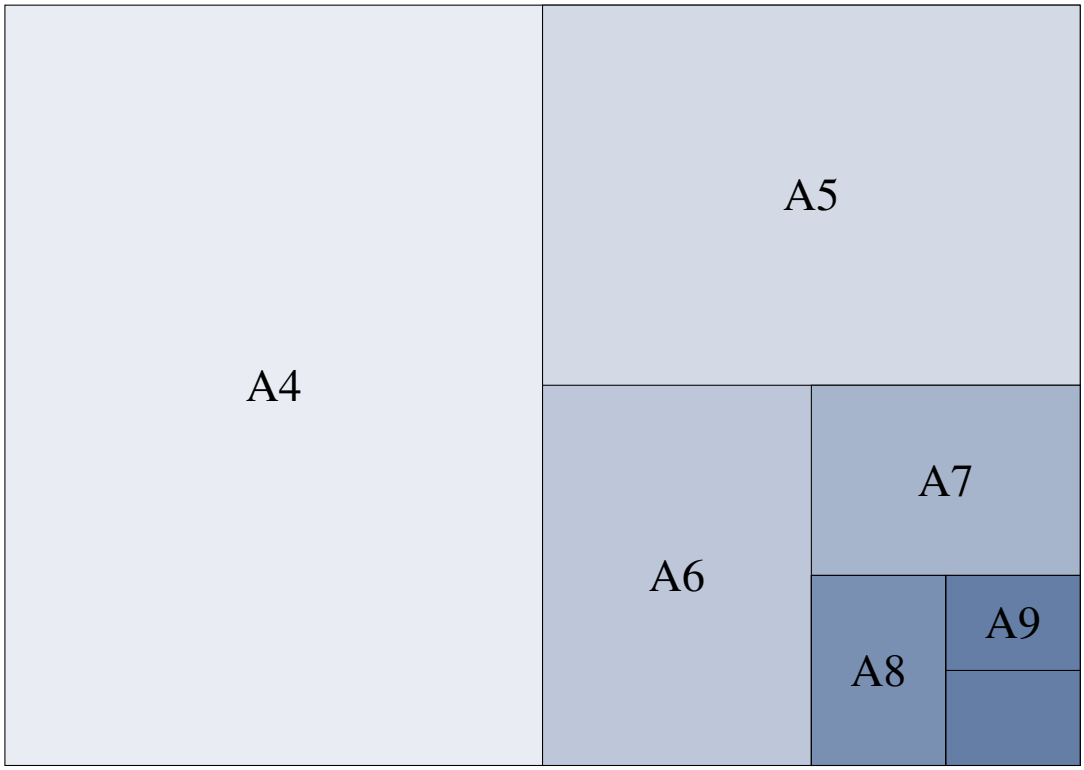

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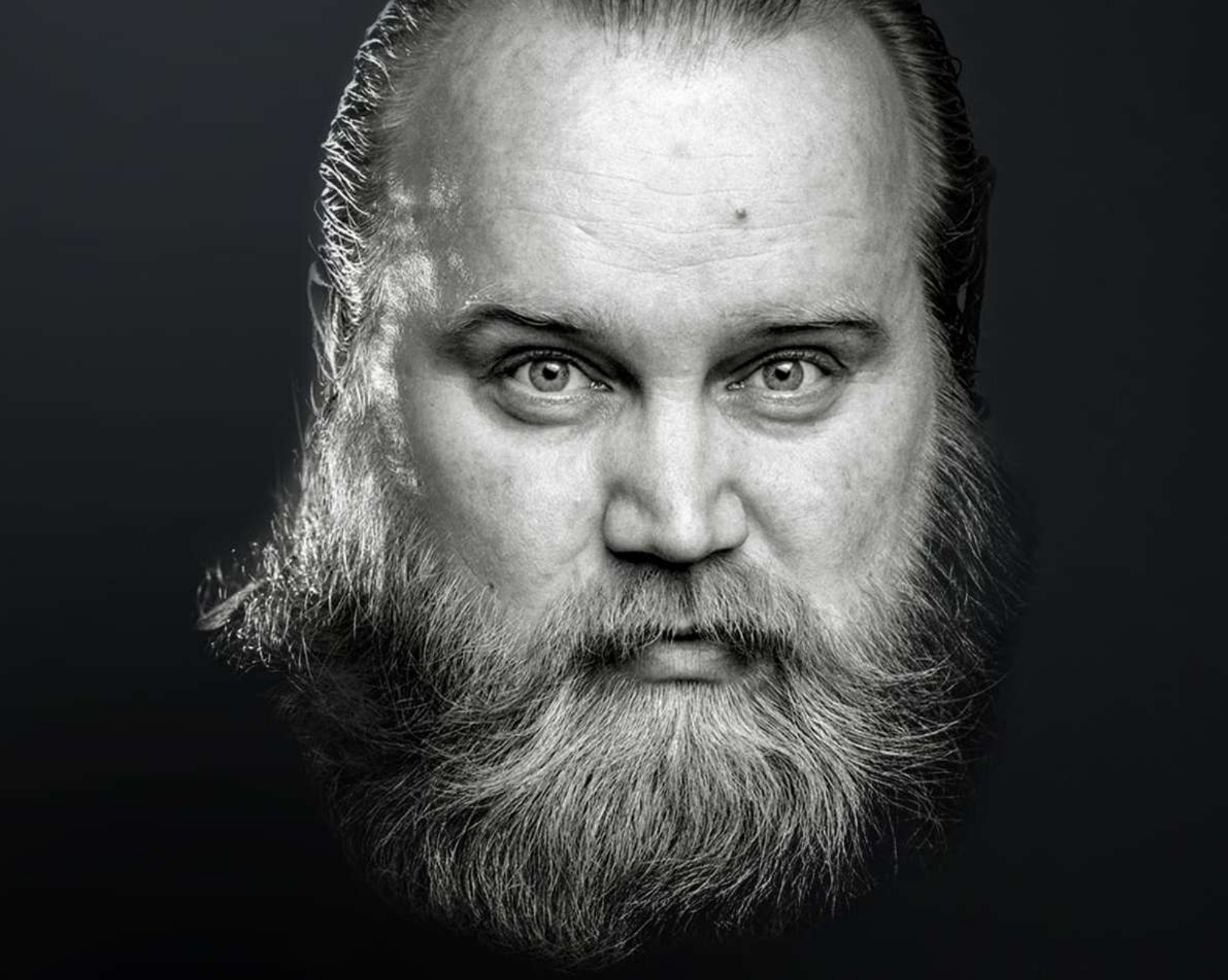

He talks kindly of different kinds of people.
He is quite famous, but he is not looking for fame.

He can be heard in the radio.
With his band, he has made a Christmas CD.

But is he the Santa Claus?

. . . no, it is Gösta Sundqvist!

Gösta Sundqvist (1957–2003) was a Finnish musician and radio personality. He was the leading singer and songwriter for the band Leevi and the Leavings.

In his lyrics, Gösta discussed different kinds of people. The person in the song may. . . burn his sauna (Koko talvi kesämökillä), be crazy and keep dancing in her apartment (Amalia), call his ex-girlfriend during the night (Mitä kuuluu, Marja-Leena?), travel to Turkmenistan to get a girlfriend (Turkmenialainen tyttöystävä), speed with his car (Teuvo, maanteiden kuningas), travel to North Carelia (Pohjois-Karjala).

Some songs are sad (Pimeä tie, mukavaa matkaa), some are sensual (Eldorado; Melkein vieraissa), some are happy (Vakosamettihousuinen mies; Onnelliset).

You can find the next song, for example, in Youtube: https://www.youtube.com/watch?v=vzjd43yqKZc

Leevi and the Leavings – Joulukertomus

Taas on jouluaatto, näkeehän sen almanakasta. Sataa lunta, kenties ensi yönä alkaa jo pakastaa.

Jossain onnellinen perhe avaa joululahjojaan. Me vain vaimon kanssa hiljaisuutta ääneti kuunnellaan.

Muistan vielä, kuinka ennen täällä joululaulut soi, kuinka joulukuusi kynttilöineen joulun tunnelmaa loi.

Kuka jouluaattoiltana voi oveen koputtaa? Eihän Joulupukki meillä ole vuosiin vieraillutkaan.

No ei se ollut Joulupukki, valkoparta, vanha ukki, kun tyttäremme lapsi sylissään meidät yllättää. Olet laihtunut ja liian hento. Joulun ihme. Tähdenlento taivaastako teidät tänne toi? Joulun kellot soi.

Pikku tyttäremme ei kai vielä äiti olla voi, silti pienokaisen kanssa meille joulun tullessaan toi. Tämä joululahja ihmeellinen joulun pelastaa. Vanha keinuheppa ullakolta esiin taas tulla saa.

No ei se ollut Joulupukki, valkoparta, vanha ukki, kun tyttäremme lapsi sylissään meidät yllättää. Olet laihtunut ja liian hento, joulun ihme tähdenlento taivaastako teidät tänne toi? Joulun kellot soi.

Leevi and the Leavings – Christmas story

It is Christmas eve, you can see it from the calendar. It is snowing. Perhaps next night it will get colder.

Somewhere a happy family is opening their Christmas presents. With my wife, we are just silently listening to the silence.

I still remember how Christmas songs were playing here before. Christmas tree, with its candles, brought the Christmas atmosphere.

Who can knock to the door on Christmas eve? Santa Claus has not visited our house for many years.

It was not Santa Claus, white bearded, old guy, knocking at the door. It was our daughter carrying a child on her hands, coming to surprise us. You have lost weight and you are too slim. A Christmas miracle. Did a falling star bring you here from the heaven? Christmas bells are ringing.

Our small daughter cannot be a mother yet, can she? Nonetheless, with an infant she brought us Christmas. This wonderful present saved our Christmas. Old rocking horse can come down from the attic.

It was not Santa Claus, white bearded, old guy, knocking at the door. It was our daughter carrying a child on her hands, coming to surprise us. You have lost weight and you are too slim. A Christmas miracle. Did a falling star bring you here from the heaven? Christmas bells are ringing.

Photos: screenshot from https://www.youtube.com/watch?v=vzjd43yqKZc
https://images.cdn.yle.fi/image/upload/v1573465571/13-1-4447708-1528715115085.jpg

He is defending your freedom.
He encourages sharing and helping each other.

He has a quite big stomach and often wears red.
He is familiar with the habit of working during night.

But is he the Santa Claus?

. . . no, it is Richard Matthew Stallman!

Richard Matthew Stallman (born 1953) is the founder of the Free Software movement. In 1983, he launched the GNU Project. In 1985, he founded the Free Software Foundation (FSF).

A program is “free software” if the program’s users have the four essential freedoms:

Freedom 0: The freedom to run the program as you wish, for any purpose.

Freedom 1: The freedom to study how the program works, and change it so it does your computing as you wish. Access to the source code is a precondition for this.

Freedom 2: The freedom to redistribute copies so you can help your neighbor.

Freedom 3: The freedom to distribute copies of your modified versions to others. By doing this you can give the whole community a chance to benefit from your changes. Access to the source code is a precondition for this.

If software is licensed in a way that does not provide these 4 freedoms, then it is categorized as non-free or proprietary.

You can find the next song, for example, in the website:
http://audio-video.gnu.org/video/stallman_free_software_song_320x240.ogv

Richard M. Stallman – Free Software Song

Join us now and share the software; You’ll be free, hackers, you’ll be free. Join us now and share the software; You’ll be free, hackers, you’ll be free.

Hoarders can get piles of money, That is true, hackers, that is true. But they cannot help their neighbors; That’s not good, hackers, that’s not good.

When we have enough free software At our call, hackers, at our call, We’ll kick out those dirty licenses Ever more, hackers, ever more.

Join us now and share the software; You’ll be free, hackers, you’ll be free. Join us now and share the software; You’ll be free, hackers, you’ll be free.

Richard M. Stallman – Vapaat ohjelmistot –laulu

Liittykää meihin ja jakakaa ohjelmia, hakkerit, vapautukaa. Liittykää meihin ja jakakaa ohjelmia, hakkerit, vapautukaa.

Hamsteri voi saada rahaa, se on totta, hakkerit, se on totta. Vaan ei voi auttaa naapureitaan, se on paha, hakkerit, se on paha.

Kun vapaita ohjelmistoja tarpeeksi on, hakkerit, tarpeeksi on. Poljemme likaiset lisenssit syvälle suohon, hakkerit, vain suohon.

Liittykää meihin ja jakakaa ohjelmia, hakkerit, vapautukaa. Liittykää meihin ja jakakaa ohjelmia, hakkerit, vapautukaa.

(Translated by Juha-Matti Huusko.)

In "Free Software", we mean "free" as in "free speech" (libre), not as in "free beer" (gratis).

If you want to know more, there are some options:
TEDx talk:
https://www.youtube.com/watch?v=7twCCWjSnMg
Wikipedia:
https://en.wikipedia.org/wiki/Free_software
Talk with Juha-Matti:
juha-matti.huusko@uef.fi

Photos:
https://media.libreplanet.org/mgoblin_media/media_entries/327/rms2.medium.png
screenshot from https://www.youtube.com/watch?v=9sJUDx7iEJw

Is he the Santa Claus?

. . . yes, it is Santa Claus!

The man behind the white beard

By LENKA DVOŘÁKOVÁ

Every year he comes to your house. Kids love him. Parents trust him. He has small round belly that shakes like a bowl full of jelly. He has many names and one of the biggest cosplay fandom in the world. But who is really hiding behind the white beard?

Everything started in the 3rd century, when a boy named Nicholas was born to wealthy parents in Patara in Asia Minor. After his parent's death he dedicated his life in to serving God and became Bishop of Myra. All his life he was helping the needy, the suffering and the sick. There are almost 40 stories of good deeds and miracles connected to him. One of the most famous stories is about three sisters who didn't have enough dowry to get married and were ordained to be sold into slavery. In disguise, St. Nicholas threw three bags of gold at three different nights through the window of their house. Allegedly, the bags of gold landed in the shoes left before the fire to dry and from here comes the tradition of leaving stockings on the fireplace. After his death, St. Nicholas has become a patron saint of children, sailors, falsely accused and many other.

St. Nicholas is until today one of the most revered saints and he is celebrated with a feast on the date of his death on 6 December. In some countries (such as Netherlands, Germany, Czech Republic and others) there is a gift giving tradition on the eve of Saint Nicholas' day, 5 December. Saint Nicholas got different names (Sinterklaas in Dutch, Nikolaus in German, Mikuláš in Czech), but the appearance stayed fairly similar. He is usually portraited as a tall man with long white beard wearing his bishop clothing. When Dutch colonized the America, they brought along with pancakes and waffles the tradition of Sinterklaas. With time his name changed yet again, he had a slight wardrobe change, but his beard is still as white as the snow.

Lenka Dvořáková
lenka.dvorakova@uef.fi

UEFDSA Christmas party on 13.12.2019 in Joensuu.

UEFDSA wishes you Merry Christmas, and happy new year 2020!

Photos:
https://upload.wikimedia.org/wikipedia/commons/4/49/Jonathan_G_Meath_portrays_Santa_Claus.jpg
"UEFDSA Christmas party on 13.12.2019 in Joensuu", by Juha-Matti Huusko

Contents

Scientific Papers — I. Essays

Re-thinking the themes of systematic analysis – Method essay II

By ARI J. TERVASHONKA

John Dewey and the weight of argument

In his 123 pages long book John Dewey (1859–1952) has shown his views on how to reconstruct thinking in philosophy. Dewey's views and arguments are coupled with historical and philosophical-logical arguments on what directions philosophy should be heading to. The book itself is deviously small but it contains usual several arguments per page so in terms of an argumentative volume it could have been 500 pages long[1] and still comprehensive explanation on Dewey's views. Dewey forms argumentative counterpoint in comparison to more strict views by Paul Feyerabend (1924–1994). To Dewey similar problems in philosophy and science apply, but still, there are major differences on how those problems are being solved. Dewey calls for disturbance of scientific enquiry so that science could benefit from it. He believed that partly disturbing effects on theory creation could benefit scientific progress. This is a very mild version of Feyerabend's total methodological anarchy.[2]

Methodological mishaps and critical arguments

To us, the most interesting parts are arguments that have some food for thought towards systematic analysis. This chapter follows critical arguments and reasoning in that regard by Dewey. The book was written 25 years after the first world war. In connection with the biggest humanitarian disaster of Dewey's time, first world war shaped new skepticism, can any philosophy lead us to better understanding and betterment of society. With this setting Dewey starts to open what he means by *Reconstruction in philosophy* (1920).

Reconstruction boils down to arguments that Dewey has used to point out flaws and possible new outcomes. For the history of science one of the most interesting argument is that intellectual development can lack depth when the functions of a theory are involved:

[1] I needed discard over 1000 pages after reading because there were no fruitful arguments.
[2] Dewey 1948/2004, x

> “More definitely, abstraction is indispensable if one experience is to be applicable in other experiences. Every concrete experience in its totality is unique; it is itself, non-reduplicable. Taken in its full concreteness, it yields no instruction, it throws no light. What is called abstraction means that some phase of it is selected for the sake of the aid it gives in grasping something else. Taken by itself, it is a mangled fragment, a poor substitute for the living whole from which it is extracted. But viewed teleologically or practically, it represents the only way in which one experience can be made of any value for another – the only way in which something enlightening can be secured. What is called false or vicious abstractionism signifies that the function of the detached fragment is forgotten and neglected, so that it is esteemed barely in itself as something of a higher order than the muddy and irregular concrete from which it was wrenched. Looked at functionally, not structurally and statically, abstraction means that something has been released from one experience for transfer to another. Abstraction is liberation.
>
> Dewey 1948/2004, 86.

Dewey continues to argue that abstractions can simultaneously create new explanation and enlarge our understanding regarding certain phenomena, but there is always an inherent danger that text will be cut too much and misused conflicted way. This can mean that taken for granted attitude for the subject can lead researcher stray from the optimal path. If a researcher makes abstractions based on old, in cases of history this can mean misrepresentation at large.

Systematic analysis is partly a great method for finding out flaws and functions and connections through them. Still, it needs a great deal of work to do properly. Qualitative research can display many abstract ideas, a good example is the history of science. It has to take into scope large quantities of qualitative materials that cannot be made quantitative research if we talk about research that actually can make explanations for research questions honestly. Therefore, if the systematic analysis is used earlier to cut parts apart, these fragments cannot be used at random. There has to be a systematic hierarchy of thought involved to ascertain needed cohesion that will make logical sense. This logical structure is the key to why systematic analysis as a method can be used for scientific research in qualitative fields of study.

It is interesting to find that Dewey has continued his train of thought similarly to comment on different areas of science that try to describe certain aspects of their respective fields. To him, if there is no equal amount of “idealization without struggle” it will contribute only “systematized delusions and mistake” which will then conduct research in own terms without being deep enough in an argumentative sense. There are large varieties of problems that can cause this effect. Studying subjects with systematic analysis is not an easy task. The usual method is picked because clean-cut logical easiness, but I cannot say that systematic analysis could or even should follow this logic. The use of this method is not always justified, needed work concerning research question could be achieved otherwise, but it can safeguard handling of the subject matter. If research has any relation towards interdisciplinary approach systematic analysis is one of the safest ways to conduct research methodologically. This safety does not come with ease, but with logical structures that failsafe different arguments. Because when using this method every argument needs to be explained in terms of source-logic. This means that paths from different qualitative sources need to be clean-cut reasoned, without flawed abstractions and unreasonable connotations. If done correctly, systematic analysis is handled in a way that every single argument that is put to display within research text, has full reasoning behind from abstraction to connectivity, from that to function and from function to smaller parts that form that certain lines of reasoning. This is mainly why I cannot recommend this method to anyone who is not willing to make this effort, because without logical structure from idea fragment to the abstractions there is no systematical analysis.[3]

[3]Dewey 1948/2004, 78-80.

But does argument need to be within a certain form? Wouldn't it be beneficial to view certain facts differently and arrange arguments respectively? With identification problem, we will continue with the Deweys argument on systemization related issues. Another related argument was that rationalizations should be broken sometimes to further development in history:

> "In contrast with this experimental and readjusting intelligence, it must be said that Reason as employed by historic rationalism has tended to carelessness, conceit, irresponsibility, and rigidity- in short absolutism. A certain school of contemporary psychology uses the term "rationalization" to denote those mental mechanisms by which we unconsciously put a better face on our conduct or experience than facts justify. We excuse ourselves to ourselves by introducing a purpose and order into that of which we are secretly ashamed. In like fashion, historic rationalism has often tended to use Reason as an agency of justification and apologetics. It has taught that the defects and evils of actual experience disappear in the "rational whole" of things; that things appear evil merely because of the partial, incomplete nature of experience. Or, as was noted by Bacon, "reason" assumes a false simplicity, uniformity and universality, and opens for science a path of fictitious ease. This course results in intellectual irresponsibility and neglect. . . "
>
> Dewey 1948/2004, 56

With this, I can agree completely. Without a question the majority of my work relates to this problem. Oversimplified theory creations, utter lack of depth in analysis concerning the development of the history of science and almost copy-paste like comparative processes have cumulated too similar voices about the history of science. Theoretically, there is no stability left, mainly because theoretical winners of scientific history have formed an almost full picture of development involved. This is so far from the truth as Dewey has put it. With too much generalization on top of older generalized abstractions history of science often displays lean and progressive nature that is in itself only a partial shadow of reality. The researcher will notice from original sources inconsistencies in comparison to these alternative overgeneralized storylines.

Now, how can this argument be justified? Doesn't field know what to do by now? The biggest problem is halted progression and consistency with research and funding alike. With these conflicting things only rarely can full pictures even partly emerge from this field of study. To do analysis well enough, time must be put to task. To me, the difference was drawn mainly by Olivier Darrigol. Externally or internally illogical and broken theory-structures can be displayed with possible ease if enough research is conducted before. This however, needs time, certain types of memory and not only years but decades. This can be a tall order, but I would say that with logical enough method choices researchers could similarly make difference.

This apparent difficulty has shaped different families of research. On the other side, there are vigilantes of total history view and on the other generalists who try scope a whole with the evidently least amount of research time. Both ways can be justified differently and mostly it can be a funding problem. However, in comparison to Dewey's argument, it seems that if we think research quality, the systematic analysis could provide needed effort. Because if a method is used, it inherently requires full workload, the alternatives do not suffice. On this theme, Popper has also much to offer.

Dewey has also written much on the concept of feelings within the research. One of his thesis is that philosophy is not merely a construction of knowledge. To him, it is more true to say that it is reasonable to assume hypothetically, that philosophy is constructed from social and emotional materials. As we can see many times historians too have viewed history through idealized lenses to convey truth through feelings. To make the end result of any research humane, some phenomenological feasibilities can be thought. At best it can mean the dirt and dust, color and feel of microhistory. It puts life into the past, and then even memories of commoners

can be as vivid as best arguments by centuries dead person. To breath life into ideas and old feelings is a difficult undertaking without systematic mentality. It can mean a voyage that has no limit or argumentative merit to back it up. If views cannot be justified argumentatively research faces ruin within the public eye.[4]

Despite this difficulty that the phenomenological approach can yield, I think essentially Deweys argument on feelings is correct. The difference is that I would go even further. If we think intuitive processes that people use to create ideas we can for the sake of argument describe scale from

Argumentative breaking intuition ——- 'Kuhn's normal science'———System building intuition

Now it needs to be mentioned that these "opposites" are only opposites in a sense of focus. One can be a great builder of theories, but also avid in a critically argumentative sense. The only limit is how we choose to spend our time in our lives. On the scale can be seen as end results of different intuitive processes. Breaking intuition is a type of Kurt Gödel, Esa Saarinen, Paul Feyerabend, and John Dewey. They are not the best system builders, but their merit is that they can break down systems and thoughts with relative ease. On another side of the intuitive scale is system builders, great cohesive forces of science, Gottfried Leibniz, Isaac Newton, Ludwig von Bertalanffy, and Clerk Maxwell. These are people who can breathe in horrible amounts of irregular data and turn it into systematic cohesion with builder's intuition. Systemizationers if you will. These are characteristics of different thinkers who are by no means very similar in comparison. The only simple way to put it, is the following result judgement based on their work and use of intuition within theory creation.

Now, after all, if we follow their lead into intellectual discussions that have been waged through decades and centuries, we can see that viewing results by these people is futile if we only look on the dust side of the data. To understand the intellectual past, one needs to take the partial leap into unsureness that will follow. Intellectual history is an accumulation of not only intelligent processes but also those that are built up from different intuitive processes that do not follow regulations of thought. To this end, I agree fully with Dewey but I want to make a point on, not only to the emotional nature of human thought but also mark that intuition has been a hugely influential part of idea creation.

How can we follow this? If we take only on the intuitive side and proceed with only feelings to guide us, we will be doomed to counter fanciful ideals that do not reflect the nature of truth. If we only limit ourselves to describe minute tendencies with the systematic analysis we can only come so far with the feelings involved. To make ends meet we have to do something simple and wonderful, we will do both.

Systematic analysis can work as fail-safe method against unsureness. However, this will not suffice if some new ideas or views about certain phenomena are constructed. We have to use a similar mental approach that the creators of those ideas have used to create those wonderful things that form an area of intellectual history. This doesn't mean that the researcher is supposed to be as smart as Kurt Gödel to research his ideas. No. The point is to try to understand substance intuitively and to check these abstract intuitive processes through vigorous systematic analysis. With this mixed modular way, we can use systematic analysis as a base method for sound scientific arguments without killing needed intuitive processes.

To help intuition sometimes extra measures need to be taken. On the study of Maxwellian theories, I have used entities based view on theories. With that, I mean that I imagine theories as entities and these entities are given attributes that are functions of those theories. Through this process, theories can be played out intuitively and research can be checked with systematic analysis to keep relative security on any new point and discovery. With partly personalizing theories through this mental trick, one can use intuitive processes that could be otherwise non-accessible. This is just one of many ways how to proceed with the use of intuitive processes.

Dewey – call for the systemization

At his own time, Dewey ventured to argue that science needs systemization. To him, cohesive structures were important despite his philosophical style

[4]Dewey 1948/2004, 1, 15, 59.

was the opposite as one can be. Full proof of that is this book where reconstruction in philosophy actually means decisive arguments against old views. Despite and maybe just because of this Dewey saw the systemic approach important. To his call has answered many researchers with different systemic intentions. These views are also the basis of systematic analysis so small recoup is needed. It all began with systems theory, based on the old military theory that found a systemic approach needed when military campaigns were facing totally new problems. Footwear shortages, food, replacements, and hospital services. All those things were needed in the largest quantities never imagined before. It was a wake of WWI. With similar note was developed systems theory that has many engineers and creators. Systems way of thinking combined old data with new logical structure and it was once heralded as one of the best methods and avenues of explanation. Systems approach varied from different disciplines, but basic the core of it was nearly similar in each case. The point of it all was to make systematic cohesion and develop systems from available data to show problems and solutions. Economics, law, biology and many other disciplines used this approach. Then came even more cohesive methodology introduced by Ludwig von Bertalanffy in the form of General systems theory GST. Bertalanffy's idea was to combine every systemic approach within different disciplines to bridge methodology between ever-increasingly different disciplines. His book on GST shows one of the largest attempts to create a philosophical model of all disciplines based on the idea of inherent systemic nature within each discipline.

This attempt was heavily supported and argued against. Today we can see disciplines such as system analysis and systematic thinking on playing field. These all are partly foster fathers of systematic analysis that has not been created as a notion but as a need from different disciplines. Systematic analysis is a kind of odd notion. It has been simultaneously interpreted by different disciplines that have connected ideas from systems analysis, GST and systematic thinking.

These developments have formed systematic analysis, shadow Dewey's intention for systemization in science. His book starts with similar worries of breaking science too far apart, a similar concern voiced by Bertalanffy in his GST. However, Dewey went further than that, despite he has written way before. The Deweys problem with systemization was the danger of dogmatism. If left uncheck dogmatism could spoil many old and new views by following reasoning[5]:

> "If we take into account the supposed body of ready-made knowledge upon which learned men rested in supine acquiescence and which they recited in parrot-like chorus, we find it consists of two parts. One of these parts is made up of errors of our ancestors, musty with antiquity and organized into pseudo-science through the use of the classic logic. Such "truths" are in fact only the systemized mistakes and prejudices of our ancestors. Many of them originated in accident; many in class interest and bias, perpetuated by authority for this very reason- a consideration which later actuated Locke's attack upon the doctrine of innate ideas. The other portion of accepted beliefs comes from instinctive tendencies of the human mind that give it a dangerous bias until counteracted by a conscious and critical logic.
>
> Dewey 1948/2004, 20.

As one can see, Dewey was not a friend of scholastic systemization without critical thinking. This is the key element that also can be found on systematic analysis. As a method, systematic analysis does not impose the idea of the system on what is being researched, quite the opposite. The systematic analysis only uses systemic structured as the venue of explanation only if reality supports this structure. This method uses systemic argumentation that verifies in best cases what has been researched and puts all arguments under the light of scrutiny and falsification.

[5]Dewey 1948/2004, xxiii, 20.

Methodological systemization problem from Dewey's argument on cohesive supremacy

In short, Dewey calls for generic systemization within theory creation to pave the way for the more clear narrative and science -is well put argument. Anyone who tries to explain something should try to make the job of it. Surround problem with equally proficient tools, tackle arguments one by one and creating a cleanest and leanest functional pile of arguments, fitting for great theory. Now, the question is what could go wrong here? I would say everything related to the chaos that corners every qualitative problem. Let's start with Dewey's position on the issue.

> "At the same time, a classification is not a bare transcript or duplicate of some finished and done-for arrangement pre-existing nature. It is rather a repertory of weapons for attack upon the future and the unknown. For success, the detail of past knowledge must be reduced from bare facts to meanings, the fewer, simpler and more extensive the better. . . . . They must be arranged so as not to overlap, for otherwise when they are applied to new events they interfere and produce confusion. In order that there may be ease and economy of movement in dealing with the enormous diversity of occurrences that present themselves, we must be able to move promptly and definitely from one tool of attack to another. . .
> . . . Classification transforms a wilderness of by-ways in experience into a well-ordered system of roads, promoting transportation and communication in inquiry. . .
> . . . If the view held as to the later is understood, the conception of truth follows as a matter of course. If it be not understood, any attempt to present the theory of truth is bound to be confusing, and the theory itself to seem arbitrary and absurd. . .
> . . . If they fail to clear up confusion, to eliminate defects, if they increase confusion, uncertainty and evil when they are acted upon, then are they false."
>
> Dewey 1948/2004, 89-90.

One could say this is a spectacular battle cry for consistent, coherent and correct science making. Dewey starts his position by arranging classification and systematic evidence-based build up to be a key element of the correct theory building. But while making this assessment he makes some really striking definitions of the nature of unsureness. Dewey sees it as unsureness and chaos within the world is something that the modern scientist odd to be confronting. He even goes as far as to virtually weaponize rightful arguments as a weapon of choices. This has been seen many times. It is part

of western philosophy, science, and individual outreach towards reason and logic. No chaotic corner can be left or untouched. It is similar to the Vienna Circle and their arguments on metaphysics. However, as Kurt Gödel has shown with logic, you cannot take metaphysics out of science without using metaphysical methods, therefore science cannot disregard metaphysics altogether from theory building. Within late years this notion has developed new scientific results such as systematic thinking and other important aspects that can help scientific progress. Meta can guide us wrong sometimes, but it is also meta that can find a way to new areas in science. This is one of the most important works within philosophy as science.

I would like to point out in similar relation to Kurt Gödel (1906–1978) that Dewey and old western philosophy are wrong on account of unsureness and chaos. When we consider larger and more complex systems of data, we can systematically explain how things functionally work. At this point, I agree with the intention of Dewey. But here is where we must take steps apart. Some systems as big as complex they are can have inherent qualitative problems. Systems can be functionally "broken systems" that work, but some of the parts or functions are not there or they do not work. It is, as describing beehive with occasional random events that take place within its ordinary form. Similar things happen in reality. Things like the uncertainty principle by Heisenberg, the second law of thermodynamics and other clever chaos, creating inventions have been breaking havoc loose, ever since they were created.

In my work this relation is mostly a question of the broken system and about superpositions of truths when we compare different ideafamilies or historical theory creation processes. Sometimes the only thing that we can do is to determine that there are gaps of logic and to that extent I believe that Dewey would agree with me. To him, philosophy was not a buildup of cumulative orderly data. As he has written it was an accumulation of emotional material, an argument that I can agree. In many cases, a scientist cannot chance upon anything new without using intuitive processes. This limitation means also the liberation of theory creation in a way towards more humane and intuitive ways of thinking. Sometimes chaos can ruin theory, but sometimes it is part of its inner workings.

Popper I – The logic of scientific discovery

Karl Popper's (1902–1994) almost perfectly captivating book on the logic of scientific discovery reveals some fundamental aspects of how scientific enquiry works. I have chosen this book to be first, despite Proofs and refutations is a clearer version of the mentioned problematic. The reason for this is that within this book, Popper has shown the critical outlines for falsification and demarcation. Falsification is the very basic concept in science, but demarcation has not reached an equal level of recognition. Demarcation is the basis for falsification, it is the scientific limit for empirically supported sciences that determines science from "pseudo-science". To this end, Popper has voiced a very harsh opinions on what is science and what is not. Within later years, this question took the form of division between hard and soft questions, quantitative and qualitative research and so forth.

Based on demarcation; If a theory has been created there are some aspects that can cause demarcation of a theory. Therefore, the theory will be falsified by the arguments that are not supported by theory, even if it should be. This conflict with theory and reality is the argumentative basis to break a theory partly or fully. The theory is by this action falsified through falsifiability that makes the theory scientifically open system. The following essay will be concentrating on the merit of falsifiability within qualitative sciences. Namely rules for falsification and demarcations are not introduced by Popper within this area. Popper's argument is made for scientifically "hard" questions that can be answered by some exact measure. This, however, does not go within similar borders with the qualitative examination.

Popper denies inductive logic

Our problem starts with Popper's introduction to the question of demarcation:

> “. . . my main reason for rejecting inductive logic is precisely that it does not provide a suitable distinguishing mark of the empirical, non-metaphysical, character of a theoretical system; or in other words, that it does not provide a suitable ‘criterion of demarcation’.
>
> . . . The older positivists wished to admit, as scientific or legitimate, only those concepts (or notions or ideas) which were, as they put it, ‘derived from experience’; those concepts, that is which they believed to be logically reducible to elements of sense-experience, such as sensations (or sense-data), impressions, perceptions, visual or auditory memories, and so forth. Modern positivists are apt to see more clearly that science is not a system of concepts but rather a system of statements. Accordingly, they wish to admit, as scientific or legimate, only those statements which are reducible to elementary (or ‘atomic’) statements of experience-to ‘judgments of perception’ or ‘atomic propositions’ or ‘protocol-sentences’ or what not. It is clear that the implied criterion for demarcation is identical with the demand for and inductive logic. Since I reject inductive logic I must also reject all attempts solve the problem of demarcation. With this rejection, the problem of demarcation gains in importance for the present inquiry. Finding an acceptable criterion of demarcation myst be a crucial task for any epistemology which does not accept inductive logic.”
>
> Popper 1959/2002, 11-12.

As we can see here Popper did not like inductive logic as a method of scientific discovery. To him if the criterion of demarcation was vague, that was one of the signs that would tell him is enquiry scientific or not. However, qualitative research is not as black and white as an empirical science. Inductive logic can be an elementary part of qualitative research. It is also the basis for meta-anything. Including meta-methodology or meta-discussions of ideal origins within intellectual history. Despite this Popper knows pretty well this question of meta. He has also used many examples such as Schrödinger’s cat or Heisenberg’s principle of uncertainty. It has been an amusing comparison to some extent to see one of the greatest achievements used in this way to narrate reasoning why deductive logic has to be the backbone for empirical sciences. These theories are really good examples of counter deductive measures in a theoretical sense. For that inductive logic is a too big portion of a qualitative methods and research to be left out. To my question of dividing science into parts of meta and non-meta, hard or soft questions or qualitative and measurable logical subjects is a hindrance to scientific progress. In this manner I oppose Popper with systematic analysis, if some of the principles and criteria are corroding to new thoughts, the whole enquiry faces injury. Now, with this, we can see there is a huge argumentative gap between empirical and qualitative research. This differing basis is also the basis for the different criteria for different disciplines within qualitative research.

As earlier, we have seen Paul Feyerabend didn’t even like demarcation, little alone any principle overshadowing scientific enquiry. This totalistic view on methodological choices is anti-thesis for the Popperian view. In only principle being “anything goes” rules for demarcation would be non-existing or there would be no real value for them. Therefore, for qualitative sciences demarcation and partly the basis for Popper’s falsifiability would become very problematic. To that end, I agree and don’t agree with both of them. This is the key element for systematic analysis, it’s touch needs to be tender enough to grasp qualitative truths and super-positions of subjective truths. The method also needs the basis for demarcation. At first, these two different views are on the opposite end, but I have written the following solution for this problem by eclectic reasoning. There are a variety of choices that we can make these opposite grounds benefiting for systematic analysis.

Solution for demarcation problem for qualitative research

We are left with the following question: What can be the methodological basis for systematic analysis as proof of scientific inquiry? Can there be any criterion of demarcation within qualitative sciences if

we only look at the basic idea of demarcation, not Popper's totalistic view of empirical sciences and non-science. This question is about the reliability of the method. In qualitative research, there cannot always be the same line of reasoning or same evidence-based research, mainly because judgement within these choices can be built on ideals or opinions of some sort. With this. we could say that demarcation as Popper meant it doesn't work with qualitative research and be done with this.

Certain qualities could benefit qualitative research. It is the basis of a softer criterion for qualitative research. I have intentionally used word soft because as Poppers followers have put it there is the division of hard/soft questions. If we use these definitions we might as well talk these issues with equal definitions. For further reading, I only mean with soft questions, examinations that cannot be measured with some exact terms. Basically, every qualitative research is generally definable as soft questions. Obviously many qualitative researchers do not like this division, but it will serve our purposes for reasoning here.

Despite the demarcation criterion being meant for empirical research, we can take this idea and question the basis of qualitative research made with systematic analysis with it. The reason, why this would be beneficial for the development of this method, is that Popper has used falsification as a criterion for demarcation. Hence the theory that emerges by systematic analysis needs partly falsifiable grounds. It is important that falsification is not taken for granted in the case of qualitative science. It is the notion that if evidence does not support the theory, the theory must be modified or discarded. I think that falsification is a far more superior criterion for demarcation than its alternative, verification. But there are limits within qualitative research so we cannot apply the full amount of falsification. What then can be the basis of the criterion of demarcation?

If we research subject with a systematic analysis that means systematic evidence breaking in an argumentative sense. We need to take qualitative measures, define its criteria and form arguments based on evidence and follow our criterion. For this, I use term logical verification. It has some similarities for verification, but the intention is the opposite. If the researcher uses systematic analysis, the systematic nature of this method will ask for evidence-based argumentation that can be fully shown within the text. This means that research logically verifies itself argumentatively, but it also means that every evidence structures made, need to be shown with the flaws and limitations within the problem.[6] Obviously, humans cannot do this fully. It is a merit of clear ideal research if researchers could do this in a total manner.

Logical verification is therefore philosophical end for argumentation. It is a notion for systematic analysis that demands argumentative consistency. While doing so it does the opposite of verification, it opens all arguments and evidence for scientific enquiry. With this, we can say that systematic analysis can have certain falsifiability based on argumentation and evidence used. Theories are not 'verified' their judgement is openly discussed in line with the evidence, therefore the use of logical verification. If logical verification is done right, it is done with intentionally displayed criticism to own work rather than to form cohesion. This could sound counter-intuitive for that purpose. The theory is usually to form a cohesive structure of knowledge. With systematic analysis, this changes a bit. The honest mentality needs to guide research inquiry more than all alternatives when natural complexity and 'broken systems' are accounted for.

Simplicity and complexity, -extra logical?

Usual question on what makes a system or any structure complex is deeply connected with the reference frame. To me it is a question of principle if the reference frame grows, so grows the need for more complex explanation to achieve criterion that has new limits. The simple closed system can be air within the tire. Without light, movement or anything. But when we raise our level of reference frame we start to account for the atomic level of movements, quarks and fundamental basis for quantum mechanics. Suddenly the scope of this enquiry has enthralled us to face the vast complexity of that at start apparently simple closed system. In that manner, I always think

[6] This is a very similar idea that Popper has written in the relation of falsification and consistency. Popper differs naturally by the intention, the intention being empirical.

complexity in terms of scope, what is the degree of zoom we use for the subject area. That scope determines the criteria for scientific enquiry.

For Popper, this subject entails much criticism against the whole measure of quality that word simplicity entails. As his stand on qualitative sciences and inductive logic, he doesn't like term simplicity and treats it as 'extra-logical'.[7] To him, the question is merely aesthetical or pragmatic:

> "What, if anything, remains after we have eliminated the aesthetic and the pragmatic ideas of simplicity? Is there a concept of simplicity which is of importance for the logician? Is it possible to distinguish theories that are logically not equivalent according to their degrees of simplicity?"
>
> Popper 1959/2002, 122.

For him whole argument whether or not system or theory is simple or complex, is a qualitative description choice. This is the exact same basis as I have formulated before. However, because of the division between empirical and qualitative science these views collide heavily. Now the question is why would we need to use the systems as the basis for study in qualitative research? To me, systematic nature of the subject can vary so much that this question cannot be held in equal measure within every discipline or subject. If systematic analysis would be built only for the study of systems, it would ruin the whole freedom of this method. Therefore, it is vital to avoid this strict distinction between qualitative and empirical studies and build systematic analysis with this thought in mind.

We as human beings naturally look for systemic entities when we face different realities and life in general. Patterns and connections flow through our minds as the evolutive success story. Therefore, to see systematic nature somewhere as humans can be as easy as looking with eyes. Maxwell did this with mathematical outlines concerning electromagnetism. He took the pile of evidence and breath out mathematics as a systematic basis for these two phenomena. This event in the history of science can be better and the worst example of where a systematic approach can lead us. My problem with it is that if we always think that a system can be found or phenomena or subject in question can be qualified within systematic reference frames without extorting reality too much, we can be jailed by our fancy for systematic thinking. This is exactly why I write concerning the system, the reason is not only about complexity, but the whole point is to show also that there can be broken or otherwise irrational systems. These do not follow fluent logic or even functionality that could be assembled as a system. The resounding point is, there are no systems to be found everywhere.

If we accept this as base truth or as a principle, we will face the difficulty that relates to the dilemma of simplicity. If we have no form by which we can study certain subjects and we cannot according to Popper takes the complexity for granted, how we can conduct research? The solution would be in qualitative sciences to approach problems systematically and fail to check argumentative reasoning in this logical manner in terms of analysis. This approach is very different from systems theory or even from general systems theory (GST). This solution is the same as earlier, to study systematically, without reliance on systems or to believe that there are systems to be found.

It is fine in the analytical sense if some system or even systematic element is found. But for our problem, we cannot assume this attribute to be found everywhere when we solve different questions with systematic analysis. In correlation with Popper, if we think the theory creation of different theories historically, we have similar problems that Popper has written for us. Intellectually, these theories cannot be qualified with an equal standard, every measure would be uneven by Popperian standards, but it would be just right if done correctly by the measure of systematic analysis.

If we analyze the scope and reflections of each theory based on their functions, we can by accessing those functions also degree workings of different theories in comparison to another. The biggest limitation for this is imagination and comparative

[7] Popper 1959/2002, 122.

outlines and scope for different functions. This can mean varied qualities that Popper has voiced to be an unreachable goal. However, if we acknowledge that qualities can be measured qualitatively by their functions we can, therefore, access different theories based on their functional relations. I judge that this can be done by using systematic analysis as a methodological medium for different disciplines to account for differences. If such an agreement can be made by using this method we can corner borderlines for complexity and maybe, just maybe reach a point where analysis can question the functional simplicity without tainting the whole picture of theory. For Popper, this would be hugely disagreeable for he looked for the criterion for demarcation and falsification goals. As we have earlier shown falsifiability cannot be a strict measure for that within qualitative sciences. But for qualitative processes, we can see how beneficial it is to agree that some parts of Popper can be used to formulate a more sound theoretical reference frame for methodology.

Bertalanffy – GST, General system theory structures for systematic analysis

Ludwig von Bertalanffy (1901–1972) researched a couple of decades of theoretical biology. To him, one of the main difficulties during his time on the field was tension between mechanical and vitalistical approaches in biology. These different views were colliding over how one should be thinking qualities and attributes of a living organisms. A solution that Bertalanffy used was to connect systems thinking to this problem and his suggestion was to use organizational logic to even out organic structures from non-organic. This meta-level approach was developed by him to a degree of general system theory that had an interdisciplinary notion to it. As a theory book, General system theory is grand bridge-building between different disciplines. The scope by which Bertalanffy has attacked the problem of interdisciplinary questions is one of the biggest theories formed. The core of this theory is to apply similarities from different disciplines in the form of systems and systematic outlines. It is a methodological comparison through similar meta-methodological intentions. With this scope, Bertalanffy's general system theory has striking attributes in comparison to the Leibnizian Monad theory. It is bred from biological systems to physical systems, from mathematical systems to organizational social systems and so on.

Now, hardest part is to explain exactly what the GST is. To define this theory is to say it is a big attempt to explain the inherent systematic nature of different disciplines and double attempt to use this quality to connect ever-increasingly autonomic disciplines back together. Bertalanffy has definitely used decades of intellectual material and connections to make this theory as cohesive as possible. The reading experience of this theory for the first half of the book is striking to intuition, claims are justified by the evidence. But, in the second part of the book, it leaves the question hanging in the air. At first, Bertalanffy has shown general principles that are all agreeable and realistic. Enquiry starts by stating the systematic nature and need for cohesion:

> "In fact, similar concepts, models and laws have often appeared in widely different fields, independently and based upon totally different facts. There are many instances where identical principles were discovered several times because the workers in one field were unaware that the theoretical structure required was already well developed in some other field. General system theory will go as long way towards avoiding such unnecessary duplication of labor. ... Which principles are common to several levels of organization and so may legitimately be transferred from one level to another, and which are specific so that transfer leads to dangerous fallacies? Can societies and civilizations be considered as systems?
>
> Bertalanffy 1969/2015, 33–34.

In general, it is easy to agree with Bertalanffy's work. However, after half of the book whole notion of general system theory becomes an example based system seeking that is evidence-based but it does not warrant continuation. It seems that different theoretical lines are made and Bertalanffy leaves these

systemic natures as they are. It is a similar research approach as Kuhn's paradigm. Vitally important in itself, but there is no analysis or continuation from that point onwards.

To my dismay general system theory hits, it's limitations in the first 130 pages. The limiting factor is that the general system theory is theory to grasp only the obvious parts. My argument is that we can find a systematic nature from anything if we look for it. To that end, GST offers much to start, but methodological finalization is not there. Later parts of the book are almost like case studies from different fields to show that there are systemic qualities from different disciplines. No further analysis or interdisciplinary outlines that were suggested at the beginning of the book. Of course, it is not a very reasonable argument to be made since the whole point of this theory was to awake different disciplines to work further together to avoid duplication on methodological meta-questions, such as how the systematic structure can explain a certain phenomena. But to get even there systematic analysis is needed to bridge these interdisciplinary substances together. There is an intention and even direction and road map, but the compass is missing. To me, this compass is systematic analysis. Despite the road map and the general direction it is easy to lose direction in the forest of chaotic nature, the methodological compass is needed to avoid losing the direction. Systemic understanding is needed, but without a forced thought that there would always be a system to be found.

GST – bare skeleton

Earlier we focused on the scope of GST, now we will look upon focus. As Bertalanffy has put it, GST is a summary of general systems structure shared between different disciplines in science. To what end GST was successful can be criticized heavily, but Bertalanffy starts from the following reasoning:

> "Not only are general aspects and viewpoints alike in different sciences; frequently we find formally identical or isomorphic laws in different fields. In many cases, isomorphic laws hold for certain classes or subclasses of "systems," irrespective of the nature of the entities involved. There appear to exist general system laws which apply to any system of a certain type, irrespective of the particular properties of the system and of the elements involved. These considerations lead to the postulate of a new scientific discipline which we call general system theory. Its subject matter is formulation of principles that are valid for "systems" in general, whatever the nature of their component elements and the relations or "forces" between them. General systems theory, therefore, is a general science of "wholeness" which up till now has considered a vague, hazy, and semi metaphysical concept. In elaborate form it would be a logico-mathematical discipline, in itself purely formal but applicable to the various empirical sciences.
>
> Bertalanffy 1969/2015, 37.

What Bertalanffy tried to do was no more or less than a new discipline with the main purpose of gathering all workable systematic meta-philosophy from each discipline and breath out solutions that could nurture new approaches. While doing so this discipline would have been extremely useful in terms of negating tons of duplicating work between different autonomic disciplines. In a named logical way Bertalanffy has shown that there might be a way to connect different disciplines through meta. However, there are huge argumentative gaps between different disciplines. Even more so for the account of methodological and science, philosophical notions that each individual discipline holds. For basic extent I agree with Bertalanffy, but what I don't like is the meta approach of it. This theory is really grand but lacks a methodological backbone that could bridge these vaguely connected dots in interdisciplinary form. What we have here before us is

an archive of different wonderful systematic things that are working logically similarly that could be combined, mixed and modularly enchanted for new idea creation within different disciplines. It does not even matter whether or not these autonomic disciplines would agree on every point with each other. The point is to make connections and share that meta in a modular sense for a desired enchanting effect.

We will continue in the next chapter on a solution to how Bertalanffy would make more sense methodologically. As for continuation, Bertalanffy does not provide any strict criterion for inclusion or exclusion for theories in question. What he has done in GST is to point out a general direction. The only point for the methodological approach is made on GST page 95, where he suggests "empirico-intuitive procedure". This is partly why the Bertalanffys initial theory was just interpreted and partly re-used, but never really enchanted upon. The reason could be that the scope was horrifyingly big, while the methodological side was conflicting with the fashionable Popperian scientific philosophy of empiric logical science. This part of scientific philosophy, however, scorned and distanced itself from hazy meta. That being the main part of Bertalanffy's GST's only outcome is what we see here. A theory without continuation. It has to be said that many researchers have benefitted heavily in the work of Bertalanffy. The scope of GST can be found partly from systems theories discipline, system analysis, and even from the field of systematic thinking.

Meta is not the only problem with the connection to Popper. The demarcation criterion is not discussed. Despite Bertalanffy has mentioned in an offhanded way on page 112, that methodology needs to follow verification or falsification. In a strict sense meta- anything could not follow falsification to the letter and since he thought falsification as the only measure for the demarcation whole theory of Bertalanffy would be left out. All that, despite Bertalanffy's opinion on empirical connectivity between intuitive processes. I would say that this conflict is caused mainly because Bertalanffy does not divide questions as we do today in terms of empirical and qualitative research. Different sets of demarcations are applicable and for that demarcation for empiric intuitive processes would conflict. I will continue with this problem by suggesting solutions for qualitative research based on the systematic analysis in connection with interdisciplinary subject areas.

What in science warrants for a systematic approach?

This question is a question of justification. How can systematic analysis be methodologically justified to study reality or subjective realities (such as in history). What is the quality that would make it better than alternatives? This broad criticism in the form of question leads to a similar point that I have used to battle against alternative outcomes. Reason is clarity. The end result of systematic analysis is and can be more clear, than for example study done with discourse analysis. That is to say, it is easier to guide the reader wrong using variable basis for analysis that are not self-evident enough for reasoning. Method wrongly used can be used as a scapegoat from reason. It can be used as justification for flawed intuitive reasoning, that would not merit such statements made by the research. These limitations lie before us when we look at the criterion for demarcation within different methods. To some methods those criteria are nonexistent.

If we think theory, generally we hear the usual explanation of certain coverage. A theory supposes something based on a hypothesis with some arrangement supporting facts and statements and it claims coverage through those facts to explain phenomena. Concerning theory and its creation systematic analysis studies theories based on their functions. Theories are seen as the accumulated sum of functions that act accordingly by chosen principles. In doing that, this methodological approach highlights relations between functions and relations to have chosen theory principles. The explanation of coverage is then usually resulted from the analysis, not starting point of it.

However, if we follow similar reasoning that I have used against alternatives in the form of this argument; if you look for the system you will find it, despite the fact that there never was one. With similar logic can be said that systematic analysis is just a breath of air without substance. At least there is substance in systems theories because they show us patterns and connections that are logically struc-

tured.

It is true that some of the parts will never be in the form of logical patterns if we look results that come from systematic analysis. Although we can also argue that there is merit to this based on the fact that we cannot know beforehand will every research subject bend to reasonable logic in the form of systemic structure. There is also a question of complexity involved. Bertalanffy used the following reasoning:

> “A steam engine, automobile, or radio receiver was within the competence of the engineer trained in the respective specialty. But when it comes to ballistic missiles or space vehicles, they have to be assembled from components originating in heterogeneous technologies, mechanical, electronic, chemical, etc.; relations of man and machine come into play; and innumerable financial, economic, social and political problems are thrown into the bargain. Again, air or even automobile traffic are not just a matter of the number of vehicles in operation, but are systems to be planned or arranged. So innumerable problems are arising in production, commerce and armaments. Thus, a “systems approach” became necessary.
>
> Bertalanffy 1969/2015, 4.

Bertalanffy continues with the analogy to point out the need for a systems approach within different areas in modern society. It is a question of economics, politics, and science put together. However, we are concerned with science and methodology. If we take the earlier problem of the difficulties for interdisciplinary approaches and inherent heterogeneous development in science we are facing ever-increasingly difficulties of communication between different areas in science. In that decade when Bertalanffy was writing his book personal computing was slowly coming into the light of commerce in the following decade.

Also, science and communication in volume hugely increased by every decade afterward and it now seems to be developing into even more confusing mass of instantaneous forms of communications, with ever-increasing chances of failure. Things are not that bad in general, we make mistakes and we correct them by every year, but in regard to science it has been an uphill battle since Bertalanffy to stay even upright in a current of articles and inputs by a variety of methodological approaches and individuals. To some extent this has been a hugely profitable and expansive way to grow scientific knowledge. That being said worst fears of Bertalanffy has become reality. An interdisciplinary approach has become so difficult that even the word interdisciplinary is being scorned on. The reason is that people tend to believe that a multidisciplinary approach is easier and can be way more valid than an interdisciplinary approach that almost no one can do and only rarely people can follow through. Although this view is a justified and reasonably probable outcome, it limits methodological thinking. If we think something is impossible or impractical, we avoid it like cancer.

So, should we jump off the cliff or no? If we follow the analogy by Bertalanffy we are facing rising difficulties to do interdisciplinary science. However, if we don’t think things just in the form of systems, but we indulge in systematic enquiry then we can make smaller steps and interdisciplinary study becomes a more reasonable target. Why this has not been done? I would say that the best researchers are already doing it. The main problem here is to understand each sub-problems of bigger interdisciplinary problems as modular in relation to others. However, this cannot be handled in the current main way how research is conducted by workgroups today. The difficulty is that researchers are usually focusing on the multidisciplinary side of things. By this focus, we get books that are collections of articles from a similar subject with each being unique in methodology and focus. This is as far from the interdisciplinary approach as one can be and even far from the multidisciplinary approach if done incorrectly.

Kuhn and idea of paradigm – commentary

I have just one problem with the book by Kuhn. It describes one of the most complex ideas, development phases and structure of scientific progress with

uncanny ease. The problem part being that it is all that this book is for. It is an essay, description of an idea that is already there, or is it? Paradigm captivated the imagination of scientists and this word has been overused ever since to describe many menial tasks. Overselling what Kuhn would have called "basic science" is today's standard to yell paradigm! That message that many try to convey is rarely even true. (mostly because of funding systems)

This is one of the key difficulties when we think of intellectual history. What are the cause and effects of a theory? How can we tell in what way effect has been taken into the minds and hearts of fellow researchers and can theory creation therefore ever be called paradigm but until late? To historian, this is far easier or we can suppose so, but the difficulty comes from a multitude of realities. For example, we can say Alessandro Volta (1745–1827) caused a paradigm in the way how we think of electricity. Similarly, James Clerk Maxwell (1871–1879) has been hailed to be the father of electromagnetism despite he is merely connected works by André-Marie Ampère (1775–1836) and Michael Faraday (1791–1867) with a mechanical twist from Lord Kelvin, also originally known as William Thomson (1824–1907). It depends on perspective, what is a paradigm. Generally, paradigm is defined when its causes are ever reaching in different disciplines or iconic effects in one. Within their own right, each of these persons had affected how we think of electricity. To Faraday question was experimental, to Ampère strictly mathematical, Kelvin took a mechanistic side and Maxwell created hybrid based on work from the other three.

Now the question is how to define paradigm, is there 1 or 3 or even 4 at play? That sum depends on how paradigm plays out. If the paradigm shift is made that affects the reference frame, we can really talk about the unquestioning paradigm change. It is changing how we do and think about phenomena or theories. A major change in the scenery is not yet a paradigm, it is paradigm when the glasses that we use to see changes. And to that end change of the paradigm is always incremental because of the social inertia within the scientific community.

Selection of sources

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Scientific Papers – IV. Abstracts

Docosahexaenoic acid,22:6n-3: Its roles in the structure and function of the brain

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Marine fish and oils sourced docosahexaenoic acid, 22:6n-3 (DHA) is an essential long-chain polyunsaturated fatty acid (LCPUFA) for human health. DHA can also be converted from another LCPUFA, named as eicosapentaenoic acid,20:5n-3 (EPA). But with age the DHA conversion capability is reduced. DHA is vital for numerous processes in the body, e.g., signal transduction, membrane structure and function, cellular proliferation, inflammation, angiogenesis and host of other processes affecting health and disease. DHA and its metabolites influence the structure and functional brain development of the foetus and infants. DHA also maintain healthy brain function of adults. As DHA is the major prevalent fatty acid in the brain membrane, so DHA is essential nutrient required throughout the life cycle for the maintenance of overall brain health. Brain maintains its fatty acid levels mainly via the uptake of plasma free fatty acids. So, circulating plasma DHA is significantly related to cognitive abilities. The signalling pathways of DHA and its metabolites are involved in neurogenesis, antinociceptive effects, anti-apoptotic effect, synaptic plasticity, Ca2+ homeostasis in brain diseases, and the functioning of nigrostriatal activities during ageing and is inversely associated with cognitive decline. DHA metabolites' mode of action on various processes in the brain are not yet well known. Different studies support a link between low intake of DHA and a higher risk of brain disorders. Higher consumption of foods containing high in n-3 fatty acids, and/or lower intake of n-6 fatty acids was strongly associated with a lower Alzheimer's Disease and other brain disorders. Supplementation of DHA improves some behaviours associated with attention deficit hyperactivity disorder, bipolar disorder, schizophrenia, and impulsive behaviour as well as cognition. Nevertheless, the outcomes of trials with DHA supplementation have been controversial. Many studies with DHA have shown effectiveness in brain function. However, there is no alternative of clinical trials for definitive conclusions . Dietary deficiency of n-3 fatty acids during foetal development in utero and the postnatal state has detrimental effects on cognitive abilities. Further research on DHA supplementation in humans is required to assess a variety of clinical outcomes.

For further reading, please follow the link:
https://www.sciencedirect.com/science/article/pii/S073657481930214X

Methods for complex ODEs based on localization, integration and operator theory

Juha-Matti Huusko

This thesis introduces some new results concerning linear differential equations

$$f^{(n)} + A_{n-1} f^{(n-1)} + \cdots + A_1 f' + A_0 f = A_n, \qquad (*)$$

where $n \geq 2$ and $A_0, \ldots, A_n$ are analytic in a simply connected domain D of the complex plane. Typically D is the unit disc. Before presenting these new results,some background is recalled. Localization combined with known results implies lower bounds for the iterated order of growth of solutions of $(*)$. Straight forward integration combined with an operator theoretic approach yields sufficient conditions for the coefficients, which place all solutions of $(*)$ or their derivatives in a general growth space $H^\infty_\omega(D)$. Moreover, the operator theoretic approach combined with certain tools such as representation formulas and Carleson's theorem indicates sufficient conditions such that all solutions are bounded, or belong to the Bloch space or BMOA. A counterpart of the Hardy-Stein-Spencer formula for higher order derivatives and the oscillation of solutions are also discussed.

For further reading, please follow the link:
http://epublications.uef.fi/pub/urn_isbn_978-952-61-2507-7/