

Truth and Time: Lessons from Kant and Heidegger

1. Time and Truth: The Threefold Structure (March 13, 2012)

Truth, the basic concept and topic of philosophy, has three essential aspects: correspondence, assertability and unhiddenness, which engender competing one-sided theories of truth and knowledge: metaphysical realism, pragmatism and epistemological foundationalism („the myth of the given“, W. Sellars), respectively. An integrated theory of truth has to cover all of those aspects and to relate them to the three essential aspects of time (past, present, future), the three dimensions of space (right/left, up/down, back/forth), the three forms of happiness (pleasure, enlightenment/contemplation, honor/virtue) and the three aspects of freedom (choice, independence, autonomy). In this first part of the seminar, the aspects of truth and the aspects of time will be related to each other, and various competing theories of truth and of time will be surveyed critically.

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I'll start with the topic of truth, i.e. with **truth theoretical** considerations. It is a very deep and basic fact about human beings that we raise truth claims; and many of them, no doubt, rightly. So there are really cases of truth. When a controversy starts about some issue or other and one party says: "It is so and so," and the other party denies just that ("It is not so and so"), then one of the parties must indeed be right.

The basic fact that we raise truth claims, some of which are warranted and legitimate (though we often cannot determine for certain which ones), I call the **fact of truth**.

Fact of truth:

We raise truth claims (and some of them rightly so).

From this fact we will easily be taken to other philosophical fields and problems. Typically truth claims are raised in speech, in **discourse**. So, the fact of truth will have a direct impact on the theory of discourse, i.e. on **logic** and **semantics**.

Now, before saying more about the structure of truth or about the essential aspects of the fact of truth, I want first to create a **list** of various philosophical items or topics that I am going to relate to the concept and fact of truth. Truth itself is the first item on the list; speech or discourse is the second item.

Truth, discourse, ...

Discourse, in turn, presupposes a **subject area**, a range of possible items we can talk and think about. These items are found in **space** and **time**. Thus, space and time together constitute the basic area of discourse. The English philosopher Peter Strawson (1919-2006) has shown that the basic particulars we are talking about are **things** and **persons** in **space** that change over **time**. On the basis of things we may next introduce **events** or **episodes** that take place in space and time. Episodes, like the opening ceremony of the Olympic games in Bei-

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ing, are **dependent particulars**, dependent on what is happening to things and persons and what persons are doing.

(Still, episodes are **particulars**, not **universals**. They are **concrete** spatio-temporal objects, not **abstract** objects like numbers, sets, universals etc. But the abstract objects we are talking about are modeled on particulars. So, the basic entities we know of are corporeal objects: things and persons in space and time.)

So, we have now a **row** or list of four topics, truth, discourse, space and time that should be closely related to each other:

Truth, discourse, space, time, ...

And the list will get a bit longer still, if we take into account the fact that truth claims are raised in discourse by thinking and speaking **subjects**. So, we may add subjectivity, embodied personal subjectivity, to our row:

Truth, discourse, space, time, (embodied) subjectivity, ...

But subjectivity is not only perceiving and thinking subjectivity, i.e. **cognitive** or theoretical subjectivity, but also **practical** subjectivity, i.e. **agethood**. Agethood in turn is related to **happiness** and **freedom**.

It is related to happiness, because happiness is the ultimate **end** (aim, goal) of acting; and it is related to freedom, because in order to act an agent has to be **free** in some sense, e.g. agents must have some choices and must have the capacity to act according to their choices. So let me complete our list of philosophical items by adding happiness and freedom. And these seven items then may suffice then for the present moment.

Truth, discourse, space, time, subjectivity, happiness, freedom

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Now I want to talk about the internal **structure** of the fact of **truth** and about what we do, when we raise truth claims and then relate the **essential aspects** of truth to the other items on our list. We shall find that a certain basic **threefold** structure pervades all of them.

If we raise a truth claim, we assume that something is the case, **independently** of our thinking so. When I say: "We are in Beijing", then I submit that we are in Beijing quite independently of my saying so. We would be in Beijing, even if I had not cared to think and say so, or even if I had, for some queer reason, mistakenly thought and said that we were in Tokyo or in Moscow.

This general assumption of ours that what we think is the case is the case independently of our thinking so I call our **general objectivity thesis**. It is **implicit** in all our **judgments** regarding what is the case in the world around us, i.e. in all our **beliefs** about the world.

Our implicit general objectivity thesis (OT):

The real is what it is, regardless of our beliefs about it.

(The objectivity of reality is its independence of our minds.)

I do not now want to **confirm** or **deny** OT, but simply **state** the basic fact that in our normal truth claims we include as a general collateral claim the **objectivity** of what we claim as being the case. First level truth claims (or truth claims in their basic form, and there are other forms and levels) are **objective truth claims**. Thus, obviously, we assume or claim that truth has an objective, **realistic side**.

Truth (as we pre-theoretically conceive it) has an objective, realistic side or realistic aspect.

Before saying more on the realistic aspect of truth and then going on and looking for further essential aspects of truth, I want to take the **opportunity** to insert another item on our list of philosophical topics, an item that deserves second rank behind truth, if not first rank. I said that in our truth claims we claim something to **be the case**. *Being the case* or *veridical being* is the fundamental form of being, and it deserves a place on our list, if something does, being the topic of classical metaphysics:

Truth, being (the case), discourse, space, time, subjectivity, happiness, freedom

I am going to claim that we can find the realistic aspect of truth or some analogue of it in each of the items on the list, i.e. a realistic aspect of being, discourse, space, time, subjectivity, happiness and freedom, though I will call it by **other names** in the various other cases, names which are more common from the **history** of philosophy.

Note that **being** (i.e. being the case), as it is understood here, is not **existence**. What exist are **objects**. What is being the case are **facts** or **states of affairs**. One could as well say that states of affairs may (or may not) **obtain**. Thus “obtain” would be a synonymous expression for “being the case”.

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Now let’s continue with the realistic aspect of truth. Let us draw an interesting conclusion from it (i.e. from our implicit pre-theoretical OT): The objectivity of what is the case entails our **fallibility**, entails, that is, the possibility or **error** on our side. For if you say that so and so (“that p”), then, if what is the case is independent of your beliefs, you may well be mistaken about a particular state of affairs.

It seems pretty **remarkable** that in claiming objectivity for our basic truth claims we are at the same time claiming to be fallible. Our **fallibility** is not a default on our side but just the **mark** of the **objectivity** of our truth claims.

Fallibility is the mark of objectivity.

And with fallibility comes **bivalence**. We raise objective truth claims by making statements. We thereby claim that the statement be true, but it might well not be true; it might be false. This is bivalence: Statements **ought** to be true, but they **may** be false; they have either one of two **truth values**.

Bivalence:

Statements are either true or false (they ought to be true, but they may be false).

There are **two** things here to be noted. **First**, the realistic aspect of truth is the aspect of bivalence, i.e. of some basic duality. If we find the realistic aspect in the other items on our list, we will recognize it by some basic duality associated with it.

Second, there is an **asymmetry** in the duality; one side of the duality is the right side and the other side is the wrong side (or left side for that matter – if we think of space). The asymmetry is thus **normative** or an asymmetry of **evaluation**.

But **norms** and **values** are conceivable only with respect to **action**. Thus the realistic aspect of truth points to another aspect which we might call the **pragmatic aspect of truth**.

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We started with the realistic aspect of truth, and it led us from objectivity to fallibility (the possibility of error), to bivalence to normativity, and thus to another aspect of truth, the pragmatic or normative aspect:

Realistic aspect:

Objectivity, fallibility, bivalence, normativity: pragmatic aspect

According to the **pragmatic** aspect of truth we can and should **do** something in order to speak and think truly. The realistic aspect is given center stage in the theory of truth by **realism**; the pragmatic aspect is given center stage by **pragmatism**.

What I have neutrally called the fact of truth is called by pragmatists (some pragmatists at least: Wilfrid **Sellars** and Robert **Brandom**) the game of giving and asking for reasons, or the **game of reasons**, for short.

The fact of truth (neutral description) = the game of reasons (pragmatist description)

According to the **pragmatic conception** of truth, “true” means (roughly) “good to believe”. True is what works and what helps, and there are, of course, certain procedures and rule for finding out what works and helps and what we ought to believe. Wilfrid **Sellars** calls them “semantical rules” and he therefore defines truth as semantical assertability or **S-assertability** for short. One could speak instead of rules of verification (or falsification), and one could then define truth as **warranted assertability**, warranted i.e. by the rules and procedures of verification. The term dates back to John Dewey, but it was Michael **Dummett** who used it as a definition of truth. Truth then, according to Dummett, is warranted assertability.

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But now, there is a certain **tension**, not to say **incoherence**, in the concept of truth, if truth has a realistic or objective or dualistic aspect on the one hand and a pragmatic or normative aspect on the other. For according to the **realistic** aspect, what is the case, the real, is **independent** of our **beliefs** and therefore independent of our **actions** (for we act according to our beliefs and our desires). But according to the pragmatic aspect, truth is internally related to our actions. How can it be both?

Not at all, say the pragmatists. And so says the other party to the debate as well, the party of so-called **metaphysical realism**. According to metaphysical realists, truth is correspondence with objective reality; according to pragmatists, truth is warranted assertability. And these two positions seem to be antagonistic and irreconcilable. It seems that it cannot be both.

Metaphysical realism (MR): Truth is correspondence.

Pragmatism: Truth is assertability.

But I think that truth must have both aspects, because MR and pragmatism are in for serious **trouble**, as their usual dialectic shows. I won't go into the details here, because I want to go on to the other items on our list and especially to the structure of time. So, suffice it to say that we can reconcile the realistic aspect and the pragmatic aspect of truth, if we acknowledge a third essential aspect, which I shall call the **phenomenal aspect** of truth.

We need something like an interface between our actions and desires and beliefs on the one side and objective reality on the other side. And such an interface, of course, we have got. We have got it in **sensory perception**. For in sensory perception, objective reality is unveiled or disclosed for us through its **phenomenal qualities**. Objective things tend to show themselves, to be unconcealed, to be phenomena, objective phenomena, in perception.

Martin **Heidegger** has laid much stress on the point that at the beginning of the history of philosophy, e.g. in Parmenides, truth was conceived as **unconcealment** (Unverborgenheit) and as **presence** (Anwesenheit). He thereby gave a hint already of how to relate truth and **time**: The phenomenal aspect of truth seems to accord with the temporal mode of presence. But let us first add the phenomenal aspect to our list of truth aspects:

Realistic/objective aspect:	truth as correspondence (and bivalence)
pragmatic/normative aspect:	truth as assertability (and normativity)
phenomenal/interface aspect:	truth as unconcealment (and presence)

My **thesis** is that we have to acknowledge each of those three aspects in order to understand the concept of truth and in order to relate it to other basic topics and issues in **philosophy**.

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Now let us go on to the other items on our list of philosophical topics. The second item, closest to truth, is **being**, i.e. veridical being (or being the case). Do we find three **aspects of being** according to the aspects of truth? We better did. For veridical being is just what truth becomes when it is divorced from language and wedded to the world. It is not an independent idea at all.

The realistic or, as I prefer to say in this case, the **objective aspect of being** is its **independence** of our cognitive states. Being is not the same as being perceived. *Esse non est percipi*. That means that **objects** must be capable of existing **unperceived**. And that in turn means that objective being or objective reality stands in the **duality** of being perceived and being unperceived, of being disclosed and being concealed.

The pragmatic aspect of truth is reflected in what I shall call the **teleological aspect of being**. Thereby I do not want to imply there is someone who **designed** being according to his or her ends. That would be absurd, for the designer would be a case of being in the first place. What I want to convey by calling the second aspect of being the teleological one is just that being is internally related to **ends** – **human** ends for that matter. For, that is what corresponds to the pragmatic aspect of **truth**, if we turn from language (and thought) to the world. Being, in a way to be spelled out, is internally related to beings like us, it necessarily grows knowers (of it), sooner or later, here or there.

The third aspect of being may be called the **phenomenal** one, just as in the case of truth. According to it, **being** is inseparable from **unconcealment**, though it is never totally unconcealed. But the duality of perceived and unperceived being is essentially embedded in unconcealment. The unconcealment of being has priority over its being as well concealed.

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Next point: discourse. The theory of discourse or discursive thinking used to be **traditional formal logic** (TFL). Now this theory has been widely discredited, not as being false, but as being rather inexpressive, by the advent of modern (Fregean) predicate logic (MPL). Still, its traditional threefold classification of the elements of discourse as **concepts**, **judgments** and **inferences** (syllogisms) may be of some interest to us. Discourse has a conceptual, a judgmental and an inferential aspect, and we have seen theories arising, which give center stage to one of those aspects respectively.

Pragmatic theories of discourse tend to be inferential semantics, like those of Sellars and Brandom. More **realistically** bent theories give pride of place to **judgments** or statements. And just like the phenomenal aspect of truth tends to be forgotten and passed over, so the **conceptual aspect of discourse** has recently suffered severe neglect. But still, in **perception**, we as thinking animals perceive things or situations as **falling under** certain concepts.

The judgmental aspect of discourse clearly is the **objective** and **dualistic** one, as witness the judgment or the statement, which is true or false. The inferential aspect is the **normative** one, because to infer a conclusion from certain premises is something which has to be **done** by speakers according to inferential **norms** or **rules**. The **conceptual** aspect of discourse, last but not least, is the **phenomenal** one, as already suggested. Reality is open to us, and we are open to reality, insofar as we are capable of bringing perceivable items under certain concepts in sensory perception.

To sum up:

Aspects of discourse

judgmental aspect: objective, dualistic
 inferential aspect: normative, pragmatic
 conceptual aspect: phenomenal, perception-related

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The fourth item on our list was **space**, and here we have a threefold structure right away, space being **three-dimensional**. When we think and talk about spatial items – “particulars”, as they are usually called – we basically do so by means of indexicals like “here” and “there”. The system of our spatial indexicals is made possible by an egocentric spatial coordinate system, which in turn is anchored in a real reference frame that has to be given a priori: me myself as an embodied subject. So, it is me as a corporeal being what defines the origin of my spatial coordinate system (“here”, right behind my eyes) as well as the axes and their orientation and, third, the unit of measuring distances like span, foot, step.

The **axes** and their respective **orientations** are particularly interesting, because they are closely related to the aspects of **discourse**. And this is small wonder, discourse being fine-tuned to space right from the start, as space affords the items to talk and think about in the first place. In other words, space is the principle of **pre-conceptual multiplicity**. Therefore we will find something like logical proto-dimensions in discourse corresponding to the spatial dimensions in an egocentric spatial coordinate system.

Drawing **inferences** we move **forward** from premises to conclusions. To this logical proto-dimension there corresponds the spatial dimension of **spatial depth**, the dimension that points from back to fore.

Judging we are left with the possibility of being **right** or **wrong**; and it is much more than a linguistic incident that the egocentric spatial dimension of width points from what is called **left** to what is called **right**.

Neither is it a mere linguistic incident that we talk of things **falling under** concepts. To this vertical logical proto-dimension there corresponds in egocentric space the dimension that points from **up** to **down** (or the other way round, it does not matter much).

So we have:

The realistic, judgmental dimension:	left/right
the pragmatic, inferential dimension:	back/forth
the phenomenal, conceptual dimension:	up/down

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Next comes **time**, which (together with truth) is the central topic of today’s seminar. So, here we have to be a bit more elaborate.

It is obvious that **time**, as usually conceived, has three **parts** or, maybe, **modes**: **past**, **present** and **future**. And it is also obvious, I think, how they should be assigned to the aspects of truth. Thus:

<u>Aspects of truth</u>	<u>modes (parts) of time</u>
Realistic aspect	past
pragmatic aspect	future
phenomenal aspect	present

But for the moment, let us forget about these correlations, and let’s consider time in its own right. With the British philosopher J.M.E. **McTaggart** (1866-1925) we may distinguish two different ways in which episodes or events are **ordered** in time, the **A-series** and the **B-series**

of events. (Time then can be regarded as the A-scale and the B-scale, respectively, for measuring the duration of events.)

The A-series constitutes what is usually called the **flow** or **passage of time**. Future events, at first very far away in the distant **future** come closer and closer, as time passes by, until they are **present**, and then they pass into the **past** and get more and more past. This is how we experience time in our daily lives, i.e. pre-theoretically. Time, experienced thusly, has three regions: a vast future, a very short present and a vast past.

The **B-series** is said to be more **objective** than the A-series, because in it we abstract from our own temporal standpoint and perspective and order events according to the relation *earlier than* (or the relation *later than*). But there seem to be two **problems** with this way of looking at things. **First**, the fact that the moment that we are currently experiencing is present seems to be a pretty objective fact. It would be rather sad for most of us, if a moment one hundred years from now in the future were already present. Because then we would all be dead.

Second, in the B-series of events, like in the A-series, we still find a fundamental asymmetry of time, i.e. time's so-called **arrow**. But the arrow of time, i.e. the asymmetry between future and past, clearly has its source in the A-series, not in the B-series. So, if people say that the A-series is not objective enough, they ought to say the same thing about the B-series. What is truly "objective", according to their lights, then, is what I shall call the C-series of events: the events ordered according to their position on a symmetrical time scale.

Order of events	time
A-series: --- past --- present --- future --->	A-scale
B-series: --- earlier --- later --->	B-scale
C-series: <----->	C-scale

Time as the C-scale is the **parameter** t of the fundamental physical theory, i.e. **quantum mechanics** (QM). There is no arrow of time in QM.

But it seems that the arrow of time makes its presence felt in another physical theory, **thermodynamics**, as the second law of thermodynamics states that the **entropy** of a physical system (the measure of "disorder", very roughly spoken) will **increase** over time. But there is no possible physical **explanation** of that fact (if it is a fact). For if entropy happens to be low now and we do not presuppose an asymmetry of future and past (or later and earlier, for that matter), then entropy should increase in both temporal directions, according to the laws of probability.

So, the **arrow** of time cannot be explained by physics, nor can the fact that we are **now** living in the year 2012. The intrinsic nature of presence, i.e. that what makes a moment of time the present moment, escapes physical explanation (and even physical description as well).

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So we had better look for a theory of the basic nature time not in physics, or at least not in physics alone, but as well in **philosophy**. My thesis is that we understand the basic nature of time, if we interpret the three **modes of time** in light of the three **aspects of truth and of being**. This will, in return, shed light on truth and being, because it will show that the unity of time provides a model for understanding the unity of truth in the tension of its three aspects and of the unity of being in its three aspects.

So let us look at the **A-series** and the **C-series** again. Time as the scale of the A-series is the full, concrete phenomenon that we are accustomed with in our ordinary picture of the world. Time as the scale of the C-series instead is an abstraction. The C-scale is the **parameter** t of fundamental physics, and it does show neither the temporal modes nor time's arrow.

But if, starting with the A-scale, we can abstract from the modes and from the arrow of time and conceive the C-scale, we should as well be capable of the **opposite** abstraction. Thus, starting with the A-scale, we now abstract from the series of events and are left with the three modes of time, past, present and future, and with the asymmetry (i.e. some as yet unspecified intrinsic difference) between past and future, but without any series of events. This is what **Heidegger** calls **original temporality**: time as an inner unity of future, present and past, but without any succession. (We'll talk about that later, in the third seminar). One could as well call original temporality the **pure A-time**. Pure A-time is not the analogue of a line in space, it does not consist of a manifold of successive moments; it is just the union of original future, original present and original past.

Pure A-time is **instructive** (though it may well be nothing but an abstraction from the concrete A-series of events), because it forces us to conceive of time's **modes** apart from the manifold of temporal points on a line.

So, on the **one side** we have **pure A-time**: the three temporal modes which we must try to understand in light of the **aspects of truth and being**. And on the opposite side we have **linear time** or time as the **C-scale** of events or time as the **parameter t** of physics. If we now conjoin the structure of truth and being and the structure of A-time, we get the following result:

First, we have **truth** as correspondence to objective **being**, independent of our cognitive, standing in the duality of concealment and unconcealment, together with the original **past**, which is as it is, independent of our present beliefs and desires, unalterable – and standing in the duality of concealment and remembrance.

Second, we have **truth** as unconcealment and **being** as unconcealed, together with the original **present**, which is the temporal mode of perception.

Third, we have **truth** as assertability according to norms and **being** as internally related to our human ends and norms, together with the original **future**, which is the temporal mode of ends and norms.

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For the moment, I shall leave it at that, hoping that these pure bones of a theory will be fleshed out in due course, as we go along with our seminars.

I want to finish today's reflections with an overview over those three items of our list that I have not yet commented on: subjectivity, happiness and freedom.

First, **subjectivity**: Embodied subjectivity has traditionally been divided into three faculties of the soul: cognition, feeling (of pleasure and pain) and willing. I shall call these aspects of subjectivity the **cognitive**, the **affective** and the **volitional** aspect respectively. It seems obvious that the **cognitive** aspect has to be conjoined with unconcealment and presence and the **volitional** aspect with ends and norms and the future. But it is not so obvious that the **affective** aspect should be associated with objectivity and the past. Still, this is exactly what has to be done.

First we may appeal to the fact that the affective aspect of subjectivity is coined by a characteristic **duality** just like the objective aspect of truth and being. In the case of the affective aspect of subjectivity we have the fundamental duality of **pleasure and pain**, and in the case of the objective aspect of truth and being we have the respective dualities of (a) **true und false** and (b) of **perceived and unperceived existence**.

Second we must take into account that we **find** ourselves in the world always in some **mood** and some **affection**. Pleasure and pain relate us to our immediate past and are incentives for us on our way into the future: We **search** pleasure and we **flee** pain.

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Second, **happiness**: We'll talk about happiness at greater length later on, in the third seminar session. For now, I just want to relate the **aspects** of happiness to the aspects of truth and the modes of time.

Aristotle distinguishes three forms of life, the life of **enjoyment**, the **political** life and the **contemplative** life. Those who try to lead a life of enjoyment must believe that the **good** and the **end** of all action – in one word: **happiness** – is pleasure. Those who lead what Aristotle calls a political live strife for **excellence** or virtue (and for honor as the outward sign of excellence). Those, last but by no means least, who lead a life of **contemplation** are no human beings but gods, for a human being can achieve contemplation or enlightenment only temporarily. Contemplation is fine and would be the best form of happiness, if only we humans were not forced to eat and drink and work and sleep and pay our bills etc.

Still, **contemplation** along with **excellence** and **pleasure** is one essential **aspect** of the good for human beings, one essential aspect of human happiness. And it seems that **pleasure** – or the **hedonistic aspect** of happiness – has to be coordinated with the **realistic** or objective aspect of truth and being and with the temporal mode of **past**. **Excellence**, virtue and honor – which together make up the **practical aspect** of happiness – have to be coordinated with the **pragmatic** or teleological aspect of truth and being and with the temporal mode of **future**. And **contemplation** – or the **theoretical aspect** of happiness – has to be coordinated with the **phenomenal** aspect of truth and being and with the temporal mode of **presence**.

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Third and last, **freedom**: The aspects of freedom are **autonomy**, **independence** and **choice**. We are talking here about freedom of the will, not freedom of action and political freedom; so we have to touch on questions of natural **determinism** (independence of nature) and questions of **morality** (autonomy of the will), for example. But let's begin with choice.

A person's will is free, only if she has a **choice** between different options, at least two of them: yes or no, right or wrong, right or left, good or bad, performing an action A or refraining from performing A. This is the **electoral aspect of freedom** which because of its internal duality is to be correlated with the realistic or objective aspect of truth and being and with the temporal mode of past.

A person's will is free, only if that person is in a certain way, to be spelled out later, **independent** of the course of nature. She must be capable, that is, of initiating new causal chains in the course of things. I call this independence the **cosmological aspect** of freedom. It is because of this aspect that freedom is incompatible with a thoroughgoing determination by natural laws and natural states of affairs. The cosmological aspect is to be correlated with the phenomenal aspect of truth and being and the temporal mode of presence, because a free person must *now* free itself from the natural course of things as they show themselves in perception and cognition.

A person's will is free, eventually, only if she follows a positive **law** of freedom. To act freely is by no means to act randomly, so there must be a law, which can be followed in free action. But this law must not be one of blind natural necessity, but of **rational self-legislation** or, in a Greek word, **autonomy**. ("Self-legislation" is a combination of Germanic "self" and Latin "legislation", which together mean the same thing as the Greek "auto-nomy".) This I call the

practical aspect of freedom. Obviously it has to be assigned to the pragmatic/teleological aspect of truth and being and the temporal mode of future.

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If we follow these lines of thought, we will get a rich understanding of each of the items on our list of basic philosophical topics, and among them of truth and time. At the end of today's seminar I just repeat the assignments of the various aspects of those items to each other:

The realistic aspect of truth (correspondence) – the objective aspect of being – the judgmental aspect of discourse (the logical proto-dimension of juxtaposing subject and predicate to form a judgment) – the spatial dimension of width: left/right – the temporal mode of past – the affective aspect of subjectivity (the feeling of pleasure and pain) – the hedonistic aspect of happiness (pleasure) – the electoral aspect of freedom (choice).

The pragmatic aspect of truth (assertability) – the teleological/normative aspect of being – the inferential aspect of discourse (the logical proto-dimension of going from premises to a conclusion) – the spatial dimension of (horizontal) depth: back/forth – the temporal mode of future – the volitional aspect of subjectivity (the will) – the practical aspect of happiness (excellence) – the practical aspect of freedom (autonomy).

The phenomenal aspect of truth (unconcealment) – the phenomenal aspect of being – the conceptual aspect of discourse (the logical proto-dimension of particulars falling under concepts) – the spatial dimension of (vertical) height: up/down – the temporal mode of presence – the cognitive aspect of subjectivity – the theoretical aspect of happiness – the cosmological aspect of freedom (independence).

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2. Time and Space: Forms of Particularity and of Intuition (Kant) (March 16, 2012)

The English philosopher Peter Strawson, in his book on Kant's first Critique („The Bounds of Sense“, 1966), pointed to a fundamental duality that permeates various philosophical subdisciplines: the duality of particular and universal (ontology), of intuition and concept (epistemology), of reference and predication (semantics), of subject and predicate (logic). He then sided with Kant in declaring space and time to be the general forms of particularity and of intuition. I would like to go one step further and side with Kant even in his bolder theorems in the Transcendental Aesthetic which seem to be empirically refuted by general relativity, e.g. that we know a priori that space and time are “flat”, i.e. Euclidean. I will argue that though space and time are in fact curved by massive objects, nevertheless in the limiting case of what might be called their “pure default position“, (which is reached, when we abstract away from massive objects, as we do in geometry) they will turn out to be Euclidean after all, and we know a priori that in their default position they must be Euclidean.

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The English philosopher **Peter Strawson** (1919-2006), in his book on Kant's first Critique („The Bounds of Sense“, 1966), pointed to a fundamental duality that permeates various philosophical areas: the duality of

particular and universal	(ontology),
intuition and concept	(epistemology),
reference and description	(semantics),
subject and predicate	(logic).

Let's review those varieties of the fundamental duality in turn, starting with the **ontological** duality of particular and universal.

Particulars are spatiotemporal entities of roughly two varieties: **things** (including **persons**) and **episodes**. Things (and persons) are corporeal entities that **change** over time and that nevertheless **endure** (i.e. stay **identical**) in their various changes. A beech tree for example is a thing. It grows over the years, it has leaves in summer and is leafless in winter, it bends in the wind and gets wet in the rain etc. And it stands in spatial relations to other things, to all other things. All things together exist in one encompassing system of spatial relations, in **space**. And all things have **spatial parts**.

Things do not stand in **temporal relations** and do not have **temporal parts**. When you see a thing or a person, that whole thing or person is present; nothing – no part of it or her – is missing. But things (and persons) are involved in **episodes**, and *they* stand in temporal relations and have temporal parts, e.g. the thirty years war in Germany (1618-48), between protestant and catholic territories, had many battles as temporal parts.

Things are **basic** particulars, and episodes are **dependent** particulars, dependent on things. Consider a glass that stands on a table. The glass is a thing, the table is a thing; those are basic particulars. They stand in a spatial relation the each other, the table being beneath the glass, the glass being on top of the table. They have spatial parts: The table has legs and a table top; the glass has bottom and a cylindrical side.

When we consider a glass standing on a table, we may introduce (as a **dependent** particular) the **state** of the glass standing on the table. – Now someone comes and takes the glass away. When that happens, we may introduce (as a dependent particular) the **event** of someone taking the glass away. States and events are **episodes**. They stand in temporal relations to each other. E.g. the state of the glass standing on the table **is earlier than** the episode of someone taking the glass away. All episodes together form one system of temporal relations – of being earlier than or later than or simultaneous with other episodes. And episodes such as for exam-

ple a game of football have episodes as temporal parts, for example two halves, which in turn have further temporal parts, such as e.g. the scoring of a goal.

But since it is **things** (and persons) that are the **basic** particulars, the basic temporal reality is not time as a **series of episodes** but time as what Bergson called “*durée*”, *duration*, that is time as what is going on with things. Time as we usually think of it, viz. as the **series of episodes** (or, more correctly as the **scale** for measuring the series of episodes) is dependent upon duration, which is the basic phenomenon of time.

That may for the moment suffice about **particulars**. Now to the other side of the ontological divide: **universals**. It may be (and has been) doubted whether there really are such things as universals. I don’t think there are, but as a convenient way of speaking they may be admitted. Universals are entities that may be **instantiated** by many particulars, e.g. redness is a universal that is instantiated by all and only red particulars. So, a universal is a **one over many**.

What is particular about particulars is that they are **individuated** by their **spatiotemporal** positions. Universals are harder to individuate (unless we think of purely extensional “universals” such as **sets** and **classes**, which are individuated by their **members**).

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Next consider the epistemological duality of **intuition** and **concept**. Intuitions and concepts both are **representations** or **mental** (or **intentional**) **episodes**. Mental episodes have **contents**, i.e. something that is represented. Those contents either are **singular** or **general**. A representation with a singular content is called an **intuition**, a representation with a general content is called a **concept**. The American philosopher Fred **Dretske** coined a nice metaphor, when he called concepts **digital** representations and intuitions **analog** representations. One could as well say that concepts are **discursive**, i.e. discourse-bound or language bound, and that intuitions are **sensory** and perception-bound.

So we have:

Intuitions: singular, sensory, “analog” representations
Concepts: general, discursive, “digital” representations

Third, we have the **semantical** duality of **reference** (or designation) and **description** (or characterization). These are two basic functions to be performed by certain linguistic expressions. Referring expressions may be called designators, and describing expressions may be called descriptions. Thus, take the short sentence “Socrates is wise”:

“Socrates” referring expression, designator
“is wise” description, characterization

The two **semantical** functions of reference and description are reflected in **logical syntax** as the difference between **subject** and **predicate**. This is our fourth dichotomy. The semantical function of reference is typically performed by expressions for logical subjects, and the semantical function of description is typically performed by predicates.

Thus we may summarize our fourfold duality in the following rough and ready schema:

Ontology	Epistemology	Semantics	Logic
particular	intuition	reference	subject
universal	concept	description	predicate

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Next, consider space and time again. Space and time are what I shall call **principles of pre-conceptual multiplicity**. I am now going to explain what I mean by that.

If you give a **description** of something by using general concepts or predicates, it will always be possible that there is more than one thing that fits the description. Of course, it will also be possible that there is nothing at all that fits the description. Take for example the description:

An iron sphere of diameter 50 cm

I have no idea, if something in the universe fits that description, and if so, whether only one or two or three or more things do. In other words, I do not know, whether there are iron spheres of diameter 50 cm, and if so, how many.

What that shows is that one cannot securely **individuate** particulars by using general concepts or descriptions alone. To individuate particulars one has in the last analysis to resort to **indexical** referring expressions like “this” and “that”, “here” and “there”, “now” and “then”, “you” and “I”, “she” and “he”, “we” and “they” etc. – Indexical expressions are (in the last resort) **spatiotemporal** expressions, they refer to spatiotemporal items as such. And spatiotemporal items are there independently of what concepts are true of them. The multiplicity of spatiotemporal items (i.e. of particulars, of places and of times) is there independently of our use of concepts to describe them. This is what I mean by a **pre-conceptual multiplicity**.

Particulars, thus, form a pre-conceptual multiplicity, and they can do so because of space and time. **Space** and **time** are the general **principles** of pre-conceptual multiplicity. **Strawson** calls them the general **forms** of particularity. **Kant** calls them the general forms of (the contents of) **intuition**.

Now Kant in the first, short part of his *Critique of Pure Reason* which is entitled “**transcendental aesthetic**” gives a philosophical theory of space and time qua forms of intuition, which I think is very close to the truth. He thinks he has found a way between two rather unattractive poles, viz. the theories of **Newton** and of **Leibniz** respectively. Let’s shortly consider them in turn.

According to **Newton** space and time are absolute and infinite containers of everything. Space is three-dimensional, continuous, infinite in all directions, flat (i.e. Euclidean, not curved) and completely independent of the portions of matter it contains. Time is much the same, except that it has only one dimension and that it “flows”.

But now, look, it is just not true that space is a **container** of things (and time of episodes). A container is there independently of what may put into it. Think of a **pot of rice**. The pot contains so and so many rice corns; so it truly is a container. The rice corns may be taken out of it – and back into it again, if you like. They are the same rice corns in and out of their container, the pot. If you put them into the pot, they won’t thereby get “potty” so to speak or “contain-eral”. – But **things** in space are themselves **spatial**, and they cannot possibly be taken out of space. Space is not their general container, but their most general **form**.

So, one could go to the other extreme and say that space is nothing but the system of spatial things. The things come first, so to speak, and space then **supervenes** on them, as the saying might go. This, very roughly, is the position of **Leibniz**.

Leibniz thinks that the basic entities are simple substances which he calls **monads**. Monads are metaphysical **atoms**, absolutely **simple**; so they cannot be spatial. For everything spatial is **extended** and therefore has **parts**. So, Leibniz does not know of any principle of pre-conceptual multiplicity. There can only be so many monads as could be described in general concepts. Space, says Leibniz, is not really real; it’s just a phenomenon, though a phenomenon which is well-founded in the properties of the monads.

While Newton has an **absolute** theory of space (or a theory of absolute space, for that matter), Leibniz offers a **relational** theory of space: The monads and their properties come first, and

out of these properties a system of ostensible relations between the monads arises which is space.

Newton: Absolute space contains all things.

Leibniz: Space, as a system of relations, supervenes on non-spatial monads.

Now **Kant** wants to take an intermediate position between Newton's absolute and Leibniz's relational theory of space. With Newton and against Leibniz he thinks we can **abstract away** form what is given in space and time and retain **pure** and **empty** space and time.

Ontologically speaking, space and time will remain as the pure forms of phenomena (i.e. of appearing objects); and **epistemologically speaking**, there will remain our pure, non-empirical **intuitions** of space and time.

This is the main doctrine of the Transcendental Aesthetic.

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Kant's "Metaphysical Exposition of the Concepts of Space and Time" (CPR §§ 2, 4)

What about that doctrine? Should we believe it? And do we really understand what we are supposed to believe in the first place?

Consider, first, a principle which I call *Triple-David*, because David Hume, David Armstrong, and David Lewis do endorse it. It says, roughly, that anything fits together with anything in space and time. For Armstrong and Lewis it is a principle for knowing what is **possible**. E.g., in the actual world there are **talking heads** neatly fitted together with necks and chests and all the rest of living human bodies. Now, Triple-David says that everything fits together with everything in space and time. So we may freely **recombine** in thought or imagination what we find in perception and wind up with possibilities. Therefore, there will be possible worlds with **detached talking heads**, or so Lewis says.

Triple-David then is a **principle of free recombination** of things (and properties) in space and time. And a **limiting case** of free recombination is **empty space and time**. The principle of **recombination** goes together well with what Kant says in his second out of four arguments for the thesis that space (and by analogy time as well) is the content of a necessary intuitive representation a priori. We cannot **imagine space away** though we can imagine away any particular filling of space and time so that, in the limit, we end up imagining **pure and empty space and time**.

Let us add some **further considerations** to much the same effect.

Kant says that space and time are the basic, invariant, necessary **forms** of phenomena. They are not big **containers**. Things in space are themselves **spatial**, and episodes in time are themselves **temporal**. Things in a container, on the other hand, are not "containeral", as witness a rice corn in a pot.

Some minutes ago, I put that point saying that space and time are **principles of pre-conceptual multiplicity**, and, by the same token, I could say that they are **principles for the conceptual separation of numerical and qualitative identity**.

Let me try to explain a bit. **Concepts** are principles for the **unity** of certain things. (The concept *red* is a principle of unity – Kant will say: of **analytic unity** – for all red things, the concept *house* a principle of unity for all houses, etc.) The **application** of concepts thus presupposes a **multiplicity** of possible cases of each concept. It is always possible (and even quite normal) that many particular things fall under a given concept.

This (as was said earlier already) leaves open the possibility that two or more things fall under exactly the same concepts and are thus **descriptively indistinguishable**. So we need a **prin-**

ciple of multiplicity which is independent of the question what particulars fall under what general concepts, a principle which guarantees a multiplicity of particulars quite independently of that question. Such a principle is the **space-time-system**.

It follows immediately that space and time are principles for the **separation** of the concept of **numerical** identity and the concept of **qualitative** (or descriptive) identity. Peter **Strawson** once invented the idea of a **chessboard universe**, and Max **Black** invented the idea of a **two-sphere universe**. In both universes, there are conceptually or descriptively indistinguishable particulars; **indiscernible particulars**, for short.²

The **chessboard universe** is a two-dimensional space organized like a chessboard with 32 white and 32 black quadrants; its middle point is a symmetry point for a 180° rotation of the universe. All white quadrants are **duplicates** of one another, i.e. intrinsically alike, likewise with the black quadrants. Some white quadrants, likewise some black quadrants, have even all their relational characteristics in common and are strictly **indiscernible**—for instance, the corner quadrants that are diagonally opposite from one another.

duplicates: entities that are intrinsically alike (alike in their intrinsic properties)
indiscernibles: duplicates that are also alike in their relational characteristics

Black's **two-sphere universe** contains two spheres, which are **duplicates** (both consist of chemically pure iron, both have a diameter of exactly one mile, etc.); and, because the universe contains nothing else the two spheres are not just duplicates (i.e. intrinsically alike) but also indiscernibles (i.e. alike also in their relational characteristics).

If not for space and time, it would not be possible that two different particulars shared all their intrinsic and all their relational characteristics. Therefore the concept of **numerical** identity in contradistinction to the concept of **qualitative** or **descriptive** identity would not be possible, or, somewhat differently put, the concept of numerical identity and the concept of qualitative identity would be one and the same (numerically and qualitatively, so to speak). This is what I mean by saying that space and time qua **principles of pre-conceptual multiplicity** are at the same time **principles of separation for the concepts of numerical and of qualitative identity**.

Qualitative or descriptive identity: Two indiscernibles are descriptively identical.
 numerical identity: Two indiscernibles are numerically distinct.

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But it is high time we returned to **Kant's Tr Ae**. Because of the role of space and time as principles of **pre-conceptual** multiplicity, our original representations of space and time cannot be **concepts** but must be **intuitions**. So far, so good. But Kant goes on to say that they must also be non-empirical, i.e. **a priori**. Why that?

Kant, among other things, argues from the **actual infinity** of space and time, which cannot be **empirically** given to **finite knowers**. I am happy with this argument, but here is another one, more in line with **present day** discussions.

Space and time being principles of **pre-conceptual** multiplicity, spatio-temporal items must essentially be referred to with the help of indexical expressions, i.e. in **indexical** thinking and saying. But our **spatially** indexical thinking presupposes an informal **egocentric** spatial **coordinate** system, whose origin is marked by me here now. And **temporally** indexical thinking presupposes a **nunccentric** temporal **coordinate** system, whose origin is marked by what is **present**.

² Cf. P.F. Strawson, *op. cit.*, p. 123, and Max Black, "The Identity of Indiscernibles", in *Mind* 61 (1952): 153-164, p. 156.

But the representations of the respective **origins** as such, however they be marked **empirically**, are neutral as against any empirical information, and thus strictly **a priori**. We must know a priori that our system of indexical devices is anchored in **me here now**, whoever I may be (but I must at least be a corporeal being, i.e. a Strawsonian person), wherever here may be and whatever time now may be.

So, I am strongly inclined to say that **Kant has made his case** that our original representations of space and time are **a priori and sensible** (or intuitive in Kant's technical sense). [Sensible, not sensory.]

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Kant's "Transcendental Exposition of the Concepts of Space and Time" (§§ 3, 5)

But then, space and time are **epistemically accessible** to us not only and not primarily in **discursive** thinking, but first and foremost in that particular epistemic **proximity** which is characteristic of sensible **intuition** or sensory **perception**: In perception things are directly open to us. What we perceive, therefore, are not private qualia in our heads, but public things. This is the position of **direct realism**, which Kant (kind of) endorses for appearing things in space and time (he calls it **empirical realism**).

According to **direct** (or empirical) **realism** the green over there of the lawn is directly open to us. Though it is over there, at some **spatial** distance, as some objective property, the green is **epistemically** proximal and so to speak "in us", as if it were just a subjective cognitive sensory state.

That is exactly what **Kant** says on behalf of **space** and **time**: In their epistemic proximity they are "in us". But, of course, being space and time, they extend beyond ourselves, and in this regard we are in *them*. So, he treats them as if they were **onto-epistemic hybrids** (more or less the way that **Hume** treats impressions).

Kant calls a theory **transcendental**, if it investigates our knowledge of objects, insofar that knowledge is possible *a priori*. His theory of space and time in the TrAe, therefore, is transcendental in the sense adumbrated.

So Kant can say that

transcendentally speaking, space and time, because we have pure (a priori) intuitions of them, are **in us**, and therefore **transcendentally ideal**,

but that

empirically speaking, we are **in space and time**, which are therefore **empirically real**.

This is the notorious combination of **transcendental idealism** and **empirical realism** that Kant teaches in the TrAe.

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But I am getting ahead of my story. We have yet to talk about the so-called **transcendental exposition** of the concepts of space and time, notably of the concept of space. Here, Kant says things that have been falsified by **modern physics**. But I think, Kant's position can be modified and strengthened in a conservative way, so that the balance of his teachings will be unaffected.

In the transcendental exposition space (i.e. our pure intuition of space) is presented as a principle of the possibility of what Kant calls

synthetic knowledge a priori,

viz. of synthetic knowledge a priori in Euclidean geometry. Now, pure geometry for Kant isn't a branch of **pure mathematics** in our present, very abstract sense of "pure mathematics", but is the mathematical theory of **physical space**. For Kant, **Euclidean** geometry is so to speak **Newtonian** geometry. And this, of course, makes his position vulnerable to modern objections. The general theory of relativity (**GTR**) has convinced us that neither space-time as a whole nor physical space taken separately is Euclidean after all. Space is curved by gravity, i.e. by mass.

But (people say) if our **pure intuition** of space is supposed to ground a Euclidean theory of physical space, so much the worse for the thesis that we do possess such an intuition. The intuition would be **wrong**, if we had it. (I think, this is an interesting point, and my pro-Kantian strategy will consist in the thesis that our pure intuitions of space and time are indeed wrong, taken literally and taken as theories of physical space-time. I'll return to this point shortly.)

One may of course try to mend Kant's theory by saying that our original representations of space and time are pretty **generic** and therefore **neutral** between various geometries, Euclidean and otherwise. Kant was just a bit too optimistic as to the concreteness of our original representations of space and time. But then those representations would not be intuitions, because intuitions are fully specific. They would be **general concepts** instead. But their being intuitions and thus fully specific is of the essence of Kant's theory. So, this strategy is of no help for Kant, it would ruin his theory.

My alternative option for a **conservative upgrading** of Kant's position is the following one. Kant himself should have known better on behalf of his own findings and long before Einstein developed his theory of gravitation. – Space and time, he says, are in a sense "**in**" us though, in a different sense, they extend beyond ourselves. They are "in" us qua pure intuitions, and that is what makes them **transcendentally ideal**.

But things and events in time and space are pretty real, **empirically real**. How could something empirically real have invariant general forms which are transcendentally ideal? Shouldn't we expect that real things **interfere** with their general forms? If those forms (space and time) were totally insensitive to what is formed by them, that which is formed by them would not be a good candidate for what is **real**. And indeed, Kant seems to think that things in space and time are a bit in an **ontological twilight** because of their general forms, space and time, which we know a priori through pure intuitions and which are nothing more than subjective intuitions.

Kant should have looked for relief from **idealistic pressure**, and he should have said: Things show their robust reality by **interfering** with their pure general forms, by "**de-forming**" them, or curving them, if you like. He should have said that **euclidicity** is the pure **default position** of space and time, the limiting case in which space and time are **empty** (and therefore **pure**).

I think he would have been **right**, if he had said this, and, **secondly**, his overall theory could have remained much the **same**.

In imagination, other than in perception, reality is not **present in person**, so to speak. So, there is nothing (and *can* be nothing) to curve the **space of imagination**. The space of imagination is necessarily **flat**, even when we imagine large chunks of matter. Here, imagination necessarily goes astray and misrepresents its very content. But if we try to imagine pure and empty space, as we do in **geometry**, our imagination is absolutely right in representing pure and empty space as Euclidean.

It may seem strange, but in a sense, we cannot **imagine** things as they **are** and as we **see** them, and we cannot **see** them (and they cannot **be**) as we **imagine** them. We see curved space, in-

deed we see its very curvature, by seeing spatial objects. But we cannot *imagine* curved space, because there is nothing – no real thing – in our imagination to do the curving.

So, we are still willing today to follow the **math teacher**, when s/he demonstrates with straightedge and compasses that the sum of the inner angles of a triangle is equal to two right angles, though we know that what is being “proved” here, is empirically false.

Our **biological hardware** could hardly stand in the way of our imagining physical space as curved, being a physical phenomenon and thus curved itself. What stands in the way is the **transcendental** fact (so to speak) that

flat, 3-dim, infinite, continuous space is the ideal, **transcendentally necessary, meta-physically impossible** limiting case (default position) of any possible physical space.

Euclidean geometry as the pure, non-empirical theory of physical space is thus an **impossibilist idealization**, but so are physical theories as well. Newtonian 3-dim **mass points** and Einsteinian 4-dim **events** are impossible entities, being extensionless. Still, physical theory can work with them as useful idealizations. Real objects and real processes will behave according to physical laws with more and more precision the nearer they come to mass points or impossible events, in size and shape and mass. The same is true for physical space as a whole: It will approach Euclidicity the more it gets emptied out, so to speak.

So the amended Kantian theory of space and time would be that our representations of space and time are pure intuitions, but in those intuitions we intuit the flat, non-Euclidean manifold of imagination, which is the impossibilist limiting case of physical space-time. And one could add the following theses:

- (1) Euclidean space-times are metaphysically impossible.
- (2) Euclidean space-times are transcendently necessary.

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As regards the opposition of **Newton** and **Leibniz** on the nature of space (and time), we can now say that **Kant** chooses the following intermediary road. Newton says that space and time are absolute and infinite **containers** of things and episodes. But **Kant** sees them internally related to subjectivity, i.e. to persons in space and time. So, there is a **reciprocal essential dependence** of corporeal subjectivity on the one hand and space and time on the other.

What **Kant** did not yet see is the **reciprocal essential dependence** of space-time and matter or mass. It was left to **Einstein** to find that out. Space-time interferes with material things: It is their general form (the form of particularity), and they deform it systematically, viz. curve it. But **Kant** **could** well have integrated that discovery into his theory, which would have to be modified only slightly and conservatively.

Leibniz on the other hand thought that space (and time) could be reduced to properties of basic substances, monads. It is in fact things and their masses that **affect** space-time, but affecting is one thing, and constituting would be another. **Kant** is right, as against **Leibniz**, that there is a pure default position of space-time, the same for all possible worlds, which is in no way constituted by massive things. But real and physical space-time exists only because massive things exist in it. – This is again the **reciprocal essential dependence** of space-time and matter or mass that **Einstein** discovered.

So, **Kant**, amended a little bit in order to take into account general relativity, is quite up to date in the philosophy of space and time. Or so it seems to me.

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3. Time and the Ways of Happiness (Aristotle, Heidegger) (March 20, 2012)

Aristotle distinguished three competing conceptions of happiness: pleasure, virtue and contemplation, and three related life styles (“bioi”): the life of pleasure, the political life and the contemplative life. In this part of the seminar, the competing conceptions of happiness will be traced to three essential aspects of happiness and related to the aspects of time. The aspects of time in turn will be traced to three fundamental aspects of original, non-successive temporality and to the threefold structure of what Heidegger called care (“Sorge”), i.e. the structure of the being of “Dasein” (i.e. of human corporeal subjectivity, roughly speaking).

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We have seen in the first seminar that there is a **threefold internal structure** of truth and being that pervades discourse, space, time, subjectivity, happiness and freedom. Or we could as well say there is a threefold structure of **time**: future, present and past, that pervades truth and being, discourse and subjectivity etc. – We are now going to talk about **happiness** and to relate it to **time** and to **subjectivity**.

Aristotle in the *Nicomachean Ethics* asks about the ultimate **end** of all human striving and acting. Right at the beginning of the book (EN I, 1) he portrays the system of a person’s activities as a **partially ordered set** under the means-end relation, a partially ordered set with exactly one **maximal element**. Of course he does not say so – a partially ordered set with a maximal element: that is today’s mathematical way of talking.

What is meant by this way of talking? Well, we often perform an **action**, because we want to do something **else**. E.g. we leave our **house** in order to go to the subway **station**, and we go to subway station in order to take the **subway**, and we want to take the subway because we want to go to the philosophy **department** and to listen to a **talk** there etc. Put schematically, we perform an action A in order to perform an action B in order to perform an action C etc. This is a **chain** of actions related by the means-end-relation: one member of the chain is the means for another member. And there are many such chains in our behavior.

What **Aristotle** is saying is that all those chains of activities must terminate in one ultimate element, which is the maximal element of the set of our activities. An action could be its own end; then the means-end-chain chain of that action would be very short, consisting of that single element only. In other cases the chain may be pretty long (as in the case of leaving the house for the talk in the philosophy department, which in turn need not yet be the end of the chain).

Now Aristotle has **two theses** here: (1) Every chain of activities under the means-end-relation must terminate in an ultimate element. (2) The ultimate element is the same for all chains of actions of a given person. The **first** thesis is plausible enough: If there were no ultimate end in what we are doing, our acting would be senseless, totally in vain, not a case of rational behavior at all. But the **second** thesis is somewhat moot. Why shouldn’t there be 17 or 43 ultimate ends that one person is pursuing?

Well, even if there were, then these 17 or 43 ultimate ends would add up to one big **inclusive** ultimate end. So let us start with the idea of an inclusive ultimate end and let us say in the spirit of **Aristotle** that the **maximal element** of the partial ordering of our activities under the means-end relation is the **inclusive** activity of leading a good life, which can also be described briefly as **the good**. All other activities are **either aspects** or **parts** of the good life or **means** to the end of the good life.

The good (i.e. leading a good life):

the maximal element of the activities of a person under the means-end-relation, i.e. the last and highest end of all activities of a person

Ideally, each activity would never **only** be a means but always **also** an aspect of the good life and would never be done only in order to achieve some other goal, but always also for its own sake. But in fact we do many things just because we believe that we need to do them for some other important goal. (So for example, people sell their labor power, not because they like alienated labor, but because they can thus acquire the necessary revenue for buying consumer products.)

So we have the good life or just the **good** as the ultimate **end** of each person's activities, and this is what gives **unity** to the active life of a person. But still, it is a very **formal** characterization; one would like to know what the good life is like, i.e. what makes up a good life.

Well, **Aristotle's** next information is that nearly everyone calls the good life *eudaimonia*, **happiness**. But this is still rather **formal**. Everybody calls the good life *eudaimonia* – but what exactly is *eudaimonia*?

At this point begins the **dissent**. And there is dissent in **practice** as well as in **theory**. First of all, one could question the Aristotelian thesis that the good or happiness is an **activity**. For of course, if happiness is characterized as the maximal element of the partially ordered the set of activities of a person, then happiness will itself be an activity. But one could as well claim that happiness was a **state**, something a person might be in rather **passively**.

If happiness were a (passive) **state** of a person, not an **activity**, then all our actions would be performed for the sake of something else; no activity could then be its own end. And this is in fact an **option** that some **theorists** have taken. Those theorists are usually called **hedonists**, and their thesis is that happiness is the state of **pleasure** (and of absence of pain).

As I said, there is dissent regarding the question, what happiness consists in, and the dissent is there in **theory** as well as in **practice**. A Hedonist in **theory** says that happiness is pleasure, and a hedonist in **practice** leads his or her life as though happiness were just pleasure.

The hedonistic conception of happiness is one out of **three** competing conceptions of happiness that Aristotle distinguishes. Let's glance at all three of them.

So, **first**, there are those who strive to lead a life of enjoyment or pleasure. They would say that *eudaimonia* or happiness is basically pleasure. This position is called **hedonism**.

Then, **second**, there are those who try to lead a **political** life, not just any political life, of course, but a life of **virtue** and **honor**. They would say that happiness is basically **excellence** or **virtue** (plus **luck**: you need the chance to be virtuous, e.g. you need money and friends in order to play an important role for your city or country).

Third and last, there are those who think that a happy and a good life is a **theoretical** or a **contemplative** life. They would say that happiness is contemplation, enlightenment, illumination or what in Buddhism is called **satori**.

Three conceptions of happiness

pleasure (enjoyment)
excellence (virtue, honor)
contemplation (satori)

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Aristotle's own conception, very roughly speaking, is that **contemplation** would be the best candidate for the role of happiness, if humans were **gods**, i.e. if they weren't in need of eating, drinking, sleeping and paying their bills. But as things are, humans cannot remain in the state of contemplation (if they can reach it at all), but have to return to their daily businesses soon. So, contemplation is **best**, but attainable only during short periods in the lives of human beings.

Second best as a candidate for happiness is a good **practical** and political life. Aristotle has an interesting argument to show this. It is called the **ergon argument**. *Ergon* is the Greek word for *work, job* or *proper function*. People and things have various jobs, functions or professions. Take a shoemaker; a person is a **good** shoemaker (or good as a shoemaker), if he or she makes solid and elegant shoes. Or take an artifact like a **knife**: a knife will be good, if it cuts well.

Now, curiously enough, Aristotle asks: What is the job or proper function (the *ergon*) of **human beings**, generally speaking? – That may seem to be a weird or even silly question. There is no such thing, you might say, as a general human function or job. Anybody may choose his or her own favorite job, as they like.

But Aristotle gives two well-known **definitions** of human beings. Man, he says in one of them, is the *zôon logon echon*, the animal that has **speech**. In the other he says that man is the *zôon politikon*, the animal that lives in a **polis**, i.e. in a city or a state.

Aristotle defines man as the animal that (1) has speech, (2) lives in a polis (city, state).

The second definition says nothing about the proper function of man. What it says is that in between the **genus** *human being* and the **individual** human being we find as a mediating reality the polis (city or state) that an individual belongs to. E.g.:

Individual	person	Socrates
species	polis (city, state)	Athens
genus	biological species	mankind

So our **biological** species and our social or **political** species fall apart; and our biological species coincides with our political genus.

But I mention that only in passing. What interests us, is the **first** definition, because it gives a kind of **job description** for human beings.

Biologically, we are living things, like plants and animals. A living thing, according to Aristotle, has a **soul**. All corporeal living things: plants, animals and men, have **vegetative** or **nutritive** souls. The nutritive soul regulates the *metabolism* of the living thing with its environment. In animals we find as another psychological module the **sensitive** or **perceptive** soul, which is responsible for sensory perception. In human beings, last but not least, there is a third psychological module, the **intellectual** or **rational** soul, which is responsible for speech and thought.

Three modules of the human soul:

(1) The nutritive soul:	plants, animals, humans,
(2) the perceptive soul:	animals, humans,
(3) the rational soul:	humans.

The third module or part of the human soul is specific for human beings. It is here, where we must look for a **proper function** of man, if such there be. And Aristotle says there is: Man as the animal that has speech and a rational part of the soul is the administrator and caretaker of speech and reason, *logos*. A shoemaker is **good** (qua shoemaker), when he makes solid and elegant shoes. A human being is **good** (qua human being), when he or she **takes care** of *logos* (speech and reason) in an effective and successful way.

In **Aristotle's** own words (EN I 7, 1098a, tr. by Martin Ostwald, Indianapolis 1962, p. 17f.):

The proper function of man, then, consists in an activity of the soul in conformity with a rational principle or, at least, not without it. [...] we reach the conclusion that the good of man [i.e. human happiness] is an activity of the [rational] soul in conformity with excellence or virtue, and if there are several virtues, in conformity with the best

and most complete.

But we must add “in a complete life.” For one swallow does not make a spring, nor does one sunny day; similarly one day or a short time does not make a man blessed and happy.

So if you act **reasonably** as a citizen in your **polis** and if you do so not just once or twice, but in a **complete life**, then, according to Aristotle, you have a good chance of being happy. Of course you must be **lucky** too: You must have a good health, be sufficiently wealthy, have healthy and virtuous children etc. So there is always a lot you cannot do about your happiness, but there is also a lot you *can* do.

(Interestingly enough, the German word “Glück” which has the same Germanic root as the English “luck” means both, *luck* and *happiness*.)

What, now, about **pleasure**? Aristotle says (EN X 5, 1174b31-33, tr. Terence Irwin, Indianapolis 1985, p. 276):

Pleasure completes the activity – not, however, as the state [disposition, *hexis*] does, by being present [in the activity], but as a sort of consequent end, like the bloom on youths.

Thus, pleasure is a **consequent end**, an **extra** that follows upon a successful action. If something that you do, backed by reason, is **going smoothly** and is **working out**, this will be part of your happiness. (In fact, the German word for “going smoothly” and “working out” is “gelingen”, which has the same etymological root as “Glück”, i.e. happiness).

If Aristotle is **right** here, then it will not be a good idea to **strive** for **pleasure**. Pleasure is not a good candidate as a **direct** aim (or goal or end) of action. You should strive for **success** (“Gelingen”) in what you are doing as a reasonable citizen; then pleasure will follow naturally and automatically. **Hedonists** err in that they think that pleasure can be attained directly; but if you really try to do so, you will probably wind up as an unhappy drug **addict**.

So, the important Aristotelian point about **pleasure** is that pleasure belongs essentially with happiness, but only as a natural consequence which follows on successful and happy action.

And what about **contemplation**? The important point about **contemplation** is that it is the best and most intensive form of happiness: sheer **blessedness**, but that it won’t last in the lives of human beings. A **god** may be blessed all of his or her life; but a human being has to do the daily humdrum work between the short moments of contemplation and blessedness, if such there be at all.

What remains, then, regarding happiness, for a human being is **practical happiness**: the happiness of a virtuous and successful citizen in a rich and successful polis.

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That is the position of Aristotle. Now I **agree** with much of what he has to say about a good and happy life **except** that I think that he is tearing practical happiness and contemplation too far **apart**. While acting successfully as a citizen of our polis we may at the same time **contemplate** our own way of acting, and we may contemplate it as embedded in the whole of reality and the whole of history – and be happy or even blessed.

Neither **pleasure** nor **success** nor **contemplation**, considered in isolation respectively, is happiness or blessedness, much the same as neither **correspondence** nor **assertability** nor **unconcealment**, considered in isolation, is truth. But just as truth has a realistic, a pragmatic and a phenomenal aspect, so happiness has a hedonic, a practical and a contemplative aspect.

This then is my thesis, **based upon** insights of Aristotle, but eventually turned **against** him: We need not choose between **pleasure**, **excellence** and **contemplation**, but we should try to

integrate them into one single form of a good and happy human life. For pleasure, excellence and contemplation are the three essential **aspects** of the good for human beings, the three essential aspects of human **happiness**.

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As regards **excellence** and **pleasure**, Aristotle himself says much the same thing: Pleasure is not an end in its own right, but the **immanent consequence** of excellence and success. I would only like to add that something analogous is true of excellence and contemplation: Contemplation is not something you can strive for directly, but it will follow upon true excellence. If you act truly virtuously, then something like “contemplation” (or satori or however you want to call it) will ensue.

This will become more conspicuous, if we now turn to the **correlations** between **happiness**, **truth** and **time** that I anticipated in our first seminar session. Let me repeat the correlations, first of the aspect of happiness and the aspects or **truth**:

- (1) Pleasure (hedonic aspect of h.) – realistic/objective aspect of truth and being
- (2) Excellence, success, virtue (practical aspect of h.) – pragmatic/teleological aspect of truth and being
- (3) Contemplation (theoretical aspect of h.) – phenomenal aspect of truth and being

If we then put in the modes of time as well, we will get the following rows of coordinated aspects of happiness, truth/being and **time**:

	Happiness	truth and being	time
(1)	Pleasure	objective reality	past
(2)	Excellence	warranted assertability	future
(3)	Contemplation	phenomenal openness	present

(1) **Pleasure** is always something that has already been following upon some successful action which lies in the past or at least begins to recede into the past. And it comes (or doesn't come) whether you want it or not.

(2) **Excellence** and **success** is something you can work for and train for. And success in our daily game of giving and asking for reasons (the game of knowledge and truth) is **warranted assertability**. This is something you can strive for, something which you may realize in the future, if you try hard enough.

(3) What is contemplated must be present. **Contemplation** is thus accomplished in the **present**. And so is phenomenal openness of things. – What is **present** can be perceived; what is **past** can be remembered; what is **future** can be expected or planned.

So, I would like to say that the full phenomenon of happiness (like the full phenomena of truth and of time) has **three essential aspects** none of which must be missing, if happiness is to be actualized.

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The interconnection of **happiness** and **time** is very instructive for the diagnosis of the human situation. In our first seminar session I introduced McTaggart's distinction between the A-series and the B-series of episodes and went on to give an array of four possible conceptions of time:

- (1) pure, non-linear, non-successive **A-time**,
- (2) time as the linear, successive **A-scale** of episodes,

- (3) time as the linear, successive **B-scale** of episodes,
- (4) time as the linear, symmetrical **C-scale** of episodes, i.e. the physical parameter t .

So, at one end of the array we have **pure A-time**: the three temporal modes which we must try to understand in light of the **aspects of truth and being**. And at the opposite end of the array we have **linear time** or time as the **C-scale** of events or time as the **parameter t** of physics. From the **one** end we get the modes of time and time's internal asymmetry, from the **other** end we get the line onto which to project the modes of time in their internal asymmetry.

In our **daily conduct** we operate with the intermediate conceptions of time: with time as the A-scale and as the B-scale of episodes, but first and foremost with time as the A-scale. We remember and sometimes regret what we did in the **past**, we plan and sometimes look forward to what we will do in the **future**, and we experience what we do right **now**.

But now look what happens, when we try to **pursue happiness** with time as the A-scale in view. The aspects of happiness then tend to fall **asunder** alongside **timeline**: Success, i.e. the reaching of our ends, belongs with the **future**, contemplation belongs with the **present**, and pleasure belongs with the **past**. And future, present and past are separated from each other on the timeline.

But the timeline for each human being is **finite** in both directions, and we know it. What concerns us most, of course, is that it is finite in the future, i.e. that we are **mortal**. This is so, because our plans are directed towards the future, or rather should I say that the future is **defined** as that direction of time where our plans point to. That we are temporally finite in the other direction as well, i.e. that we were **born** at some specific moment of time, is a kind of finitude that is of little direct concern to us. (It may be a matter of **indirect** concern, when e.g. we deplore that we have already reached a certain age and thus have come already fairly close to our future death).

Now if we live our lives under the guidance of the **timeline**, then our success, i.e. the reaching of our goals and ends, is always separated from us as something in the future, our pleasures and pains relate us to our past successes and misfortunes, and the present moment is contemplated as a transition stage and a means for what comes next. So, we will always be unsatisfied, and this is how most people live most of the time.

For most people most of the time, **life** is a **vicious progress** of means and ends, where the ends always belong to a (more or less) distant future on the timeline, while their present acting, living, experiencing is only a means for some such future end. The progress is **vicious**, because there is no **fixed point** ever to be reached; it is vicious, yes, but – alas (or should I say: luckily?) – by no means infinite, for some fine day the progress will stop as a matter of brute fact; it will be **truncated** – not accomplished or fulfilled – by **death**. But then, as the ultimate end has always been outside the vicious progress, in the future, such a life will have been **in vain**, pointless, purposeless – in a quite literal sense.

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If, on the other hand, we live our lives under the guidance of **pure A-time**, then things are different. In pure A-time the three modes of time – past, present and future – are not separated along the timeline, but permeate each other in what **Heidegger** calls the *Augenblick*, literally: the *blink of an eye*. But let us advance step by step.

Pure **A-time** is what Heidegger calls *ursprüngliche Zeitlichkeit*, which translates into English as “**original temporality**”. Original temporality is conceived by Heidegger as the non-successive, non-linear **integral whole** of original **past**, original **present** and original **future**. (I follow William **Blattner** on this point; see his *Heidegger's Temporal Idealism*.) What are the original versions of past, present and future? We may characterize them **negatively** by saying

that they are not parts of the timeline, that they are non-successive, non-linear. We may characterize them **positively** by (more or less) **equating** them with the aspects of truth and being. This is in a nutshell what Heidegger does in the second section (“Dasein and Temporality”, §§ 45ff.) of *Sein und Zeit*, where he wants to substantiate his thesis that time (*Zeit*) is the **sense of being** (*Sinn von Sein*) and reinterpret the results of the first section (“The Preliminary Fundamental Analysis of Dasein”, §§ 9-44) temporally. This may sound, as if time was **more primordial** than being, and maybe Heidegger (by the time of *Time and Being*) in fact thought it was. But I would rather say that truth/being and time are **equiprimordial**.

So, let us then put down the respective equations:

Original past = **objectivity** (objective aspect of being) = realistic aspect of truth
 original present = **phenomenality** (phenom. aspect of being) = phenom. aspect of t.
 original future = **teleology** (teleol. aspect of being) = normative/pragmatic a.o.t.

We could as well add the aspects of **subjectivity: feeling** (of pleasure and pain), **cognition** and **will**. In Heidegger we find them in slightly different guises: as the three aspects of “**care**” (*Sorge*), i.e. the being of **Dasein** (human corporeal subjectivity). These aspects, according to Heidegger, are **facticity**, **existentiality** and **being fallen** (*Verfallenheit*) and their (if the word be allowed in Heideggerian context) “epistemological” correlates: **affectivity** (*Befindlichkeit*), **understanding** (*Verstehen*) and **falling** (*Verfallen*).

In their **temporal reinterpretation** these aspects of care (subjectivity) are again nothing else but original past, present and future, now seen from the side of corporeal subjectivity, Dasein.

But let us return to **original temporality** (i.e. the integral texture of original past, present and future), insofar as it is the sense of being, i.e. the texture of objectivity, phenomenality and teleology. As such it is to be conceived **independently** of time qua C-scale. i.e. independently of the **timeline**. How then do we **encounter** original temporality? Don’t we have to live our lives along the timeline? So, how *could* we ever encounter such a thing as non-successive, non-linear A-time (i.e. original temporality)?

It is at this moment that “the moment” comes in or, as I should rather say with Heidegger, the “eyeblick”, “glance of an eye”, *Augenblick*. The eyeblink *is* the present moment, but not as a point on the timeline separating the past part of the timeline from the future part of the timeline, but rather as a **little “while”** (*Weile*), a little **asymmetrical while** which like opportunity is hairy in front, but bald after (so that it has to be grasped while it is approaching).

The eyeblink then is the **original presence**, as it can be encountered along the timeline in our daily lives, but as an internally rich and temporally asymmetric structure that represents within itself the original past and the original future as well.

I don’t want to enter into the problems of Heidegger **exegesis**. Suffice it to say then that the human condition, shaped by **unhappiness** because of the **vicious progress** of means and ends, may be transformed to the better, if the **timeline** loosens (or altogether loses) its grip on us and we come under the guidance of **pure A-time** or original temporality. For then, past, present and future come together in the “eyeblick”, which hence becomes its own end, i.e. an **end in itself** (or **self purpose**).

Of course, life in its outward activities goes on as it always used to: you do this now in order that you may do that tomorrow etc., along the timeline. But apart from that, under the guidance of pure A-time you start doing things in a different way: You now do whatever you do not only for the sake of something else and of something later, but also **for its own sake**: as a way of living a good and happy life. The **pleasure** that follows upon this kind of overall **success** and excellence in living might be called the **joy of being**, and the **contemplation** that ensues, the **contemplation of being**. But philosophy cannot prove that it is a real life option.

4. Time and Freedom: A Libertarian Theory of Time's Arrow (March 23, 2012)

Time's arrow cannot be accounted for in physical theory. I will try to show that human freedom (and, maybe, its antecedent pre-forms in the evolution of species) is what implements the asymmetrical structure of truth (correspondence, assertability, unhiddenness) and of time (past, present, future) in what may, by courtesy of J.M.E McTaggart, be called the C-series of time, i.e. a temporal array of episodes without internal directedness or asymmetry – thereby creating time's arrow. This requires a second order compatibilist (or metacompatibilist) theory of (i) determinism, (ii) libertarianism and (iii) their first order incompatibility, which is not an easy thing to have. I will try to get there nevertheless.

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Today, we want to ask and answer the **two** related **questions**, (1) how the **arrow of time** comes into the world and (2) how we **know a priori** (a) that there is the arrow of time and (b) in which direction it points.

The general **answer** to both questions will be that we have a priori knowledge of the arrow of time, because we ourselves bring it into the world – through our **free actions**. Somewhat more carefully, one could say that the arrow of time is made real by, *among other things*, our actions and that we know it a priori because we know a priori that we are free agents. But realistically we must add that the arrow of time comes into the world already with **macro-objects** as such, not only with free agents in the full sense. But it gets **recognizable** – and recognizable a priori – only with regard to our free actions that **reinforce** it.

But let us for the moment **abstract away** from the general case of common macro-objects and focus our attention specifically on **free agents** and their activities. For the moment, i.e., let us ponder the **thesis**:

Because free agents have evolved in nature, time is oriented asymmetrically from a *terminus a quo*, called past, to a *terminus ad quem*, called future, i.e. it has a so-called “arrow”.

And this is true, now that free agents exist, also **retroactively** for the period of time, when there were not yet any free agents, and **pre-actively** for the period of time, when there will be no free agents any longer. (This is true in a weak sense in any case, for the timeline as such will have an arrow, if a part of it does; and it may be true in a stronger sense as well, if there is such a thing of retroactively influencing the past.)

This thesis is the **core** of a **libertarian theory of the arrow of time**. The theory will be shaped by three essential ingredients: **first**, the threefold structure of **truth** as the source of our understanding a priori the asymmetric threefold structure of time, **secondly**, the **free will** of an agent through which (s)he may transfer the structure of truth asymmetrically to the timeline, and **thirdly** an internal, essential **relation** of the timeline to human subjectivity, a relation which is the condition of the possibility that (a) free agents implement the structure of truth as an asymmetry (as an “arrow”) in the timeline and then (b) may a priori discern it.

The *Libertarian Theory of the Arrow of Time* (“Freiheitstheorie des Zeitpfeils”, FTZ) has three main ingredients:

- (1) The threefold structure of truth,
- (2) free will,
- (3) an essential relation of timeline to subjectivity.

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The threefold structure of **truth** (correspondence, unconcealment, assertability) is a topic we talked about in the previous seminar sessions. So we can start here right away with the 2nd theoretical ingredient, viz. with free will or with **freedom of the will**. We know already that freedom of the will, like truth, time etc., has three essential aspects, viz. **autonomy** (of the will), **independence** of the causal nexus of nature, and freedom of choice (*choice* for short). I call these the **practical**, the **cosmological** and the **electoral** aspects of freedom respectively.

According to the **practical** aspect of freedom our will is **autonomous**, self-legislating, and it is obvious that the practical aspect of freedom (or the autonomy of the will) corresponds to the pragmatic aspect of **truth**, to the mental faculty of the **will** as such (i.e. to the **volitional** aspect of **subjectivity**) and to the temporal mode of **future**. The autonomy of the will is what orients our natural striving towards a new, more rational direction.

The **electoral** aspect of freedom, i.e. freedom of **choice**, fits in the row: realistic aspect of **truth** – **feeling** of pleasure and pain (i.e. **affective** aspect of **subjectivity**) – **past**. In the bipolarity of pleasure and pain we find a marker, cause or analogue of two ways in which our **past**, our factual nature that has always already taken hold of us, disposes us to proceed instinctively and spontaneously: by aspiring to or fleeing something, by performing an action or not performing it, by a turn to the right or a turn to the left on our way forward into the space ahead and thereby into future. This spontaneous, instinctive way of choosing is counteracted by the electoral aspect of freedom.

For the **cosmological** aspect of freedom, independence from the nexus of nature, there would then remain the series: **phenomenal** aspect of truth – **perception** (i.e. the **cognitive** aspect of **subjectivity**) – **present**. This seems reasonable and appropriate enough, because in perception we are epistemically close to the things perceived from whose natural nexus we can detach ourselves due to the cosmological aspect of freedom. As a consequence we can move toward the future in a self-determined and autonomous, not in an instinctive and heteronomous way. The **cosmological** aspect thus **relativizes** our being with things (in epistemic proximity), and it is the aspect in virtue of which freedom is **incompatible** with natural **determinism**.

Autonomy: orients our natural pursuit of happiness in a reasonable direction.

Free choice: counteracts our natural, instinctive “choices”.

Independence: relativizes our being with things against their natural determinism.

To summarize, the **future** is originally understood from the **pragmatic** aspect of **truth** and, through its mediation, is shaped by the **practical** aspect of **freedom**, the autonomy of the will.

Similarly, the **past**, through the mediation of the **realistic** aspect of **truth**, is shaped by the **electoral** aspect of **freedom**, freedom of choice, into which we are “thrown” without our intervention.

The **present** is characterized via the phenomenal aspect of truth by the cosmological aspect of freedom, independence from the nexus of the natural order.

With these basic connections of **truth**, **freedom** and **time** in mind, we can now address the question of how the free will is interrelated with time and its internal structure and internal asymmetry. But we shall stick to the **second** of our three theoretical **ingredients**, freedom of the will, for some time (to remind: the first one was the structure of truth, the third will be the essential and internal relation of the timeline and subjectivity).

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Only the **current** time (or present time) can be **perceived**, other times must be **inferred** inductively by material inferences (“there is thunder, so it must just have flashed”, “lightning strikes, so it will thunder immediately” etc.). In our inductive reasoning along the timeline, however, we **assume** that the different times determine each other according to natural laws,

as regards the episodes that “fill” them. Each state of the world hangs together with any other – past or future – state of the world according to strict laws of nature.

This, by the way, is one of the **disanalogies** of time and space. Time, in contradistinction to the dimensions of space, is an **axis of nomological determination** for the cosmic process. But this strict temporal determinism according to natural law, which stands in the way of the cosmological aspect of freedom, does not yet account for the arrow of time, because earlier periods are determined by later as well as later by earlier. So, there is a total temporal **symmetry** of determination here, which is typical of fundamental physical theory, i.e. quantum mechanics.

But then determinism according to natural law leaves the question **unanswered**, how it is possible to distinguish the future from the past. This distinction, since we make it a priori, must have to do with ourselves and our self-knowledge a priori, and with ourselves insofar as we raise truth claims, i.e. insofar as we are speakers. Part of the **answer** lies in the concept of truth itself: In terms of the **pragmatic** aspect of truth we understand a priori what it means to be future, in terms of the **phenomenal** aspect what it means to be present and in terms of the **realistic** aspect what it means to be past. Still, those distinctions also need to be implemented on the timeline; the sheer **C-series** of time gives us no hint, which moment is precisely the present one and what direction is the future, what direction the past.

The **fact of truth** came into the world with the likes of us, with our **phylogentic acquisition of language**. Therefore the implementation of the structure of truth and of the arrow of time in the timeline will have to do with rational beings and with speech. What is characteristic of speaking animals in their **interaction** with the world is that their will is articulated **conceptually**, that they can plan and choose rationally, in short that they possess freedom of the will. Consequently, time’s arrow will be internally related to our free will, and it is now our task to find out in what specific way it is thus related. What about our free will is responsible for the future being open and subject to plans and for the past being determined and subject to memories?

The first thing to be noted in this connection is that natural **determinism** is a **conditional** determinism, because the laws of nature have conditional form:

If the world is in state s at time t_x , it is in state s' at time t_x' .

On the other hand, the natural laws are **strict**, i.e. they don’t allow for exceptions. If freedom is **real**, on the other hand, we must acknowledge a certain **independence** of our will from natural episodes because of the cosmological aspect of freedom. But that independence must not restrain the strict nomological nexus of natural episodes.

Nevertheless, **gaps** in the world’s determinateness might still be found in the **boundary conditions** or in the initial conditions of the **cosmic process**. A **boundary** condition for the natural nomological nexus is any given world state at a certain time, and the **initial** condition would be the first world state in the cosmic series, i.e. the world state at time 0, if such there be. If we are looking for gaps in determinacy, then we can look **either** in the **laws** or in the **world states** – laws or states, tertium non datur in the way of (in-)determinacy. But there are no gaps in the laws, as those are strict (if only conditional) – quantum mechanical niceties apart. So will we have to find the gaps of determinacy in the world states.

Freedom thus will be real only, if there are objective indeterminacies in the states of the world, gaps in being – veridical being – itself, i.e. ontic gaps that will take the form of truth value gaps at the linguistic level:

Ontic gaps in the world – truth value gaps in language

However, according to the logical principle of **bivalence**, statements (or propositions) are always either true or false. **Classical logic** thus seems to stand in the way of abandoning bivalence and acknowledging freedom. But there is a way out. If we declare ontic gaps (and thus truth value gaps) to be **undetectable** in principle, then bivalence may obtain and nevertheless there may be the gaps of the kind that freedom requires.

For if truth value gaps are in principle **undetectable**, we can always counter with a “try harder”, if someone claims that they have detected an ontic gap. For all we know, the alleged **ontic** gap might be an **epistemic** gap only, to be filled and closed by further investigation.

So we should claim that there are ontic gaps which cannot be closed by theoretical investigation, but at best by practical activities, but that we can never be sure which gaps those are. As long as there are no free agents in the world, the ontic gaps will be transferred from one world state to the other according to natural laws. Thus, the amount of ontic indeterminacy will remain constant in both temporal directions (as long as there are no free agents, at any rate).

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Let me **repeat** some of the main points. We were about to present human freedom of the will as the circumstance that is responsible for the asymmetry (or the “arrow”) of time.

Because of its **cosmological** aspect freedom is **incompatible** with a thoroughgoing natural determinism. But natural determinism involves **two** elements, **first**, the laws of nature, and **secondly** the boundary conditions or (in the last analysis) the initial conditions of the world process. The laws of nature are of conditional form, relating world states to each other along the timeline (as the axis of determination) in both temporal directions.

The laws are strict; they don’t allow for exceptions. If freedom is to be real then, there must be a certain **independence** of the will from natural process; but this independence must not restrain or impair the strict conditional nexus of nature.

So, if we are looking for **gaps** in the determinacy of the natural process, we must look at the **boundary** (or initial) **conditions**, i.e. at the world states. Laws or world states – that’s all we have got as possible sources of indeterminacy. If there is no **room for freedom** in nomological gaps (because there are none), there must be room for freedom in ontic gaps of the world states. Freedom then will be real, only if there are **objective** indeterminacies, gaps in veridical **being** (in being the case) that take the form of **truth value gaps** at the level of speaking and thinking.

But classical logic is based on the principle of **bivalence**: Statements are either true or false. Therefore, in order not to tinker with classical logic, we must keep bivalence as a **regulative principle**: “Whenever you hit upon a statement, whose truth or falsity you cannot prove, try harder!” – On the other hand, we have to abandon bivalence as a **constitutive principle** and acknowledge instead that the real contains ontic gaps, albeit undetectable ones (gaps not to be detected theoretically, but to be filled practically: in free actions).

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Now back to **work** again! I was talking of three theoretical **ingredients** of our libertarian theory of time’s arrow (FTZ): the structure of truth, free will, and the internal relation of the timeline to human subjectivity. We are presently belaboring the **second** ingredient: free will. Now let’s try to introduce freedom of the will **in three steps** and in such a way that the conditions of the possibility of time’s arrow will be gradually fulfilled. The first two of those steps will have to do with the second ingredient (free will); the third step will lead from the second to the third ingredient (from free will to the essential connection of timeline and subjectivity).

As a **first step**, let us assume that at every moment at which a free agent exists a free action may be performed by which a gap in being (an ontic gap) is filled and closed and the objective indeterminacy of the world diminished. With an eye on **Plato's** creational myth in the *Timaios*, one could say that the demiurge (i.e. the divine world artisan) has done the shell construction and brickwork of the world but has left some of the **paintwork** to the worldly subjects. Thus, the worldly agents round out the world from the inside and thereby increase the cosmic determinacy by their free actions. Therefore, the determinacy of the world increases along the timeline in one direction (the future), as long as free agents exist in the world.

First step (within the 2nd theory-ingredient): free agents fill ontic gaps by their actions, thus increasing the amount of determinacy of the world over time.

But this is only **one** side of a **double view** of time and its arrow. For, according to natural determinism, each new cosmic degree of determinacy will propagate itself along the timeline symmetrically in both directions. That means that, in each free act, the world's timeline as a whole and in fact the world as a whole, including its **past**, will be slightly changed into a timeline and a world of somewhat greater determinacy. (This is so, because we are not allowed to smuggle in the arrow of time, we are trying to account for, and then act as if a new degree of determinacy would be inherited only in one temporal direction, the future.)

We see here the need for and necessity of a **two-dimensional view** of one-dimensional time, a need for dual bookkeeping of time, so to speak. And the introduction of this dual view is the **second step** in our theory-building by three steps.

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The necessity of a double view of time can be shown **independently** by reflecting on the A-series of episodes and on the phenomenon of the so-called **flow** of time. Time flows, time passes, time goes by – the moment present **now** will be past in a second, and the moment present then will be past in another second etc. in an infinite progress of the moments of time. So, **time itself changes over time**, because at every moment a different moment is the present one. This already necessitates a two-dimensional view of time: Time is (a) the measure of change, and time (b) itself changes according to its own measure.

Of course, this is only true of time as the **A-scale** of episodes; but time as A-scale is **real time**; while time as the B-scale, let alone the C-scale, is only a truncated, abstract version of real, concrete, worldly time.

We now see that **both** phenomena, the flow of time and the arrow of time, time's movement and time's asymmetry, call for a **double** or two-dimensional view of (one-dimensional) time. A one-dimensional view will not do in either case.

For this reason, theories that consider time only one-dimensionally cannot account for the phenomenon of time's flow. Our **libertarian theory of the arrow of time**, on the other hand, can meet this requirement in passing.

Let us then, according to our two-dimensional view, **decompose** in thought the phenomenon of one-dimensional time into what may be called the **time of nature** and the **time of action**, and let us do it in such a way that the determinacy of the whole of time of nature (and the whole natural world) may increase in the time of action due to free actions.

2nd step: Time is to be considered in two dimensions, as time of action and of nature.
[Diagram: Coordinate axes with time of nature (x-axis) and time of action (y-axis)]

Over time, time itself is **changing**, viz. the whole timeline or the whole world process, including the past and the future. If I now fill a gap of determinacy, I make sure that from now

on the proposition will obtain that that gap had always been **filled**, ever since the world began, and that its being filled now had sufficient nomological conditions in former world states.

Consider any free action that is happening at a certain time, say for simplicity just at the beginning of 2012 GMT. At exactly **midnight**, someone may have freely fired a **firecracker**. Since the firing was done freely, by the end of 2011 it was still **undetermined**, whether the firing would occur or not. The world before 2012 had an ontic gap in this respect, and indeed the whole former world (at the end of 2011), including its former past and its former future, i.e. including its whole line of time of nature.

By the firing of the firecracker that gap has been closed **once and for all times**: The world and its natural time since 2012, considered as a whole, including past and future, is other than the world or the time before 2012.

So there is a sense in which one can say that a whole world and all of its natural time is **lost** with every free action, though usually it is lost in an unspectacular way, in favor of an only slightly more definite world and time.

Determinism of nature is maintained in that theoretical move; for in the world and time since New Year's Day 2012 by the free action of firing that firecracker all is now **posited** that might have been missing still of the sufficient causal conditions of the firing before the end of 2011. A free action, then, by being carried out, **cancels itself** as a free action and becomes part of nature. The action, so to speak, **retroactively** posits itself as a necessary episode according to natural laws, because it **retroactively** determines the initial conditions of the new world it brings about and the new time of the world in such a way that this very action itself must now have happened with natural necessity. Our **double** temporal **bookkeeping** therefore allows us to understand how the successive times (i.e. timelines) of nature and how the successive worlds may follow each other in the time of action.

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Unfortunately, the outlined conception is as yet **insufficient** to make the arrow of time fully intelligible. True, the amount of determinacy of the natural timelines increases asymmetrically in the time of action; but we do not yet fully understand why it does. The situation resembles the case of **entropy** (i.e., very roughly, the measure of disorder) which increases over time according to the second law of thermodynamics. Physics cannot explain why it increases rather in one temporal direction than the other. If a high degree of entropy is more probable than a low degree of entropy and if the degree of entropy is presently low for contingent reasons, entropy should increase towards the past as well as towards the future.

We must therefore – and this will be our **third step** – relate the asymmetry of time more closely still to subjectivity and truth. Let us remember that we owe our rich understanding of the modes of **time** to our understanding of the aspects of **truth**. Truth and veridical being are structured internally, and pure A-time follows suit.

The structure of veridical being and of A-time was our **first** theoretical ingredient. That structure, then, had to be implemented step by step (in three steps) in the timeline as a fundamental asymmetry by human freedom of the will, which was our **second** theoretical ingredient. Two steps we have already done, and we are now faced with the problem that the determinacy of the timeline increases in one direction, quite as it should be, but in such a way that the whole of time thereby gets more determinate. (Along the x-axis, i.e. in each time of nature, symmetry of determinacy is still reigning.)

Quantitatively speaking, therefore, the amount of determinacy of the future at any given time is the same as the amount of determinacy of the past. If, then, the future in the A-series seems **open** and the past seems **determined**, the cause of this phenomenon must go back to a **quali-**

tative difference between the determinacy of the future and the determinacy of the past. And we know already how that must be working: the openness of the future and the fixity of the past emerge from the pragmatic aspect and the realistic aspect of truth respectively.

Our **third** and **final** step in the development of the libertarian theory of time's arrow must therefore be the following **thesis**: The gaps of determinacy in the **future** of a given time of nature, e.g. our present time of nature, are (speaking loosely) in their "sum", i.e. **quantitatively, equal** to the gaps of determinacy in the past, but radically different in **quality**.

3rd step (leading from the second to third theory-ingredient):

In any timeline of nature, the gaps of determinacy of the future are quantitatively equal to the gaps of determinacy of the past, but qualitatively different.

(To speak of a **quantum** here, however, tends to be **trivial**, because what we have is in any case an infinite, inexhaustible "quantum" of ontic gaps; for reality is not completely determinable, so there will always be ontic gaps. Our focus therefore lies rather on qualitative difference than on quantitative identity of past and future gaps of determinacy.)

In order to justify this theory and to understand the qualitative difference between the two varieties of gaps of determinacy, we need as a **third theory-ingredient** an internal, essential relation of the timeline as such and human subjectivity. The timeline must so to speak already be **prepared** for human freedom, so that we can engage in it freely and "posit" (make explicit) its latent asymmetry so that it then may be known a priori.

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Let's start with a side view on a physical theory, which also assumes objective indeterminacies, although for other purposes and other reasons, viz. **quantum physics**.

In a famous thought experiment **Erwin Schrödinger** locked a cat in a box together with a radioactive atom and a poisonous substance in such a way that at the decay of the atom, the toxin would be released and the cat would die.

The atom as a micro-object is **directly** governed by the laws of **quantum physics**, according to which there is a certain probability that the atom will have decayed after such and such time. Therefore, after a certain while, seen from our **macroscopic** point of view, there are two possibilities: Either the atom has decayed and the cat is dead, or the atom has not decayed and the cat is still alive. But according to quantum physics things are different. As long as no one makes a measurement, i.e. looks into the box, there will be an overlay or **superposition** of both possibilities. For, according to quantum physics, it is in fact indeterminate, whether the atom has decayed, until someone opens the box and takes a look. Thanks to the **amplification mechanism** that couples the nuclear decay to the activation of the poisonous substance it should therefore be as well indeterminate whether the cat is alive or dead. As long as no one looks (i.e. makes a measurement), there is a superposition of both possibilities, and the cat is neither dead nor alive or both dead and alive at the same time (potentially both and actually neither, one could say with Aristotle).

Quantum theoretical indeterminacy and superposition have nothing to do with **freedom**. According to the so-called **wave function**, there is a certain probability that the cat lives, and a certain probability that it is dead, and the sum of these probabilities is 1. This is the fact of the matter, all of it, all of the objective reality about the question, whether the cat is dead or alive, as long as no one looks. But as soon as someone opens the box, the wave function "**collapses**" (as they say), and reality is now determined either way: either (and hopefully) the cat lives, or it is dead (regrettably). From our macroscopic point of view, of course, the cat is already dead or still alive, even when no one has looked.

Quantum physics acknowledges uncertainties and superpositions in the **microscopic** realm. But in Schrödinger's box they would artificially be **amplified** to form a **macroscopic** indeterminacy and superposition. This is **paradoxical**, but not our problem; it is rather a problem for quantum physicists.

Quite **analogously**, we are now assuming something that is **not a paradox** at all: that the presence, as experienced by a person, purely as such is an amplification mechanism that transforms microscopic gaps of determinacy of the **past** into macroscopic gaps of determinacy of the **future**.

Microscopic ontic gaps in the past \Rightarrow macroscopic ontic gaps in the future.

Quantum of indeterminacy is constant.

That means that the gaps of determinacy in the **past** have microscopic form, although they are not of the kind of quantum indeterminacies, but not describable with the tools of physics altogether.

The gaps of determinacy in the **future**, however, have macroscopic form. Of the future is true what is paradoxical in the case of the present or the past: that the cat is in a superposition state between life and death. This superposition state collapses and turns into a well determined state (whether of life or of death, in the case of Schrödinger's cat) at the moment, when it becomes present. The presence experienced by people is sliding along the line of time like a **zipper**, pushing together the open future and leaving it behind as the past.

So, the future is open, a branching of alternative macroscopic possibilities, which overlap each other, until they are decided one way or another by free agents and the results are saved in the past, which has only microscopic and basically undiscoverable gaps of determinacy. The **qualitative difference** between future and past along the timeline thus consists in the fact that we can influence the future in an obvious and predictable way, by closing **macroscopic** gaps of determinacy, while we can influence the past only in a non-specific, unplannable and unstructured way, by filling unknown microscopic gaps of determinacy without intention to do so.

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One could ponder the question, finally, if not only free **subjects**, but also on behalf of them and so to speak vicariously, any **macro-objects** whatever could already perform the function of filling ontic gaps along the timeline.

For macro-objects are not mere **aggregates** – mere mereological sums – of micro-objects, but categorically distinct from these and related essentially to human subjectivity already by virtue of their phenomenal properties. Ultimately, therefore, the determining of the immediate future is grounded in a **second** kind of **causality** over and above natural causality, viz. in the causality of freedom, i.e. in agent causality. But it is an empirical question or perhaps a question of definition, where agent causality enters the scene in the long process of cosmic evolution.

Time goes by and gets lost, as ramifications of the future constantly disappear and with them ranges of freedom. Consequently, time changes as time goes by. Time itself is different today than it was in 1960 or in 1910. It's not only the episodes that fill time which are different. The libertarian theory of the arrow of time leaves it at that. It is a theory on the standpoint of **finitude**. However, should there be a rediscovery of lost time, e.g. in the way described by Marcel Proust in his famous novel "A la recherche du temps perdu", then the standpoint of **infinitude** would be concrete and actual and our theory would have to be rethought and perhaps amended.

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