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Attribution of Concepts and Problems with Anachronism: An Intentionalist Account

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[ABSTRACT] In this paper I argue that many longstanding debates about anachronism in history writing derive from an essentialist understanding of concepts that is difficult to sustain for metaphysical and epistemological reasons. The paper articulates an intentionalist alternative to the essentialist approaches to concept attribution that successfully clarifies and avoids many standard problems with anachronism. [ABSTRACT ENDS]

Concepts are the intellectual historian's nightmare. While there is little agreement on what they are, various fields of intellectual history--the histories of philosophy, science, art or architecture--are replete with debates about the appropriateness or anachronism of specific concept attributions to individual historical figures. For instance, considering that the word *aesthetics* acquired its present meaning only in the eighteenth-century, can we talk about "medieval aesthetics"? Some historians will argue that we can, because medieval authors discussed some philosophical problems that we today classify as aesthetic problems. Others will deny it, because, in their view, the concept we express using the term 'aesthetics' would make no sense to medieval authors. The ancient Greeks, it was similarly asserted by various authors and with various justifications through the last century, did not have the concepts of infinity or space or homogenous space.[1] Michel Foucault employed the same type of argument when he claimed that there was no biology before the nineteenth-century, because the concept of life was unknown; what was known, he argued, were living beings that were studied by Natural History.[2] But one could respond that living beings are a perfectly valid topic for biology, which is the reason why historians of philosophy talk, for instance, about Aristotle's biological works. Similarly, Quentin Skinner warned that although Marsilius of Padua compared the executive role of a ruler with the legislative role of a sovereign people, these statements should not be taken as a formulation of the doctrine of the separation of power, which was articulated only two centuries later.[3] A reader who is not expert in the history of political theories would however find Skinner's claim more convincing if it included an explanation about the specific knowledge necessary to formulate the concept of "separation of power" that Marsilius lacked--otherwise it is hard to say what prevented him from formulating the idea. Another example is the use of the term "classical order" for the Doric, Ionic, Corinthian in architectural history. The system of the classical orders as we know it today was formulated only

in the sixteenth-century, when the Italian word *ordine* also came to be used for that purpose. *Ordo* in Vitruvius, for instance, meant something else. But can we then talk about the Roman use of the Ionic or Corinthian *order*?

Examples of this kind are legion. They often have a standard form: the attribution of specific beliefs to historical figures is contested by arguing that it is anachronistic to attribute to them some of the concepts that are necessary in order to formulate these beliefs. In this paper I show how numerous dilemmas about anachronistic concept-attributions derive from some widespread misconceptions about what can and what cannot be done with concepts. Many problems, I submit, disappear if history writing is consistently approached from an intentionalist position and if one conceives of concepts as *identifying descriptions* (mental representations comparable to the lists of the sufficient and necessary criteria that something has to satisfy in order to be subsumed under a specific concept). Since objects can be identified and described with equal precision in many different ways, it follows that there can be numerous equally precise concepts of a single entity. I argue that many futile and irresolvable debates about anachronism result from the opposite assumption--that among various equally precise identifying descriptions of an entity there must be one that articulates the entity's essence or real nature, whereby the possession of a concept is conceived of as the possession of that essential definite description.

The paper is part of my wider project to formulate an intentionalist philosophy of intellectual history following the positions outlined in John Searle's influential book *Intentionality*.[4] Nevertheless, my discussion of Searle's views, as well as related philosophical debates about concepts, will be limited to those positions that are relevant for the historiographical problems discussed in the paper.[5] The main thrust of the article is to demonstrate that many typical claims about anachronistic concept-attributions often rely on metaphysical assumptions that have little credibility today.

1.

Words, phrases and sentences express thought-contents. Thought-contents fall into two main categories, concepts and propositions. Propositions and sentences that express them can be true or false, concepts, which are expressed using words or phrases, cannot. One and the same proposition or concept can be expressed using different words and in different languages--thus German *Tisch* and Italian *tavola* express the same concept as the English word *table*. A word or a phrase can express more than one concept: a "hot soup" can be a soup that is spicy or a soup that is too warm. In a recent study Giora Hon and Bernard Goldstein have described the history of the use of the Greek term *symmetria* and its derivations that, through history, expressed at least three different concepts: commensurability in ancient sources, equivalence of sides in the seventeenth and eighteenth-century and the modern mathematical concept of symmetry, a meaning that the term acquired in the time of the French Revolution.[6] Similarly, John Gerring has described the great variety of

concepts expressed using the term "ideology" in modern social theories.[7]

Concepts also participate in propositions and beliefs. For instance, in order to understand the proposition expressed by the sentence "The lentil soup is hot" one needs to be able to understand the concept expressed by the phrase "lentil soup." But the possession of a concept does not necessarily follow from having a belief or being able to formulate a proposition that *includes* a certain concept. Alex Barber, in his paper "The Pleonasticity of Talk about Concepts", argued that a person possesses a certain concept if there is at least one proposition that involves that concept, and the person has a propositional attitude to that proposition--e.g. believes that the proposition is true or desires that it becomes true.[8] As it turns out, this criterion of concept attribution is not always valid. A person may have beliefs or formulate propositions that depend on certain concepts without having these concepts. Imagine a person who has never seen a wombat and only knows that they are a kind of mammal that lives in Australia--nothing more. This is not enough to say that this person has a concept of a wombat. The person can nevertheless believe with confidence not to have seen a wombat in a Sydney park because the only animals she saw there were birds. In his critical review of Barber's article Robert J. Stainton pointed out that the ability to *deploy* a concept is not the same as the mastery of that concept.[9] For instance, one may be able to form the belief that podiatrists are not dentists without knowing what podiatrists actually are. Hilary Putnam's widely cited example, that he knows that elms are not beeches without being able to recognize either of the two, belongs to the same type of situation.[10]

It is also important to differentiate concepts from what philosophers call *universals*, as well as from *types* or *kinds* of things. Concepts can be concepts of groups, types or kinds of things, but it is also possible to have a concept of an individual entity, such as the Sun or the oldest bachelor in New Zealand. Also, it is possible to have concepts of non-existing things, such as unicorns or gryphons. One may assume that concepts are psychological in the sense that they are the products of the human brain; nevertheless, attempting to identify concepts with specific processes in the human brain may be futile, since it may happen that quite different processes in different brains produce identical concepts.[11]

A behaviorist approach to concepts would be to see in them abilities for sorting behaviors. According to this view, sorting behaviors are decisive for establishing concept possession.[12] However, as Jerry Fodor warns in his article "Concepts: A Potboiler", the mere ability to sort things in a certain way cannot be taken to indicate the possession of a concept.[13] For instance, two persons may be given the same sets of drawings of geometrical figures. One person is told to separate the drawings of triangles from the pile, the other the drawings of trilaterals. The results of their work and their sorting behavior will be identical, though they operate with different concepts. Distinguishing between sorting behavior and concept possession is also relevant in the context of the debates about animals' capacities to form concepts. Some very primitive animals demonstrate sorting behavior, but this is probably not enough to attribute them concept possession, since they lack the capacity to learn from their errors or events that occur during their sorting activities.[14]

2.

Differentiating between the contents of thoughts and their articulation in a language is one of the central tenets of intentionalist history writing.[15] In what follows I assume that the same concept can be expressed using different words or their combinations, while one and the same word (or combination of words) can express more than one concept. This approach directly opposes the position, often advocated by both analytic and continental philosophers through the twentieth-century, that all thinking is verbal and that languages are not mere vehicles of communication, but also the vehicles of thought.[16] Today, this latter view is largely abandoned, due to research on the thinking of animals and pre-linguistic infants.[17] The belief in a strong correlation between language and thinking has nevertheless left deep traces in many sections of the humanities. It is therefore hard to overemphasize the importance of differentiating between concepts and words that are used to express them.

A firm faith in a strong relationship between language and thinking motivates one widespread argument against the understanding of concepts that I propose later in this article--that they are to be conceived of as identifying descriptions, equivalent to the lists of the criteria something has to satisfy in order to be subsumed under a specific concept.[18] This view is often rejected on the basis of the argument that in the case of most words it is impossible to state the definition of the concept it expresses--which basically means that it is impossible to specify the criteria which an object needs to satisfy in order to be subsumed under the concept expressed by the given word. [19] Ludwig Wittgenstein famously analyzed the various ways in which the word “game” is used and, after considering a number of unsuccessful candidates, pointed out that it is impossible to state a single definition that would cover all instances.[20] Jerry Fodor similarly analyzed various definition proposals for the verb “to paint” in order to show that no such definition could be provided.[21] The word cannot simply mean “to cover with paint”: if a paint factory explodes and covers some spectators with paint, this cannot count as an instance of painting; when Michelangelo dipped his paintbrush in the paint, his intention was to cover it with paint, but he was not painting the paintbrush. Insofar as it is impossible to state definitions for (alleged) concepts such as “game” or “to paint”, it becomes futile to assume that classificatory criteria govern their application. The proponents of this argument typically say that only in some rare cases is it possible to state the definition of the concept expressed by a single word only in some rare cases--their standard example is the word “bachelor”, whose definition is said to be “unmarried man”.[22] The argument has dangerous implications for history writing: it implies that in most cases it is impossible to state the conditions of satisfaction for specific concepts attributed to historical figures. For instance, a historian who writes “Napoleon ordered his infantry to withdraw” is unlikely to be able to specify the action Napoleon’s infantry had to perform in order to obey his order.

However, if we look closer at Wittgenstein’s and Fodor’s analyses, what they actually show is how difficult it is to state a single rule that covers all the anomalies

in the ways words such as “game” or “to paint” are used to express the *various* concepts that they came to express through the history of English language. Words typically express more than one concept, and the majority of entries in any good dictionary will tend to list more than one meaning for each given word. Similarly, there is the concept of covering something with paint, and through the history of English language the verb “to paint” came to express it in some situations but not in others. Expecting to be able to state *the* definition of *the* concept that a word expresses actually means expecting that the word does not change its meaning in different contexts.[23] A married woman can be a “Bachelor of Arts” so even the word “bachelor” does not have a straightforward definition; it also expresses different concepts in different contexts. If one defines concepts as the meanings of words, then one should be aware that words and meanings do not relate one-to-one.[24] The fact that it is consequently laborious to define the complex rules, developed by natural languages over centuries, that determine the ways specific words are used to express various concepts in different contexts, does not mean that it is impossible to state the classificatory criteria that determine the application of these concepts. Wittgenstein’s and Fodor’s examples should thus be taken to indicate the deep rift that exists between language and thinking. *De facto*, they are arguments in favor of intentionalist historiography.

The faith in a strong correlation between language and thinking can also have the form of the expectation that it should be always possible to define in words the properties something must have in order to be subsumed under a given concept. This is often the case, but not necessarily. In the case of sensory, perceptual and spatial properties of things, few people can describe them precisely using words. People differentiate between millions of nuances of colors without being able to explicate these differences in words; the only way to do this would be to state the frequency of light, which few people can do. Nevertheless, they can define which nuance they have in mind by pointing to it in a color catalogue. When it comes to spatial properties, they are typically better communicated about using drawings. An early *quattrocento* architect could have noticed a certain type of ornament on Roman ruins, decided to employ it in a building he designed and then used drawings to communicate to his stone masons the shape that they need to make--while only decades later a Vitruvian commentator may have discovered what the name of that ornament was. The same applies to many mathematical or musical concepts that are defined and discussed by means of equations or scores, but have no specific name in a spoken language. Language is only one tool to express concepts and in many fields not the most efficient one; people can have concepts and communicate about them without using words.

3.

When historians argue that it is anachronistic to attribute a certain concept to individuals from a certain period or a group, this implies that the unavailability of that specific concept prevented the individuals belonging to the given context from

formulating certain propositions and beliefs. Few historians have achieved greater fame for this kind of argument than Oswald Spengler, in whose *Decline of the West* we read, for instance, that ancient Greeks' concepts of past and future were so weak that they were unable to write history, while Russians do not have the concept of verticality and cannot be astronomers.[25] Typically, arguments of this kind are based on claims that a historical figure could not have acquired a certain belief because that belief requires the possession of a concept that, in its turn, requires the possession of other beliefs that we know he or she did not have. An extensive discussion of concept possession is presented in Gad Prudovsky's article "Can we Ascribe to Past Thinkers Concepts They had no Linguistic Means to Express?"[26] The article discusses Koyré's attribution of the concept of inertial mass to Galileo.[27] According to Koyré, Galileo's mathematical description of the free fall of bodies relied on the concept of inertial mass, although Galileo did not have a linguistic term to express this concept. Koyré argues that Galileo's discussion relies on and *de facto* mathematically articulates the concept. For the sake of argument, I will assume here that this was indeed the case and that Galileo mathematically described the same property of physical objects that is clearly identified by modern physics as inertial mass and in a way that enables the calculation of the time bodies need to fall. The fact that Galileo did not have a name for the property is irrelevant: scientific discoveries typically do not have a name when they are made, while we have anyhow seen that there are concepts that can be communicated about without using words. It is, however, commonly assumed that the concept of inertial mass was formulated much later. Galileo certainly knew nothing about the ways inertial mass would be conceived of by later physicists who followed Newton or Einstein. So, the question is, whether we can say that he had the concept of inertial mass merely because (insofar as) his equations clearly identified this property of physical objects. Those historians who think that such attribution of a concept would be anachronistic can argue that our modern concept of inertial mass requires the possession of many other beliefs Galileo could not have possibly had. Theoretical concepts are articulated in relation to other concepts within a theory--while Galileo could not have had access to the knowledge that is necessary to formulate modern theories of inertial mass. However, those who argue that Galileo possessed the concept of inertial mass can point out that he did identify this property of physical bodies and that there are plenty similar instances in the history of sciences: Euclid certainly had the concept of a circle and clearly defined it in his *Elements* though he knew nothing about the various ways of conceiving of circles that would be developed in analytic geometry or calculus many centuries after him.

Here are some similar dilemmas. Carl Wilhelm Scheele in 1772 and Joseph Pristley in 1774 separated oxygen through a chemical process; Pristley regarded it as common air. It was only Lavoisier in 1777 who conceptualized the gas as one of the constituents of the atmosphere. Now, the question is, who discovered oxygen--Scheele, Pristley or Lavoisier? Similarly, between 1690 and 1781 numerous European astronomers observed Uranus and thought that it was a star. In 1781, Herschel, who was using a stronger telescope, observed its disk, and some months later he established that its orbit was that of a planet. Again, the question is, who

discovered Uranus--the early astronomers who individuated it as a heavenly body or Herschel who was the first to classify it as a planet. Further on, if we say that it was Herschel, do we have to say that pre-Copernican astronomers did not have the concepts of the planets Venus, Mars or Jupiter because they inaccurately conceived of them as bodies that revolve around the Earth and not around the Sun?

4.

One possible answer to such dilemmas could be called *essentialist*. In a way that resembles traditional Aristotelianism, one could assume that each thing has its own proper nature, essence, the *that-what-it-is-to-be-that-thing* and argue that to have the concept of a thing is to know what it is, to know its nature.[28] If there can only be one *real* concept of each thing then that concept must pertain to its real nature, that what that thing is. While a thing could still be thought about and differentiated from other things in many different ways with equal accuracy, only one of these ways of thinking about it pertains to its essence, the *that-what-it-is-to-be-that-thing*. For Aristotle and his followers, as well as for an essentialist historian, there can be only one definition of a thing, expression of its essence, the *that-what-it-is-to-be-that-thing*, although other descriptions may be equally precise in differentiating it from other things. For instance, while the descriptions "animal endowed with reason" or "animal able to laugh" or "featherless biped" all differentiate human beings equally well from all other species, a typical essentialist position would be that only the first states the essence of that what a human being really is. Similarly, oxygen, Uranus or inertial mass would be assumed to have one proper concept or identifying description; possessing that concept would equate to knowing their essence.

Aristotle believed that only natural things have essences; human made things retain the essence of the material they are made of, while he did not assume that events have essences.[29] Similarly, Aristotle did not explain how one could know about things that do not have an essence, such as primary matter.[30] An essentialist historian however will need to discuss the concepts and therefore the essences of human-made things or events; such history writing can thus hardly be properly Aristotelian. Nevertheless, only essentialism can enable historians to say that there is *the* concept of inertial mass, and examine whether Galileo *actually* grasped it. Only essentialism can enable the argument that although Galileo accurately identified the property of physical bodies that we call inertial mass, he did not have *the real* concept of this property.

The central problem of essentialist historiography is that in our present situation there is no credible essentialist metaphysical account of the world to support it. Modern science does not rely on essences in its explanations of the world. Notoriously, all historians' attempts to establish whether a historical figure possessed *the real* concept of a thing break down because of our inability to establish what "the real" concept of that thing might be. It does not help to argue that people from different cultures identify different properties of things as essential, since historians from the same cultural context often disagree about the properties that constitute *the* concept of a thing. Typically, historians' attempts to establish the real concept of a thing end up with accusations of anachronistic

concept attributions.

To complicate matters further, an essentialist historiography would require a background essentialist epistemology as well, in order to explain how humans acquire the knowledge of essences. If things have essences, what is it that enables us to know what they are? Aristotle's own answer to that question is in the third book of *De anima*. According to his description of human cognitive psychology, the information about physical objects is gathered by our senses and assembled in an organ called the Common Sense. This enables the Imagination to generate the phantasm of the object. The intellect subsequently extracts the essence of the thing from the phantasm that represents it. The intellect consists of two parts, active and passive. The former is pure potentiality in the sense that it is able to receive the essence of the thing thought and becomes identical with its object without being the object itself.[31] But in order to extract the essence from the phantasm, the passive intellect relies on the intervention of the active intellect. Aristotle describes the active intellect as pure actuality, immaterial, imperishable and immortal; the later Aristotelian tradition identified it with God.[32] The human knowledge of essences, from this point of view, is ultimately guaranteed by Divine intervention; insofar as humans cognize essences and insofar as the rational structure of the Universe is revealed to human knowledge, this is because they originate from the same Reason.[33] Aristotelianism may not be the way to go for a modern historian, but it nevertheless still teaches us about the questions modern essentialism would have to answer. Even if we could agree about the essences of things, we would still need to explain the nature of this agreement.

Aristotelian essentialism implies a certain understanding of the world: a puppy is potentially a dog and it is because of its essence, that it becomes an actual dog as it grows up. A puppy never grows into a cat. Having the concept of a thing means knowing its essence; reporting that a person possessed a certain concept means saying that he or she grasped the corresponding thing's essence. The question that consequently needs to be asked is, what happens if we do not assume that things have essences but, rather, consist of atoms and molecules, whereby all changes and events are the results of physical processes as conceived by modern science? By growing into a dog, from that point of view, a puppy is not actualizing its essence, but undergoing the changes that result from the structure of its cells and DNA. While Aristotelian essences were easily available to the human mind, that what determines a thing according to the modern scientific worldview: atoms, molecules and DNA, are not that easily observable nor graspable. A person can nevertheless be said to possess a concept of an elephant without knowing the structure of an elephant's DNA--and consequently it is reasonable to say that the possession of a concept is not identical to knowing the natures of things. What then is the possession of concepts that a historian may expect to be able to report?

5.

The point I want to make in this paper is that conceiving of concepts as sufficient identifying descriptions (mental representations that encode the complete lists of the classificatory criteria that are sufficient to identify an entity) resolves numerous

problems with concept attributions that historians struggle with. This approach avoids many unproductive debates about anachronistic concepts attribution that often derive from the implicit introduction of essentialist metaphysics in history writing. The idea is that various entities (things, properties, events, phenomena and so on)--everything that is experienced or imagined--have various properties and people can classify them according to various classificatory criteria.[34] One and the same thing, property, event, phenomenon and so on, real or imaginary, can be thought about and classified in different ways. It can be singled out with equal accuracy, on the basis of different sets of its properties; a human being is thus at the same time a "featherless biped" or "animal able to laugh" or "animal endowed with reason". Something is said to be *subsumable* under a certain concept if it satisfies the classificatory criteria (a complete identifying description) of that concept.[35] Concepts (identifying descriptions) thus conceived are not verbal.[36] A *definition* is an articulation of a concept (identifying description), that can be communicated, sometimes in a verbal form.[37] One and the same concept can be expressed using different sentences, in different languages, and can therefore have numerous definitions. An element of experience can be thought about and singled out from other elements of experience using different concepts (one and the same thing can equally well satisfy different identifying descriptions). It is therefore possible to have different, equally accurate concepts and definitions of one and the same thing. The planet Venus can be thought about as the evening star, the morning star, the second planet from Sun and so on--and insofar as these descriptions single out the planet Venus from other elements in our experience with equal accuracy, they all state equally valid definitions and express the various concepts of that planet. Since there are no essences, we cannot talk about *the* concept or *the* definition of something, but only about *a* concept or *a* definition.

A person has a certain concept if he or she knows about the possibility of singling out the elements of experience according to the identifying criteria that constitute that concept. Two persons possess the same concept if they both know to apply the corresponding identifying (classificatory) criteria. When a historian reports that a certain historical figure possessed a concept, the historian is merely saying that the person knew how to group the elements of experience according to the corresponding identifying (classificatory) criteria.

Since one can have only *a* concept but not *the* concept of something, no historical figure ever had *the* concept of inertial mass or any other thing or phenomenon. It follows that Galileo had *a* concept of inertial mass insofar as he found one way to identify and clearly single out this property of material objects. Of course, he did not have Newtonian or Einsteinian concepts of inertial mass--i.e. he could not have known how the same property would be identified and defined by physicists in later centuries. Similarly, seventeenth-century astronomers identified the heavenly body which we call Uranus but thought it was a star; they singled it out as a heavenly body with a certain position in the sky when they observed it. Herschel formulated a different identifying description and formed a new concept of the same heavenly body. A similar reasoning applies to the discovery of oxygen.

We can now also see how one can believe that there are no wombats in a

park, that podiatrists are not dentists or that elms are not beeches, without properly having the concept of (or being able to identify) a wombat, a podiatrist, an elm or a beech. Concepts are equivalents of the lists of identifying (classificatory) criteria; to possess a concept one needs to know the whole list, but even if one knows only some criteria one can already say when they are not satisfied. There also exists a common practice of generating a wider concept by omitting some classifying criteria from the list, while retaining the same word to express that new, wider concept. Mieke Bal, in her book *Travelling Concepts in the Humanities* discusses how the word "text" came to be used for films and images.[38] What she *de facto* describes is a process in which an original list of classificatory criteria that an entity needs to satisfy in order to count as "text" was reduced to some very specific properties that are shared with films and images as well (e.g. "ability to convey meanings"), while other classificatory criteria ("consisting of letters") have been omitted from the list. The word "text" was then retained to express this wider concept. This kind of practice is not limited to the humanities: using the same procedure the use of the words "space" has been expanded in the last two centuries to express the concepts of non-Euclidean or vector spaces.

The widespread expectations to establish that a historical figure possessed *the* concept of something illustrate widespread and strong essentialist commitments among many historians. In his 1999 paper "What makes a concept good", John Gerring observes that saying that human beings are featherless bipeds successfully picks out humans from other species. However, he says, such a definition is not "sufficient" and "privileges one desideratum…over all others."[39] Similarly, Wayne Davis in his paper "Concept Individuation, Possession Conditions, and Propositional Attitudes" argues that the concept of a triangle differs from the concept of a polygon whose internal angles add up to 180°. In his view, "a polygon is a triangle in virtue of the number of sides and angles it has"--in order words, he assumes that there are specific properties that make a triangle that what it is, although some other properties identify it with equal accuracy.[40] Gerring's and Davis' dilemma and its solution are equivalent to views of the Paduan Aristotelian Daniele Barbaro in his *Exquisitae in Porphyrium commentationes* of 1542: could there be more than one definition of a single thing?[41] This could not happen, Barbaro argues, since things have only one nature.[42] If there were more than one definition, he says, some of them would be either superfluous or would say the same thing using different words. Obviously, Barbaro can argue the way he does because he operates within a metaphysics and epistemology that assume that there are essences of things. Gerring and Davis also express sympathies for essentialism. Gerring in fact openly says that "essentializing approach to definition" is "often justified"[43] while Davis' "principle of individuation, … is an identity condition that is constitutive, essential, and explanatory."[44] (167) But, as mentioned, the problem is how to establish what these essences are and how we know that a concept is really *the* concept of something. When Gerring talks about *the* concept of a thing and expects definitions to be "sufficient" in a way that is more than a mere ability to identify things accurately, he does not tell us where to find a metaphysics and epistemology that will credibly perform the job--or, at the level of the pragmatics of history writing,

where to find a description of the world that will provide us with the real essences of every thing historians may need to write about.[45] Even if we included in our definitions *all* the known properties of human beings that differentiate them in all known ways from other things, this would not be sufficient to account for those properties that will be discovered in the future. The complaint that a certain definition "privileges" one set of properties of human beings makes sense only if one assumes, in a manner similar to the Aristotelian tradition, that there is only one definition of a given thing. If one accepts that there are numerous definitions of something, all of which state various, equally precise criteria for differentiating it from other objects, then one has to accept that each of them is going to "privilege" (in simple words, to state) *some* properties of that object.

6.

A definition of something, we have seen, is an articulation of one of its concepts, an identifying description that can be communicated. It is often verbal, but mathematical equations or drawings or musical scores, for instance, can be also employed for the purpose. However, people may sometimes simply refer to a thing by using its name--and an important question is, what concept is expressed when this happens? Instead of talking about "featherless biped" or an "animal with reason" or an "animal able to laugh" one may simply say "human being." Which of the possible concepts of a human being is then expressed?

In contemporary analytic philosophy there are two major rival theories of names.[46] According to the Descriptivist Theory a name refers by being associated with a cluster of identifying descriptions; according to the Causal Theory a name refers because of a causal chain connecting the utterance of the name to the bearer of the name via a naming act in which the bearer got the name. John Searle is the prominent advocate of the former theory and Saul Kripke of the latter. On Kripke's account, a thing receives a name by being dubbed in a certain way at some point in its history; all later uses of that name in a language derive from that original "baptism."[47] Since Kripke's theory endeavors to explain how names refer to things by circumventing the account of concepts and human intentionality, it is of little relevance for our discussion here.

According to Searle, names express clusters of identifying descriptions. "Venus" is to be understood *either* as abbreviation for "Morning Star" *or* "Evening Star" *or* "the second planet from the Sun" *or* "the planet named by the Roman Goddess of love" *or* any other identifying description of Venus. There are also parasitic situations when a name N is used to express a concept of something that is called N in a given community.[48]

It is important to keep in mind that the clusters of concepts that names express need to be understood as *disjunctions* of concepts, otherwise we risk anachronistic concept attributions. When a historical figure uses a certain name (but also more generally any word or phrase) the cluster of concepts it expresses can contain only those concepts that were available to that historical figure in a given moment. If a name can be used today to express a cluster of certain concepts, the same cluster may not always be appropriate for every historical context. When

talking about Ptolemy's concept possession, we can use the word "Venus" to express the concepts of "Evening Star" and "Morning Star", but not the concept "the planet that revolves around the Sun on the second closest path." Similarly, Copernicus' understanding of planets implied that their orbits around the Sun are circular and not elliptical, as we have known since Kepler. Does it mean that his concept of a planet was different from ours? The answer is that there is no such a thing as *the* concept of a planet; there are various concepts which we express using the word planet. Copernicus used that term to express a cluster of concepts somewhat different from ours, and when it comes to Ptolemy his cluster differs even more. Or, consider an imaginary debate between a medieval schoolman and a rabbi. They were certain to agree, and a historian can write that they agreed, about the proposition expressed by the sentence "God exists" but not about the proposition expressed by the sentence "Jesus is God." In the case of the first sentence they both have a number of identical concepts of God, so the historian may write that they agreed about the proposition (and not only the sentence it expresses), though a more complete account should certainly add that they disagreed about some descriptions of God. But if we assume that each of them used the term "God" to express the conjunction of all the concepts of God known to him, then we could not say that they agreed about God's existence--but rather, that they agreed about the truth of the sentence, while disagreeing about what it meant.

7.
Two very common ways to introduce essentialism in history writing involve overlooking the fact that the cluster of identifying descriptions expressed by a word or a phrase needs to be taken as a disjunction of the various concepts of one and the same something. One such way is to assume that a name expresses *only one* of the numerous possible identifying descriptions and to declare that this description is *the* concept of that something. The other way is to assume that a name expresses not a disjunction of concepts, but their conjunction, which is then taken to be *the* concept of that thing.

The first strategy consists in claiming that a certain name can be used to refer to a thing only when the thing is thought about in a certain way. The right way to think about something in order to be allowed to refer to it in a certain way is then decided by the historian who makes the claim. Analytic philosophers usually associate the view that the person who uses the word decides about its meaning with Lewis Carroll's Humpty-Dumpty from *Through the Looking Glass*: "'When I use a word', Humpty Dumpty said, in a rather scornful tone, 'it means just what I choose it to mean. Neither more nor less.'" The great master of this kind of argument was Michel Foucault with his famous claims that in order to write the history of biology, one must assume an understanding of life that was developed in the nineteenth-century, or that because of the different understanding of the human body there was no sex before the nineteenth-century.[49] Similarly, he argues that man "was constituted in the nineteenth-century" in correlation with the historicities of labor, life and language.[50] Foucault's methodological principle is that the identifying description *he* has in mind[51] determines what biology, sex and man actually are; if

one does not associate these words with the specific identifying descriptions he intends them to express, one cannot use these words to refer to biology, sex or man. But obviously, biology can be conceived of differently from being a science that received a specific formulation of its topic in the nineteenth-century, sex can be conceived of differently than the activity that acquired a specific set of associations in the nineteenth-century and man can be conceived of differently than a being that acquired certain historicities in the nineteenth-century.

A different essentialist strategy is to assume that a word or a phrase express not merely any concept from the cluster, but a *conjunction* of selected concepts that belong to the cluster. Such conjunctions of identifying descriptions can be said to constitute *pleonastic concepts.* By *pleonastic concepts* I mean combinations of two or more identifying descriptions (i.e. simple concepts), whereby all these concepts are satisfied by the same and only the same object or set of objects.

An example of a pleonastic concept is the concept of a geometrical curve:

A). All the points of which are equidistant from a central point;
and
B). It is the intersection of a sphere and a plane;
and
C). It is an ellipse with equal length and width.

Another example would the concept of a heavenly body that is, at the same time

A). The Evening Star
and
B). The Morning Star
and
C). The second planet from the Sun
and
D). The planet named after the ancient Roman Goddess of love.

Pleonastic concepts are thus conglomerates of concepts that identify the same and only the same objects. They are conjunctions of a number of different identifying descriptions of one and the same thing. Such conjunctions are used to introduce essentialism by arguing that no single identifying description, but only their specific conjunction is *the* concept of a thing. However, the standard problem with essentialism remains: it remains unclear which identifying descriptions are to be included in the conjunction. This decision is going to be arbitrary and different historians are going to adopt different pleonastic concepts as *the* concepts of a specific thing. Very often many different concepts (identifying descriptions) of one and the same thing are the results of various scientific discoveries or changes in the worldview, and since various historians are going to disagree whether specific identifying descriptions are relevant ingredients of *the* concept of a certain thing, essentialism of this kind becomes a breeding ground for accusations for anachronistic concept attributions. Alex Barber, in the article cited above, in order

to defend his theory of concept attribution from the criticism that it does not provide an account of concept mastery, asked what concept mastery was: when it comes to the concept of a butterfly, does it include the knowledge of a butterfly's DNA structure, its evolutionary history and so on? If this were the case, then most people would not have the concept of a butterfly.[52] His critic, Robert Stainton, admitted that he did not know what the mastery of a concept could be.[53]

At the same time, relying on pleonastic concepts as *the* concepts of something can result in genuinely anachronistic arguments when it comes to the attribution of the concepts of objects that changed over time to various historical figures. For instance, a historian who insists that "the" concept of Aristotle must include classifications such as "the tutor of Alexander the Great" and "the most famous disciple of Plato" is at the same time arguing that before Aristotle left for Athens to study under Plato, his mother did not have "the" concept of Aristotle.

One normally expects concepts to participate in propositions and inferences that are made from them. Pleonastic concepts are poor at performing that role. Assume, for instance, that concepts indeed come only in pleonastic bunches of conjunctions of classificatory conditions. In that case, for instance, in order to have the concept of Venus, one has to have the concept of a heavenly body that revolves around the Sun on the second closest orbit *and* that it is also the Evening Star *and* that it is also the Morning Star *and* so on. None of these specific definite descriptions, the argument would be, can be said to express the concept Venus, but only their conjunction. But the problem is that we do not use pleonastic bunches of identifying descriptions in order to make inferences--rather, we use the specific identifying descriptions that are suitable to make a specific inference. When we want to infer that the orbit of Venus is closer to the Sun than the orbit of Mars, because it is on the second while Mars is on the fourth orbit from the Sun, the fact that Venus is the Evening Star plays no role in our reasoning. Consider what it means to say that only a pleonastic concept of inertial mass (that includes Newton's and Einstein's articulations) should properly count as the concept of inertial mass. Insofar as Galileo's equations identify inertial mass as a property of physical bodies in a way that enables the calculation of the time bodies need to fall, we have to say that the possession of "the" concept of inertial mass is not necessary in order to calculate the time that bodies need to fall.

8.

No historian can report on the concepts a historical figure possessed without possessing these concepts him- or herself. Overlooking this fact can result in the view that concepts can change--a fallacy that can be made from both essentialist and non-essentialist starting positions. In his paper "Making Sense of Conceptual Change" Jouni-Matti Kuukkanen provided a formalized analysis of various views on conceptual change.[54] On his account, every concept has certain components, for instance, A, B and C. In the terminology of this article, these would be the properties something must have in order to be subsumable under that specific concept--the conditions specified by the identifying description. As Kuukkanen reports, Arthur Lovejoy has been criticized for postulating unit-ideas that never changed: a unit-

idea always consisted of the same components.[55] A *dynamic* understanding of concepts then assumes that one and the same concept evolves through history. In some periods a thing must have properties A, B and C in order to be subsumed under a given concept; in some other time D, E and F and in yet another epoch G, H and I. A good example of such reasoning is Paul Thagard's description of what he regards as the history of the concept of an acid in his book *Conceptual Revolutions*.[56] For early atomists, acidity was determined by the shape of atoms; for the proponents of the phlogiston theory, acids were simple substances; for Lavoisier, acids contained oxygen; in the nineteenth-century it was believed that hydrogen was decisive for the constitution and properties of acids; in the twentieth-century acids came to be understood as substances that donate protons or can accept an electron pair. Similarly, Nancy Nersessian, in her book *Fraday to Einstein: Constructing Meaning in Scientific Theories* dismissed the understanding of concepts as a set of necessary and sufficient defining conditions (i.e. identifying descriptions) and tried to develop an understanding of concepts as a two-dimensional array that presents the concept's descriptive and explanatory function as it changes through time.[57] It should be mentioned that both Thagard's and Nersessian's proposals were strongly motivated by their desire to escape the view that various scientific paradigms, as they evolved through various scientific revolutions, were incommensurable. (They seem to have regarded this view as one of the implications of Thomas Kuhn's book on scientific revolutions).[58] Nersessian, in particular, rejected the understanding of concepts as defining conditions precisely because she feared that such an understanding would lead her to accept the incommensurability of different scientific paradigms and she endeavored to demonstrate that various stages in the development of a concept can be studied as historically connected through the reasoning of various scientists.[59] I will discuss the incommensurability of concepts in the next section. At this moment it should be said that dynamic theories of this kind cannot work because, as Kuukkanen points out, they allow concepts to change so much that one and the same concept in two different epochs may have no common characteristics--in which case it becomes hard to say that we are still dealing with one and the same concept.

The problem with the "dynamic" theory pertains to the fact that no historian can report the possession of concepts that he or she does not possess himself--but if concepts change through time, then one cannot know what they were originally like nor can one report that they have changed. If concepts changed, we would either not know about it, or in order to know it, we would still need concepts with identical content to our old concepts in order to compare them with our new concepts and observe the change. It is, however, reasonable to assume that two concepts with the same content (identical identifying descriptions) are one and the same concept. In other words: human *beliefs* change through history. Since we know that they have changed, we are obviously able to compare modern beliefs with the beliefs of the individuals who lived in older epochs. But if this is so, then we can state and grasp the propositions that individuals of older epochs believed to be true or false. Since these propositions cannot be formulated if the concepts that are necessary for their formulation are not available, this means that the concepts with which people of the

past operated are still available to us. They *could not* have changed. If we assumed that they had changed, we could not say that human beliefs changed through history, since we would not be able to know about it. As Christopher Peacocke warns, if we are going to describe changes in beliefs associated with certain concepts, it is necessary to operate with an understanding of concepts that allows the assumption that concepts do not change.[60]

The same point has been appropriately insisted on by the founder of *Begriffsgeschichte*, Reinhart Koselleck, and carefully articulated in an article by Heiner Schultz.[61] A word, written or pronounced, can change its meaning or its reference and still remain itself because it is still a (type of) physical entity. But concepts cannot change their content without becoming *different* concepts. A concept [*Begriff*], Koselleck and Schultz point out, should be understood as the meaning of a word [*Bedeutung eines Wortes*] and what changes through history are the meanings of words, the concepts words express. Words thus come to express different concepts and *Begriffsgeschichte* studies these changes--while concepts themselves are unchangeable. Koselleck states as an example the concept expressed by Aristotle's phrase *koinonia politike*: this concept itself cannot change nor have history, but its reception certainly does have a history.[62] If one is not aware of this, Koselleck rightly warns, it becomes impossible to write about conceptual changes--and by this he means the way certain words came to express certain concepts.[63]

9.

The problem with the incommensurability of concepts that Nersessian and Thagard struggled with pertains to an understanding of concepts that became influential during the 1960s. The idea of the "Theory"-theory of concepts is that the content of a concept is determined by the theories in which the concept participates. To have the/a concept of an electron means knowing what physics says about electrons. Theories slice reality into different units and concepts reflect this. We can know about reality only according to the way our theories slice it; therefore one could say that people with different theories live in different realities. But, then, if two persons have different theories about electrons, the implication is that they must have different concepts of electrons too. One can then argue that the experience and realities of these two individuals (e.g. scientists) who work within different paradigms or theories are parceled into units so radically different that there could be no communication between them. Consequently, two individuals (e.g. scientists) who operate within different world-views (e.g. theories) can never really communicate. Jerry Fodor he illustrates the "Theory"-theory of concepts as follows:

> You utter 'Some dogs have tails'. 'No dogs have tails' I reply. We seem to be contradicting one another, but in fact we're not. Since taillessness is part of my theory of dogs, it is also part of my concept DOG … Since you and I have different concepts of dogs, we mean different things when we say 'dog'.[64]

The argument can be further extended to say that since a historian can at best share one of these world-views, he or she will never be able to report about such

incommensurabilities of world-views.

The "Theory"-theory is usually associated with metaphysical anti-realism, but the historian's problems do not necessarily depend on the resolution of the philosophical debate between realism and anti-realism debate. A possible realist response to the "Theory-theory" could be stated as follows. Different theories indeed slice reality differently and according to different conceptual systems. But when world-views, theories or paradigms define their concepts, they also postulate various other concepts that are necessary for the consistence of the conceptual framework. The expectation is that under certain conditions, certain aspects of reality will be subsumable under such concepts. Ptolemaic astronomy assumes that the concept of a planet moving according to the theory of epicycles has reference--that planets actually move as the theory of epicycles describes. Problems start when this does not happen--when a theory assumes that certain concepts must have reference that they do not. In other words, when it turns out that we cannot slice reality consistently the way a theory says we should be able to. The proponents of the realist position may thus point out that it does not help to say that our experience of reality is always already predetermined by the beliefs and theories with which we approach reality--because that is precisely *not* what happens. However, even such a realist position still needs to explain how communication between bearers of incommensurable conceptual frameworks is possible. Realism does not necessarily resolve problems with incommensurability.

One of the problems with discussing the "Theory-theory" is that there are too few clear and explicit attempts to state it, especially in relation to different possible understandings of what "concept" and "incommensurability" are.[65] Thomas Kuhn's theory of the paradigmatic shifts that occur in scientific revolutions has often been interpreted as such a position, though his statements are notoriously lacking an explicit commitment to this view. It was in response to such an interpretation of Kuhn that Nersessian and Thagard endeavored to produce theories of concepts that would avoid the problem with the incommensurability of concepts and beliefs formulated within different paradigms.[66] According to this interpretation of Kuhn's views, "incommensurability" is to be understood as a radical incapacity of scientists who work within different paradigms to communicate and compare their beliefs; in order to combat this view and show that such exchanges are possible, Thagard for instance cited the exchange between the defender of the phlogiston theory Richard Kirwan and Lavoisier.[67] As Donald Davidson summarized it, "'Incommensurable' is, of course, Kuhn and Feyerabend's word for 'not translatable'."[68] Similarly, in his book *Concepts*, Jerry Fodor cites Kuhn as a paradigmatic advocate of the "Theory"-theory.[69] It is, however, not at all clear that such a radical position was really articulated by Kuhn, whose statements about incommensurability or that "when paradigms change, the world changes with them", were regularly qualified and made to sounds like metaphors.[70] While historians often stretch their terms in order to emphasize the point they want to make, Kuhn's book happened to coincide with the rise of anti-realism of the 1960s and received much attention in that context. Something similar happened to Ernst Gombrich who wrote in his *Art and Illusion* that "there is no reality without interpretation" and then spent decades fighting

against the anti-realist appropriation of his book.[71]

For a historian, radical incommensurability is a highly self-contradictory position: if two conceptual frameworks are indeed mutually incommensurable, one needs to explain the fact that they are nevertheless commensurable with the historian's own conceptual framework in a way that enables the historian to report on and compare them.[72] Famously, Baron Münchhausen pulled himself out of swamp by his own forelock, but there does not seem to be enough uncontradictory textual evidence to attribute to Kuhn the intention to do the same. Nevertheless, he failed to define incommensurability between paradigms clearly. Certainly there has to be some incommensurability insofar as paradigms *are* different: one does not expect Copernicus' astronomical system to be commensurable with Ptolemy's in the sense that it provides an account of epicycles or that Einstein's theory of relativity provides an alternative account of ether. But then, since they do not, in what sense can we expect concepts from radically different theories to be commensurable, or how is a historian going to report about the difference between two theories?

I believe that the discussion of concepts presented so far offers a fairly clear view of the problem. The fact that different theories will define one and the same thing differently can cause concern only if one assumes that there can be only one concept of a thing within a given theory. If we understand concepts as identifying descriptions, then, in the case of theoretical concepts defined differently by different theories (e.g. electron) the question will be whether two concepts that originate from different theories specify different lists of classificatory criteria. If they do, then the question is whether they single out the same and only the same segment of reality. If they do, they are different concepts of one and the same thing; if not, they are different concepts of different things. At the same time, it is quite possible that two concepts from different theories are identical identifying descriptions (i.e. one and the same concept)--as was the case with some concepts expressed by the word "God" in the debate between a medieval schoolman and a rabbi. Such concepts can then enable commensurability between theories.

To illustrate this, let us consider how a historian can convey a different conceptual framework to his or her public. I have included a formalized account in the footnote, but I believe that an example should be enough to explain how this is done and when it can be done.[73]

Consider a modern historian who tries to explain the concept of epicycle to a modern public that believes in a heliocentric system. In order to formulate the explanation of an unknown concept, the historian will have to use a suitable combination of known concepts. According to Ptolemy, an epicycle has a number of identifying descriptions and will be subsumable under a number of different concepts (sets of classificatory conditions). Many of them will rely on the Ptolemaic understanding that planets revolve around the Earth. However, planets are clearly identifiable entities and their concepts participate both in heliocentric and Ptolemaic astronomic theories. There are a number of identifying descriptions of planets that both theories share (heavenly bodies that differ from others by the way they move across the sky, the way they shine etc.).[74] Just as we have seen in the case of the dispute between a medieval schoolman and a rabbi, there are a number of

beliefs about planets that are shared by believers in the heliocentric and geocentric systems. Starting from a clearly identified concept that both theories share, one next needs to establish which beliefs about planets are different. The historian will explain that according to Ptolemy planets revolve around the Earth, and then explain epicycles as segments on their paths. The explanation is possible because the crucial entity, planet, whose concepts often differ in the heliocentric and Ptolemaic system has a number of identifying descriptions that are valid in both systems and because all other terms in the explanation (movement, sky) express concepts that are available in both worldviews.

The account thus fundamentally depends on the possibility of making a conceptual link between these two theories. In the cases when no conceptual links can be made (i.e. when no part of reality is classified the same way or we do not know how they were classified) conceptual frameworks will indeed be "incommensurable" in the sense of being incommensurable in those segments where no links can be made. Consider the case of Inca builders. It is possible that they classified stones in accordance with what could be done using their stone-cutting technology. But since we know nothing about their stone-cutting technology, we cannot say how they classified stones. Finally, if the question is whether it can happen that some people organize their experience in radically different conceptual frameworks so that the totality of these frameworks is incomprehensible to us, the answer is simple: should this be the case, then we would not know about it and no historian could report it.

Coda

"Right now it's only a notion, but I think I can get money to make it into a concept and later turn it into an idea", says a character in Woody Allen's *Annie Hall*.[75] The line finely illustrates the great variety of ways in which the word "concept" can be used. It is pointless to ask what is the right usage, in historiography or otherwise. Nevertheless, among the various usages, some are hardly useful for a historian, some are not useful at all while some are unavoidable and necessary. Arguably, *identifying descriptions* and the classificatory criteria that define them belong to this last group; even if a historian chooses to use the word "concept" to refer to something else, it will be hard to work without identifying descriptions and some name for them--simply because they are a necessary ingredient of every description of the beliefs of historical figures. The assumption that things have essential, singular identifying descriptions, combined with the fact that there is no available metaphysics that would help us decide when an identifying description is essential, necessarily results in a proliferation of accusations of anachronism. Such accusations have indeed plagued history writing, and especially intellectual history, for a very long time; one should hope that the rejection of essentialism proposed in this paper will contribute to the reduction of unnecessary debates.

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NOTES

[1] For the claims that ancient Greeks could not conceive of infinity see for instance Oswald Spengler, *Der Untergang des Abendlandes: Umrisse einer Morphologie der Weltgeschichte* (Munich: D.T.V., 1972), 110, 192. This was a widespread view in the 1920s and 1930s, see Rodolfo Mondolfo's complaints in his *L'infinito nel pensiero dei Greci* (Florence: Le Monnier, 1934), 3. Erwin Panofsky in his "Die Perspektive als 'symbolische Form'" (in *Vorträge der Bibliothek Warburg 1924-1925*, ed. Fritz Saxl (Leipzig and Berlin, 1927)) argued that ancient Greeks could not conceive of space and its homogeneity and this historically inaccurate claim has had a substantial following among art- and architectural historians. See for instance Alberto Pérez Gómez and Luise Pelletier in *Architectural Representation and the Perspective Hinge* (The MIT Press, Cambridge, Massachusetts, 1997), 21, 26, 98 and James Elkins, *The Poetics of Perspective* (Ithaca and London: Cornell University Press, Ithaca and London, 1994), 23. For an analysis of these positions see Branko Mitrović, "Leon Battista Alberti and the Homogeneity of Space," *Journal of the Society of Architectural Historians*, 63 (2004), 424-440.
[2] Michel Foucault, *The Order of Things. An Archaeology of Human Sciences* (New York: Vintage Books, 1994), 127-128.
[3] Quentin Skinner, "Meaning and Understanding," *Meaning and Context: Quentin Skinner and his Critics*, ed. James Tully (Princeton: Princeton University Press, 1988), 29-67, 32. For a discussion of Skinner's relationship to intentionalism see Branko Mitrović, "Intentionalism, Intentionality and Reporting Beliefs," *History and Theory*, 48 (2009), 180-198.
[4] John Searle, *Intentionality* (Cambridge: Cambridge University Press, 1983).
[5] In contemporary analytic philosophy there exists a vast literature about concepts. Good summaries are the article "Concepts" by Georges Rey in *A Companion to the Philosophy of Mind*, ed. Samuel Guttenplan (Oxford: Blackwell, 1994, 185-193) and Eric Margolis' and Stephen Laurence's introductory text "Concepts and Cognitive Science" in the collection of essays they edited: *Concepts. Core Readings* (Cambridge, Mass.: MIT Press, 1999), 3-82. The latter book is an exceptionally valuable collection of essays on contemporary debates about concepts.
[6] Giora Hon and Bernard R. Goldstein: *From* Summetria *to Symmetry: The Making of a Revolutionary Scientific Concept* (New York: Springer, 2008). For a discussion of Hon's and Goldstein's concept of concept, see the review by Branko Mitrović in the *Journal of the Society of Architectural Historians*, 69 (2009), 576-577.
[7] John Gerring, "Ideology: A Definitional Analysis," *Political Research Quarterly*, 50 (1997), 957-994.
[8] Alex Barber, "The Pleonasticity of Talk about Concepts," *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 89 (1998), 53-86.
[9] Robert J. Stainton, "The Deflation of Belief Contents," *Crítica: Revista Hispanoamericana de Filosofía*, 28 (1996), 63-82
[10] Cited e.g. by Wayne Davis, "Concept Individuation, Possession Conditions, and Propositional Attitudes," *Nous*, 39 (2005), 140-166, 142.
[11] Except for the fact that human mind can classify objects according to specific criteria, nothing I say here makes any further specific claims on human psychology. There exists a body of experimental psychological research that tries to define concepts as prototypes. For instance, the subjects are asked whether X is Y: they answer quicker and more accurately if the question pertains to a more typical situation ("Is apple a fruit?" as opposed to "Is pomegranate a fruit?"). It is consequently possible to understand concepts as representational structures that encode the statistical analysis of the typical objects subsumable under these concepts. This would contradict the view that concepts encode the necessary and sufficient conditions for something to be subsumable under a given concept: if mammals are categorized that way because they possess certain properties, then there seems to be no reason why "more typical" examples would be classified by the human mind more efficiently. But understanding concepts as prototypes is not unproblematic. It is sometimes hard to say what would be a prototype of a given concept ("Napoleon's decision to invade Russia"). Similarly, one would not expect typicality in the case of the concepts whose definition is simple and clear ("even number") but in this case too, the subjects actually tend to state that some examples are better than others (e.g. that 8 is a better example of an even number than 34). It is in fact not clear why the

subjects cannot be simply assumed to respond quicker and more accurately to the questions they encounter more often in real life. Ultimately, psychological research of this kind is irrelevant for a historian, as long as the question one asks is whether a historical figure was able to classify objects in a certain way and not how much time he or she needed to achieve this. See Margolis and Laurence's article "Concepts and Cognitive Science" (25) as well as the articles: Eleanor Rosch, "Principles of Categorization," Edward Smith and Douglas Medin, "The Exemplar View," Sharon Lee Armstrong, Lila R. Gleitman and Henry Gleitman, "What Some Concepts Might Not Be," Daniel N. Osherson and Edward E. Smith, "On the Adequacy of the Prototype Theory of Concepts," Georges Rey, "Concepts and Stereotypes" in *Concepts*, eds. Margolis and Laurence, 189-206, 207-222, 225-260, 261-278 and 279-300.

[12] Jerry Fodor, "Concepts; A Potboiler," *Philosophical Issues* 6 (1995), 1-24.

[13] Ibid.

[14] Achim Stephan: "Are Animals Capable of Concepts?" *Erkenntnis*, 51 (1999), 79-92; Colin Allen, "Animal Concepts Revisited: The Use of Self-Monitoring as an Empirical Approach", *Erkenntnis*, 51 (1999), 33-40.

[15] See Mitrović, "Intentionalism."

[16] For a summary of these views in relation to history writing see Mitrović, "Intentionalism," 180-198.

[17] See José Luis Bermúdez, *Thinking without Words* (Oxford: Oxford University Press, 2003). In history writing, the view that all thinking is verbal results in significant difficulties when it comes to reporting the beliefs of individuals who did not use the same language as the historian who is reporting their beliefs, see Mitrović, "Intentionalism".

[18] Various versions of this latter view are sometimes called the "Classical Theory" of concepts. Eric Margolis and Stephen Laurence define it as the understanding of concepts as "structured mental representations that encode a set of necessary and sufficient conditions for their application" Margolis and Laurence, "Concepts and Cognitive Science", 10. According to Georges Ray, "Concepts and Stereotypes" in *Concepts*, eds. Margolis and Laurence, 279-299, 280, the Classical Theory is the view a concept is "a summary representation of some set of things in terms of conditions that are singly necessary and jointly sufficient for membership in that set."

[19] Margolis and Laurence, "Concepts and Cognitive Science", 14-18; Armstrong, Gleitman and Gleitman, "What Some Concepts", 228; Rey, "Concepts and Steroetypes", 281.

[20] Ludwig Wittgenstein, *Philosophical Investigations*, sections 65-78. This section is reproduced in *Concepts*, eds. Margolis and Laurence, 172-174.

[21] Jerry Fodor, "The present status of the innateness controversy" in idem, *Representations: Essays on the Foundations of Cognitive Science* (Cambridge, Mass.: MIT Press, 1979), 257-316. All these examples illustrate are the various ways the word "paint" is (not) used in English. The tendency to assume that words directly stand for concepts is strongly present in Fodor's other writings as well. In his book *Concepts. Where Cognitive Science Went Wrong* (Oxford: Clarendon Press, 1998), he directly identifies the lack of definitions of words with the lack of definitions of concepts: "There are practically no defensible examples of definitions: for all examples we've got, practically all words (/concepts) are undefinable. … if there six or seven definitions, or sixty or seventy, that still leaves a lot of words/concepts undefined, hence a lot of words/concepts of which the definitional theory of meaning is false. The OED lists half a million words, plus or minus a few." (45) For this argument to work, one must believe that the lexicographical problems of defining the use of individual words to express certain concepts are at the same time the problems of stating the criteria of the application of concepts.

[22] See for instance Fodor, *Concepts. Where Cognitive Science Went Wrong*, 45 as well as Jerry Fodor, Merrill F. Garrett, Edward C. T. Walker and Cornelia H. Parkes, "Against Definitions," *Concepts*, eds. Margolis and Laurence, eds., 491-512, 492.

[23] This expectation is often implied by phrases such as "*the* meaning of a word". See for instance Hilary Putnam, "Is Semantics Possible", *Concepts*, Margolis and Laurence eds. 178-187, 177. Later in the article (179) Putnam assumes that the use of a word decides whether one is operating with the same concept. Fodor et al. in "Against Definitions" directly state that "a definition gives the meaning of a word" (499). Margolis and Laurence in "Concepts and Cognitive Science" define their "lexical

concepts" as those that correspond to lexical items in natural languages. (4) More vaguely, but still reasoning along the same lines, Rey ("Concepts and Stereotypes", 283) suggests that "the semantic structure of, for example, English, mirrors the structure of concepts".

[24] For understanding concepts as the meanings of words see Fodor, *Concepts. Where Cognitive Science Went Wrong*, 2; Ray Jackendoff, "What is a Concept, That a Peron May Grasp It?", in *Concepts*, eds. Margolis and Laurence, 305-334, 309; Laurence and Margolis, "Concepts and Cognitive Science", 4.

[25] Spengler, *Untergang des Abendlandes*, 11-13, 921.

[26] Gad Prudovsky, "Can we Ascribe to Past Thinkers Concepts They had no Linguistic Means to Express?," *History and Theory*, 36 (1997), 15-31.

[27] Alexandre Koyré, "Galileo's Treatise *De motu gravium*. The Use and Abuse of Imaginary Experiment", in idem: *Metaphysics and Measurement* (London: Chapman & Hall, 1968), 44-88, esp. 61-62.

[28] I am merely presenting here a possible popular summary of core theses of Aristotelian metaphysics. For a comprehensive discussion oft he concept of concept in Aristotle, see Ludger Koreng, *Der Begriff des Begriffes bei Aristoteles*, a PhD dissertation, University of Mainz, 1984.

[29] For instance, in the *Physics* 193a13 Aristotle insisted that art cannot change the nature of a thing: when buried in the ground, a wooden chair will grow a tree and not another chair. One should however mention that the examples for the theory of regressus in Aristotle *An. post.* 78a25 -78b15 can be read to in a way that relies on the essences of events.

[30] For a discussion of this problem see Iacopo Zabarella, "De ordine intelligendi," 1049, in idem, *De rebus naturalibus libri XXX* (Frankfurt am Main: Sumptibus Lazari Zetzneri Bibliop., 1607). Modern reprint, together with idem, *Commentarii in Aristotelis de Anima*, (Frankfurt am Main: Minerva, 1966).

[31] Aristotle, *De anima*, 429a15.

[32] Ibid, 430a10-25.

[33] See Harold Skulsky, "Paduan Epistemology and the Doctrine of the One Mind," *Journal for the History of Philosophy* 7(1968), 341-361 for a particularly insightful summary of the implications of Aristotelian theories of the active intellect.

[34] I assume that properties can have properties: the property of "being black", for instance, has the property of "being present on my car".

[35] It should be mentioned that this approach to the differentiation of concepts coincides with the "distinctness of concepts" as defined by Christopher Peacocke in his *Study of Concepts*. Every two concepts that are different on the account presented in this paper are also distinct on Peacocke's account (See Christopher Peacocke, *A Study of Concepts* (Cambridge, Mass.: MIT Press, 1992), 2 and 15). According to the account presented here, concepts A and B are different if

> 1). The concept A specifies a list of properties (a_1, a_2, a_3,...a_n) that are necessary for an object to be classified as A,
> 2). The concept B specifies a list of properties (b_1, b_2, b_3,...b_m) that are necessary for an object to be classified as B, and
> 3). The list (a_1, a_2, a_3,...a_n) is not identical with the list (b_1, b_2, b_3,...b_m).

According to Peacocke, concepts C and D are distinct if and only if there are two complete proposition-contents that differ at most in that one contains C replaced in one or more places for D, whereby one proposition-content is potentially informative while the other is not. (For instance, C=now, D=noon: then, "It is now now" is not informative, but "It is now noon" is informative.)
If A and B differ because an object must have the properties (a_1, a_2, a_3,...a_n) in order to be classified as A, while it must have the properties (b_1, b_2, b_3,...b_m) in order to be classified as B, and (a_1, a_2, a_3,...a_n) is not identical with (b_1, b_2, b_3,...b_m), then saying "Every A is B" is certainly informative, while "Every A is A" is not.

[36] See Searle, *Intentionality*, 243.

[37] Similarly, Gunnar O. Klein and Barry Smith in their paper "Concept Systems and Ontologies," *Transactions of the Japanese Society for Artificial Intelligence*, 25(2010), 433-441, define a definition

as a “representation of a concept (as agreed meaning of a term) by a descriptive statement or a formal expression which serves to differentiate it from related concepts”.
[38] Mieke Bal, *Travelling Concepts in the Humanities* (Toronto: Toronto University Press, 2002), 26.
[39] John Gerring, “What Makes a Concept Good? A Criterial Framework for Understanding Concept Formation in the Social Sciences,” *Polity*, 31(1999), 357-393, 363. See also 374 for the belief that “*essentializing* approach to definition is common (and, indeed, often justified).” But if one does not assume that things have essences, then how can it be justified?
[40] Davis, “Concept Individuation,” 167. On the same page, Davis gives a number of examples of essentialist reasoning about concepts, that he regards as correct. For instance, if x is the first element of the ordered pair [1, 2], then x=1. But, Davis says, that cannot be “what makes the number 1 the particular number it is.” If x is the person kissed in the act of kissing Carolyn, then x=Carolyn. But the act of kissing Carolyn is individuated by the person, not the person by the act. In both cases it is assumed that there exists expectation that there exist essences of number 1 or Carolyn.
[41] Daniele Barbaro, *Exquisitae in Porphirium commentationes* (Venice: Aldus 1542). Pagination: A,B,C....X,Y,Z,AA,BB,CC. Every letter stands for 8 pages, ordered as follows: A1,A2, Aii1, Aii2, Aii3, Aii4,Aii5, Aii6, B1, B2, Bii1.....etc.
[42] Barbaro, *Exquisitae*, Sii5: sed qui fieri potest, ut unius rei plures diffinitiones habeantur? res enim quaelibet unam tantummodo naturam tenet, quam diffinitione unice explicare decet. quod si plures adducantur, uel superuacanea erit aliqua, uel idem per diuersas uoces afferi necesse est? an nullum sequitur incomodum, si unius accidentis comparati plures diffinitiones habeantur? quae res in absolutis, uel in substantiis esse non potest.
[43] Gerring, “Concept,” 363.
[44] Davis, “Concept Individuation”, 167.
[45] See for instance Gerring, “Concept”, 364 for his discussion of “the concept ‘mother’.”
[46] For a summary, see Searle, *Intentionality*, 232-261.
[47] See Saul Kripke, *Naming and Necessity* (Oxford: Blackwell, 1980), 91-97.
[48] Parasitic concepts are often agglomerations of various concepts of various entities that a word came to express through its history in a specific language. Sometimes one learns to use a word by learning the items it refers to and this list of items may imply that other similar items are to be included in the list. In that case the concept of “that what is referred to using a certain word” may be fuzzy. “Are carpets furniture?” is an example stated by Margolis and Laurence in their “Concepts and Cognitive Science”. (23-24) Such examples of conceptual fuzziness are sometimes stated against the Classical Theory, which is believed not to allow for indeterminacy in category membership. In fact, the history of parasitic concepts often generates them as fuzzy.
[49] “We have had sexuality since the eighteenth-century and sex since the nineteenth. What we had before that was no doubt the flesh.” Michel Foucault, *Power/Knowledge*, ed. Colin Gordon (Brighton: Harvester Press, 1980), 211.
[50] Michel Foucault, *The Order of Things* (New York: Vintage Books, 1994), 330.
[51] I.e. biology as a science based on a concept of life that was developed in the nineteenth-century, sex as a particular attitude to body, man as the result of certain historicities.
[52] Barber, “Pleonasticity,” 79.
[53] Stainton, “Deflation,” 71.
[54] Jouni-Matti Kuukkanen in his “Making Sense of Conceptual Change”, *History and Theory* 47 (2008), 351-372 has attempted to formalize different views on what some people call conceptual changes by concentrating on an analysis of Arthur Lovejoy’s history of ideas—and even though it is not quite clear that Lovejoy’s unit-ideas were (or were always) conceived of as concepts, Kuukkanen’s analysis provides a useful account of various discussion of what can be understood as conceptual change.
[55] But as Louis Mink observed: “Whatever the merits of this line of criticism, it is notable that it has been made only in principle: critics have not pointed to specific ways in which Lovejoy's actual studies in the history of ideas betray failures of understanding or insight traceable to the atomism of his method. There is not much merit in criticizing a man's assumptions if you can find nothing wrong with his conclusions. If the "atomism" of the analytic method does indeed murder to dissect, someone should produce the *corpus delicti*.” Louis Mink, “Change and Causality in the History of Ideas,”

Eighteenth-Century Studies, 2 (1968), 7-25, 11. It is, in fact, debatable whether Lovejoy conceived of idea-units as concepts. "I think it is fair comment to observe that Mr. Lovejoy … never quite defined or delimited the concept of a unit idea." Howard Mumford Jones, "Ideas, History, Technology," *Technology and Culture*, 1(1959), 20-27. Similar view was expressed by John Herman Randall in the untitled review of George Boas' book *The History of Ideas: An Introduction* in *The Journal of Philosophy* 67 (1970), 138-141. Thomas Bredsdorff in his 'Lovejoy's Idea of "Idea'," *New Literary History*, 8(1977), 195-211, 196, cites Boas as saying ideas as understood by Lovejoy were something that could be asserted in a statement (therefore not a concept). See also George Boas, *The History of Ideas: an Introduction* (New York: Charles Scribner's Sons, 1969). Nils B. Kvastad in his "Semantics in the Methodology of the History of Ideas" in *The History of Ideas. Canon and Variations* ed. Donald R. Kelley (Rochester: University of Rochester Press, 1990), 243-260, 244, observes that the study of concepts is central in the history of ideas, though one should understand that "a concept is usually an abbreviation for a proposition or a system of propositions"—they are to be regarded as "guidelines or clues to the kind of propositions being investigated."

[56] Paul Thagard, *Conceptual Revolutions* (Princeton: Princeton University Press, 1992), 37-38.

[57] Nancy Nersessian, *Fraday to Einstein: Constructing Meaning in Scientific Theories* (Dordrecht: Martinus Nijhoff Publishers, 1984), 155-157.

[58] Thagard, *Revolutions*, 108-117; similarly, Nancy Nersessian, "The Method to 'Meaning': A Reply to Leplin," *Philosophy of Science*, 58 (1991), 678-686, 684: "I take elimination of the infamous 'problem of incommensurability of meaning' as a desideratum of a satisfactory theory of meaning for science."

[59] More exactly, she says that "For each 'meaning schema' its earlier and later forms are both determined by and connected through the reasoning for [sic] the initial introduction and subsequent alterations of the concept." Nersessian, *Faraday*, 157. Later in her "The Method to 'Meaning'," 680, she still says that there were "four major field concepts" in the period from Faraday to Einstein and talks about "successive electromagnetic field concepts," which would correspond to understanding concepts as "necessary and sufficient defining conditions"—a view that she nevertheless dismisses on the same page because "the electromagnetic field concept is not a neatly bundled, clearly individuated unit." A proponent of understanding concepts as "necessary and sufficient defining conditions" could say that this is precisely the point and that there can be no single concept of the electromagnetic field as a neatly bounded unit because she has clearly shown in her book that there are at least four of them.

[60] Peacocke, *Study of Concepts*, 3.

[61] See for instance Reinhart Koselleck, "Die Geschichte der Begriffe und Begriffe der Geschichte" and "Hinweise auf die temporalen Structuren begriffgeschichtlichen Wandels" in idem, *Begriffgeschichten*, (Frankfurt am Main: Suhrkamp, 2006), 56-76 and 86-98 esp. 62-63, 67 and 87-88. See also Heiner Schultz, "Begriffsgeschichte und Argumentationsgeschichte" in *Historische Semantik und Begriffsgeschichte* ed. Reinhart Koselleck (Stuttgart: Klett-Cotta, 1979), 43-74, esp. 65-67.

[62] Koselleck, "Geschichte", 88.

[63] Ibid., 88.

[64] Jerry Fodor, "Concepts; A Potboiler", *Philosophical Issues* 6 (1995), 1-24, 19-20. See also his account of the "Theory-theory" in his *Concepts. Where Cognitive Science Went Wrong*, 112-119.

[65] See for instance Peter Achinstein, "On the Meaning of Scientific Terms", *The Journal of Philosophy*, 61 (1964), 497-509, 497. But his discussion is limited to the ways *terms* are used in theories. Fodor in his *Concepts. Where Cognitive Science Went Wrong*, 113, observes that the key notions like "discontinuity" and "incommensurability" have never been properly explicated—"the buck is simply passed to philosophers". Margolis and Laurence similarly observe that "the Theory-Theory hasn't been subjected to as much critical scrutiny as previous theories." "Concepts and Cognitive Science", 50, note 67.

[66] See for instance, Nersesian, *Faraday*, 17-29. Thagard, similarly, in *Revolutions*, 4: "According to Kuhn's early statements, later moderated, a scientific revolution involves a complete change in standards and methods, so that rational evaluation of competing views using external standards appears impossible. He even said that when one theory or 'paradigm' replaces another, scientists work in a different world."

[67] Thagard, *Revolutions*, 49.
[68] Donald Davidson, "On the Very Idea of a Conceptual Scheme," in idem, *Inquires into Truth and Interpretation* (Oxford: Clarendon Press, 1984), 183-199, 190.
[69] Fodor, *Concepts*, 113.
[70] Thomas Kuhn, *The Structure of Scientific Revolutions* (Chicago: University of Chicago Press, 1996). For the qualifications of the statements that "the world has changed" see 111: "the historian of science may be tempted to exclaim"; "wish to say that" (117); "will urge us to say that" (118); "Is there any legitimate sense in which we can say that they pursued research in different worlds?" (120); "though the world does not change with the change of a paradigm, the scientist afterwards works in a different world" (121). No such qualification accompanies, however the statement on p. that after Dalton's discoveries "chemists came to live in a world where reactions behaved quite differently from the way they had before." (134) For incommensurability see 112.
[71] Ernst Gombrich, *Art and Illusion. A Study of Psychology of Pictorial Representation* (London: Phaidon 1960), 363. A good summary of the anti-realist reception of Gombrich is in Murray Krieger, 'The Ambiguities of Representation and Illusion: An E. H. Gombrich Retrospective', *Critical Inquiry*, 11 (1984), 181-195; see also Gombrich's reaction in Ernst Gombrich, 'Representation and Misrepresentation', *Critical Inquiry*, 11 (1984), 195-201
[72] "Kuhn is brilliant at saying what things were like before the revolution using—what else?—our post-revolutionary idiom". Davidson, "On the Very Idea", 184. But as mentioned in the note above, I do not think that there is enough textual evidence to attribute to Kuhn such radical views. In what follows I articulate here a version of the argument Davidson sketched in the same paper, though I assume, following Searle and unlike Davidson, that language is mere tool for expressing thoughts.
[73] Let Ψ be something that within a theory T can be described using identifying descriptions that depend on concepts A_1, A_2, ... A_i *or* B_1, B_2,...B_j *or* more generally X_1, X_2 ... X_k. Obviously, an identifying description of every X_i is itself dependent on some other set of concepts within T, say X_{i1}, X_{i2}, ... X_{im} while a member of that set X_{ii} is dependent on a set of concepts X_{ii1}, X_{ii2}, ... X_{iim} etc. The process can often go *ad infinitum* since it is impossible to prevent (and this will often happen) that various definite descriptions are ultimately circular and rely on concepts they define over another chain of descriptive definitions. Let then $X_{ijkl...}$ be any concept that contributes, at some stage to the definition of X_i.

Let S be another theory, with concepts S_1, S_2, S_3 ...etc. Then Ψ (already defined using concepts that belong to T) will be definable within S if
-there exists a definite description of Ψ in T, say X, such that every concept X_i that participates within X is also a concept within S *or*,
-For each X_i that is not a concept in S, X_i has a definite description that depends on X_{i1}, X_{i2}...X_{in} whereby each of them is a concept of S, *or*
- For each X_{ij} that is not a concept in S, X_{ij} has a definite description that depends on X_{ij1}, X_{ij2}...X_{ijn} whereby each of them is a concept of S, etc.
[74] Obviously, it will be necessary to state additional caveats—e.g. that one is only counting planets that can be seen without a telescope.
[75] Cited according to Christopher Peacocke, *A Study of Concepts,* 1-2.