A Naturoid-Theoretic Analysis of a Piedmontese Joke from 1915: *un tram che scansa la gente* ("A Tram That Sidesteps People"). The Trolleybus Has Come to Town, First Introduced in a Supposed Numskulls' Town, of All Places

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Abstract. Massimo Negrotti's naturoid theory has not yet been applied to humour studies. In this article, it is shown that it could be useful for analysing some jokes. This is so because there exist jokes whose workings depend upon mis-selecting the *level of observation* and the *essential performance* — two concepts that belong to naturoid theory.

Keywords: Naturoid; Observation level; Typical performance (in naturoid theory); Technoid; Transportation systems; Numskull towns; Italy (early 19th century); Mock-ascription of causality; Howlers; Technoid metaphors.

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References

1. Naturoid Theory

Massimo Negrotti's *theory of the artificial* has been renamed by him *naturoid theory*. According to Negrotti (of the University of Urbino, Italy), an *artificial* (Italian *artificiale*)[1] is a "machine", a technological device, designed and implemented so as to reproduce the *essential performance* — i.e., the particular performance which, at a given *observation level*, is considered to be characteristic — of the *exemplar*, which is itself a subsystem (be it natural or technological) of the global system, from which it can be heuristically isolated (and hence is a subsystem) without significant losses of its essential performance.

An artificial is such either by *structure*, or by *process*. It is an *artificial by structure* whenever, in order to reproduce the essential performance of the exemplar, the structure of the exemplar is reproduced. Otherwise, it is an artificial by process. A nonempty subset of the spectrum of performances of the exemplar is reproduced in the artificial. Negrotti calls an artificial a *naturoid* if the exemplar is from nature, and, in contrast, a *technoid* if the exemplar is itself a technical artefact. A table of the basic concepts of the theory of the artificial is given in Negrotti (1995, pp. 32–33; 1993, p. 26). Giorgio Sacchi (1995) provided a sketch of a

[1] In Italian *un artificiale* (thus, using a deadjectival noun) is not as jarring as *artificial* being used as a noun sounds or reads in English.

logic-based formalisation of Negrotti's theory. The relevant literature includes Negrotti (1993a, 1993b, 1995, 1997, 1999, 2000, 2002, 2004, 2005, 2008, 2010, 2012).

Cf. in the column by Philip Ball in the January 2009 issue of *Nature Materials.* It discussed *naturoid theory,* the theory of artificial devices proposed by the epistemologist Massimo Negrotti. The column began by asking:

> Are there metameric devices in the same way that there are metameric colours? The latter are colours that look identical to the eye but have different spectra. Might we make devices that, while made up of different components, perform identically?
>
> Of course we can, you might say. A vacuum tube performs the same function as a semiconductor diode. Clocks can be driven by springs or batteries. But the answer may depend on how much similarity you want. Semiconductor diodes will survive a fall on a hard floor. Battery-operated clocks don't need winding. And what about something considerably more ambitious, such as an artificial heart?
>
> These thoughts are prompted by a recent article by methodologist Massimo Negrotti of the University of Urbino in Italy (*Design Issues,* MIT Press, 24(4), 26–36; 2008). Negrotti has for several years pondered the question of what, in science and engineering, is commonly called biomimesis, trying to develop a general framework for what this entails and what its limitations might be. His vision is informed less by the usual engineering concern, evident in materials science, to learn from nature and imitate its clever solutions to design problems; rather, Negrotti wants to develop something akin to a philosophy of the artificial, analogous to (but different from) that expounded by Herbert Simon in his 1969 book *The Sciences of the Artificial.* [...]

The following, which is quoted from *EAJS Newsflash* of August 2009 (a European newsletter in Jewish studies, distributed by e-mail) describes what is in fact a technoid, in that certain facsimiles of a few ancient manuscripts even reproduce blemishes caused by wear and tear or by the ancient scribe:

> In December 2007 the Hebrew Section of the British Library acquired a unique facsimiles set of 3 highly significant Dead Sea Scrolls. Only three such sets have been manufactured to-date. The set includes replicas of the Isaiah Scroll written originally in 100 BCE, the Pesher Habakkuk Scroll first copied in the middle of the 1st century BCE, and the Community Rule Scroll or Manual of Discipline (Serekh ha-Yahad in Hebrew), penned initially in late 1st century BCE, or possibly the beginning of the 1st century AD. The latter is in fact one of the most important documents related to the Essenes, the Judean Desert sect, and contains the rules, regulations and statutes according to which members of this very early Jewish community lead their lives.
>
> The facsimiles were produced from photographs taken by Dr. John C. Trever, an American scholar from Drake University shortly after their discovery in 1947 in Qumran Cave 1. This is exactly how the original scrolls would have looked over 60 years ago. Each Scroll is printed on specially manufactured paper whose texture, colour and surface emulate real parchment. Ruling, pricking, repairs, stains, cracks, folds, tears, and wear and tear marks in the original manuscripts, have all been replicated with amazing precision. The fraying and holing of the original parchment scrolls have been meticulously reproduced by precision laser. The sheets are sewn together with fine linen thread which has been dyed the exact hue as the original sewing threads. This acquisition constitutes an outstanding and unparalleled addition to the British Library collections and would be of immense benefit to scholars and researchers interested in the Dead Sea Scrolls, the Essenes' community and the earliest Hebrew biblical manuscripts.[2]

Negrotti (2004, p. 41) states the following fundamental assumption about observation levels (an assumption whose plausibility Marchetti (2000) has tested against knowledge production and knowledge application):

[2] Naturoid theory was applied to specifically Jewish concerns in Nissan (2000), an article that discusses, among other things, meat surrogates satisfying a kosher diet, and the so-called "Shabbat Notepad" — a tool, which I invented, comprising letter-labelled boxes and numbered cards, used to record short text by carrying out a simple algorithm manually, the deciphering to be carried out after the end of the Sabbath. The tool and its use were described in detail in Nissan (1999b), an article that includes, as an appendix, a rabbinic approval for a given delimitation of the context of use.

> The notion of observation level is crucial in our discussion. Although similar to concepts like 'level of analysis' or 'description level', it differs from them in that it refers to both methodological considerations and anthropological-biological facts. In short, it takes into account aspects of perception due to our biological configuration and limits, which precede and affect every subsequent intellectual operation. Specifically, humans, in all their interactions with the world, cannot but assume an observation level per unit of time. Humans can shift very swiftly from an observation level to another but, at every unit of time, one level will always prevail over the others.

Negrotti (2000, p. 295, Table 1; 2002, p. 69) distinguishes between

(A) the *concrete artificial*, consisting of material devices or processes, and
(B) the *abstract artificial*, consisting of informational devices or processes.

Negrotti also distinguishes between

(a) the *analytical artificial*, which reproduces structures, and
(b) the *aesthetic artificial*, which reproduces appearance.

Robots and virtual reality (when the latter interacts with the real world) belong in (Aa), as do prostheses and pharmaceuticals. Category (Ba) includes artificial intelligence and subsymbolic reasoning techniques. Examples of (Ab) include, e.g., sculpture; note that the purpose is not necessarily purelly artistic, as, arguably, also facial reconstructions (either concrete, or as a computationally obtained 3D image), which reproduce a human individual's face based on the concrete evidence of skeletal remains (this being a rather controversial technique from forensic pathology: see Wilkinson (2004)) also belong in category (Ab), and their purpose is eminently practical: the identification of a given anonymous human body (even though on occasion the technique has been applied in order to show how some historical character might have looked when alive). Examples of category (Bb) include: drawing, maps, diagrams obtained by simulations in a space of parameters, as well as virtual reality when it is merely descriptive.

Nissan (2000, Sec. 5) discussed some classes of theatrical representations: in a type of Burmese dance, the movements of human dancers are such as to imitate a puppet-show; several actors who perform in Karel Čapek's drama *R.U.R.: Rossum's Universal Robots* (Čapek 1921) play in the role of robots (it was that play, in fact, that introduced the term *robot* in its modern sense).[3] The artificial is by appearance.

In the case of the Burmese dance, the observation level is kinetic: dis/continuity in body movements (an observation level that is relevant also for *survivor* project in robotic art: a

[3] In Karel Čapek's drama *R.U.R.*, an affect (love), and reproduction by technology rather than by procreation, are key concepts. Here is a précis of the plot. The industrialist Rossum, who manufactures robot factory workers as well as robot soldiers, receives a visit from the daughter of the President. They eventually marry, but she proves to be barren. Her old governess tells her that this is supernatural punishment for the manufacturing of robots as replacements for people. Rossum orders that a 'female' robot with a defect be destroyed, and a male robot who loves her does not manage to dissuade him. In revenge, this robot leads a revolt of all robots. The soldier robots exterminate the Rossum household and all humankind, except for the scientist who knows how to manufacture the robots.

The curse of the robots is that they are barren. In the end, however, the last human being, the scientist, hopes (against hope) that a pair of robots, a male and a female, who are in love, might manage to procreate. Nothing is said of the technique that enables love in a robot, or of how, technically, the scientist might be justified in entertaining any hope that the mechanism of procreation would eventually be triggered in the robots, not having been built in as part of the design. The poetic logic of this morality play transcends the constraints of realism, and is unfettered by technological obstacles.

robotic chair moves mimicking the impaired movements and anguish of a landmine survivor).[4]

Paradoxically, the Burmese dancers or the actors in *R.U.R.*, even though they are human, enact a reproduction of a kind which Negrotti calls *technoids*— i.e., technological devices. Yet, those devices in turn (puppets or robots) are *naturoids*, because they reproduce features from natural exemplars, namely human beings.

Another such situation, with one more twist to it, is to be found in the ballet *Coppélia*, by C. Nuitter and A. Saint-Léon (based on one of Hoffmann's Tales, with music by Léo Delibes). It was premièred in 1870. In this comic ballet, the magician Coppelius has developed human-like automata, and Franz falls in love with "the girl with enamel eyes", Coppélia.

Coppelius intends to transfer Franz's youthful life to Coppélia, but Franz's fiancée thwarts the plan, by impersonating Coppélia, and scaring Coppelius. Therefore, it is within the plot of the ballet that a human being plays in the role of the automaton, and of course, during performances, a dancer plays the human being who is impersonating the doll[5] of the character of Coppélia.

In the ballet *Petrouschka* by A. Benois and I. Stravinsky, premièred in 1911 and set in St. Petersburg in 1830, the animated puppets of the Charlatan are magically endowed with human sentiments. When the puppet Petrouschka is slain by a rival puppet, his soul even hovers on the scene, whereas the Charlatan reassures the viewers that it was just a puppet. Again, human dancers impersonate those puppets when the ballet is performed.[6]

2. The Joke About the Trolleybus

An example of playful, indeed joking mis-selection of the level of observation in the sense of naturoid theory is as follows. When we humans cross the street, we are careful to avoid being run over by vehicles. This is part of our expected social competence. Children are taught how to cross the street safely. Humans do so, being aware of how driving a car is regulated.

Animals do not know about that code, so they evaluate the distances of oncoming cars, and then take their chances and run across the street. Avoiding an oncoming body while moving their own body is something that robots are taught (and at that level of observation they are naturoids, just as they are naturoids in other respects), whereas car automation is also aware of the driving code (and therefore they are also *culturoids*).

Rinaldo De Benedetti (writing under the pen-name Sagredo) published, in Milan, a book of his collected anecdotes gathered from the history of science and technology, sorted chronologically by year (Sagredo 1960). Not publishing under his own name was a necessity for him, because, under the 1938 racial laws, authors who happened to be Jewish could not be

[4] Cassinis et al. (2007), Nissan et al. (2008). The artist was Laura Morelli, and the roboticist, Riccardo Cassinis.

[5] A doll is an "artificial". The observation level, however, may vary. If the task is wearing some dress in a display window, it is enough that the implement function credibly in that respect. There is no goal of fraudulently convincing people that the doll is an actual human being, which is what Coppelius attempts to do, with some success, with sinister ulterior motives.

[6] *Che cosa sono le nuvole?* ['What are the clouds?'] was an episode directed by Pier Paolo Pasolini as part of the 1966 film *Capriccio all'italiana*, produced by Dino De Laurentiis. The setting is a performance of *Othello* at a marionette theatre (*teatro dei pupi*) in Sicily, only instead of actual marionettes, three roles are played by well-known comedians Franco Franchi, Ciccio Ingrassia (then at the zenith of their respective careers), and the veteran of Italian cinematic comedians, Totò, who acted in the role of Iago. Franchi and Ingrassia were Cassio and Roderigo respectively. These human actors played with disarticulated movements, as though they were marionettes. "The audience, before the tragedy takes place and Othello kills Desdemona, takes justice into its own hands, and kills the baddies", to say it with a passage from a book on Italian cinematography by GianPiero Brunetta (1998, p. 420).

published, and some conniving editor would allow him to publish nevertheless anecdotes in the history of science.

Sagredo (1960, p. 443) included an item dated 1915. A town (which he does not name) in Piedmont, Italy, had adopted, earlier than elsewhere in the same region and country, the trolleybus, or trackless trolley, as a means of public transportation. The Italian term is *filobus*. Unfortunately, that particular town used to enjoy — elsewhere in Piedmont — an unfortunate notoriety as a numskulls' town, and this was reflected in folklore.[7]

A malevolent joke elsewhere in the same region seized its opportunity from the trolleybuses in service in that place of all places, and maintained that such-and-such town had introduced *un tram che scansa la gente* — i.e., "a tram that sidesteps people"; "a tram that avoids [hitting] people". That Italian phrase appears as the headline of that particular anecdote in Sagredo's book.

3. A Discursive Explanation of the Workings of the Joke About the Trolleybus

An important feature of both trams and trolleybuses is in that they are powered by electricity from overhead wires. A tram is a passenger car running on rails in the street, and therefore having to move rigidly, being derived of free lateral motion (unlike a bus, a car, or a coach). A conspicuous difference of trolleybuses with respect to trams is that they run on tires, like a bus, and therefore they are capable of some freedom of lateral motion, although limited by the overhead wires.

For the purpose of derisive intent, the trolleybus was characterised as being so solicitous as to sidestep pedestrians in the street, presumably a convenient, or even necessary courtesy in a town reputedly inhabited by half-wits. In terms of naturoid theory, the human performance of a driver avoiding hitting a pedestrian crossing the street is ascribed to the trolleybus. This mock characterisation of a trackless trolley, as contrasted with a tram, is also amenable to a discussion in terms of linguistic prototypes, a subject I have discussed in Nissan (1995).

Reverting to naturoid theory: life expectancy, too, is a kind of performance. For the trackless, it is rather like for diesel buses, and unlike the longevity of the trams. Contrast this with the range of life-spans that can be observed in Mammals (short-lived mice, comparatively long-lived humans) being inferior to reptilians' or prey birds'.

Also consider this in respect of product durability decrease as being sought after by manufacturers for domestic appliances over the last several decades (affecting the replacement coefficient). When I was taught about the latter, our professor mentioned the Fiat fridge that his parents were still using then, in the late 1970s. It looked like a large machine, and was apparently unvarnished. But it had resisted for many decades — not a rosy prospect for marketing professionals. Of course, Fiat was no longer manufacturing such fridges (or any kind of fridges, for that matter).

4. A Naturoid-Theoretic Analysis in Formulae of the Joke About the Trolleybus

This section makes use of formulae of a kind familiar to practitioners of knowledge-representation within artificial intelligence. Moreover, the formulae given below could be adapted to fit into Toulmin's model of the structure of arguments (Toulmin 1958).
First of all, let us define a few sets, in order to express some common sense:

[7] Numskull tales in folklore are the subject of, e.g., Jason (1975).

VehiclesOfMassTransportation $\subset$ *Vehicles*

Vehicles1 $\subset$ *Vehicles*

Vehicles2 $\subset$ *Vehicles*

Vehicles3 $\subset$ *Vehicles*

where $\subset$ is the set containment operator. We now turn to a definition of the sets we defined, which each are a subset of the overarching set *Vehicles.* There exist such vehicles that run on tracks, and the tracks both facilitation motion and constrain it:

IF $x \in$ *Vehicles1*
THEN [CLAIM: *motion*(x)
[FACILITATED-BY AND
CONSTRAINED-BY] [(track BELOW car)]]

Such vehicles (unless you are talking about wagons carrying stuff in of from a mine) are vehicles of mass transportation:

Vehicles1 $\subset$ *VehiclesOfMassTransportation*

Some vehicles (which again, are vehicles of mass transportation) have a trolley above their car, and the trolley facilitates motion (by erogating power), but it is a constraint as well:

IF $x \in$ *Vehicles2*
THEN [CLAIM: *motion*(x)
[FACILITATED-BY AND
CONSTRAINED-BY] [(trolley ABOVE car)]]

Vehicles2 $\subset$ *VehiclesOfMassTransportation*

Some vehicles run on tires:

IF $x \in$ *Vehicles3*
THEN [CLAIM: *motion*(x)
[FACILITATED-BY AND
CONSTRAINED-BY] [(tires BELOW car)]]

It is common sense that:

IF x IS-A *tram* THEN $x \in$ *Vehicles1*

IF x IS-A *train* THEN $x \in$ *Vehicles1*

IF x IS-A *tram* THEN $x \in$ *Vehicles2*

IF x IS-A *trolleybus* THEN $x \in$ *Vehicles2*

IF x IS-A *bus* THEN $x \in$ *Vehicles3*

IF x IS-A *trolleybus* THEN $x \in$ *Vehicles3*

IF x IS-A *private-car* THEN $x \in$ *Vehicles3*

An important feature exploited in the joke we are considering, is that a trolleybus is like a tram, except in that a tram could not swerve, whereas a trolleybus can:

CLAIM: *trolleybus* IS LIKE *tram*
EXCEPT: [CLAIM: [NOT (*tram* CAN *swerve*)]
BUT: (*trolleybus* CAN *swerve*)]

We can reformulate this by resorting to concepts from naturoid theory:

CLAIM: *trolleybus* IS-TECHNOID-OF-EXEMPLAR *tram*
AT-OBSERVATION-LEVEL:
EXCEPT: [CLAIM: [NOT (*tram* CAN *swerve*)]
BUT: (*trolleybus* CAN *swerve*)]

Namely, a trolleybus is a technoid emulating an exemplar being the tram, and the essential performance is about anything (as far as the joke is concerned), except in that a tram could not swerve, whereas a trolleybus can. (One may add that a trolleybus is a technoid emulating the essential performances of a bus as well, as being a technoid both by structure and by process, except that particular essential performance that is emulated from a tram instead.)

We now turn to explanation. The following is a *bona fide* explanation of why a trolleybus is somewhat able to swerve (even though not to the extent that a bus could):

HOW? EXPLANATION:
[CLAIM: *motion*(*tram*)
CONSTRAINED-BY [(*track* BELOW *car*) AND
(*trolley* ABOVE *car*)]]
AND [CLAIM: *motion*(*trolleybus*)
CONSTRAINED-BY (*trolley* ABOVE *car*)]
AND [CLAIM: *motion*(*trolleybus*) NOT
CONSTRAINED-BY (*track* BELOW *car*)]
AND [CLAIM: *leeway*(*trolley*(*vehicle*)) ≫ *leeway*(*track*(*vehicle*))]

The leeway afforded by the trolley of a vehicle is much larger than the leeway afforded by the tracks of a vehicle which runs on tracks.

The workings of humour enter the picture in the following two mock-explanations, which claim that a trolleybus is a naturoid emulating an exemplar, being smart humans, in that smart humans are able to swerve, and do so if necessary. Why is it necessary? Because the trolleybus is in a numskulls' town, and inhabitants of a numskulls' town cannot cross the street and see to it that they are not hit by vehicles in the street:

WHY? MOCK-EXPLANATION:
[CLAIM: *trolleybus* IS LIKE *smart-human*
AT-OBSERVATION-LEVEL:
[[CLAIM: (*trolleybus* CAN *swerve*) AND
[IF *necessary* THEN (trolleybus DOES *swerve*)]
AND
[CLAIM: (*smart-human* CAN *swerve*) AND
[IF *necessary* THEN (*smart-human* DOES *swerve*)]]]]
AND [CLAIM: *trolleybus* IS-NATUROID-OF-EXEMPLAR *smart-human*]
AND [ESSENTIAL-PERFORMANCE(*smart-human*) =
[IF *necessary* THEN (*smart-human* DOES *swerve*)]]

A mild formalisation of another mock-explanation is as follows:

WHY "IF *necessary*"? MOCK-EXPLANATION:
[CLAIM: (*trolleybus* IS-IN *Town1*) AND
(*Town1* IS-A *numskulls-town*) AND
[IF *y* IS-A *inhabitant*(*numskulls-town*)
THEN [NOT *y* CAN
[SUBJECT: *y*
ACTION: cross
OBJECT: street]
AND
[SUBJECT: *y*
ACTION: *see-to-it*
THAT: [OBJECT: *y*
ACTION: *hit*
SUBJECT:
(*vehicle* IN *street*)]]]]]

I mentioned the possibility to reformulate the foregoing by resorting to Toulmin's structure of argument. Examples of application of that data structure are given below in Figs. 1 to 3.

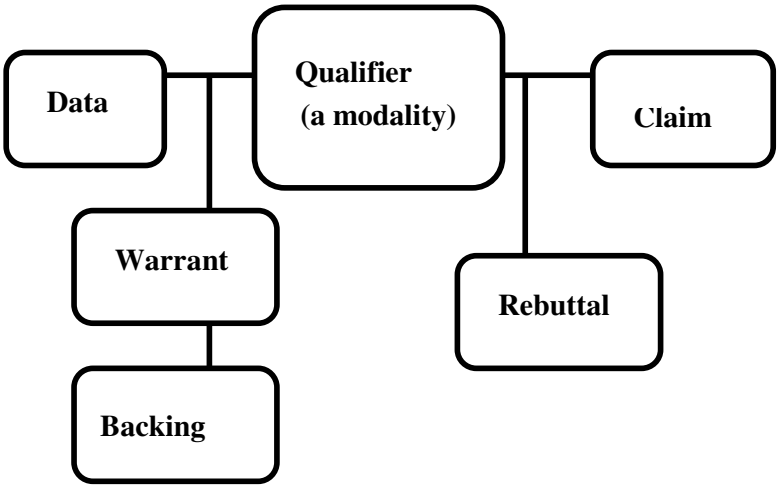

Fig. 1. Toulmin's structure of argument: the abstract schema.

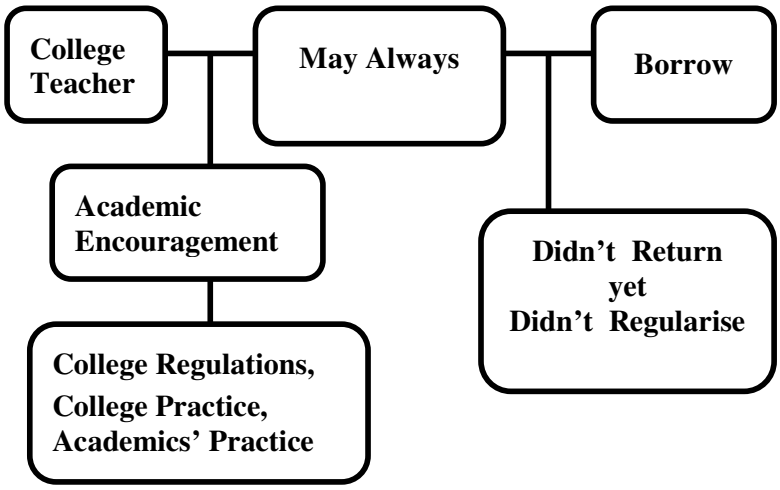

Fig. 2. Toulmin's structure of argument.
An example drawn (with modifications) from
a talk given by Uri Schild in Glasgow in 2002.

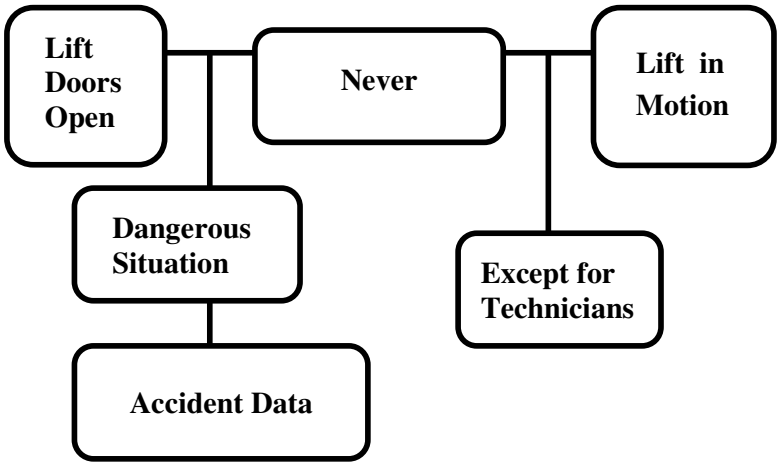

Fig. 3. Toulmin's structure of argument.
An example drawn (with modifications) from
a talk given by Uri Schild in Glasgow in 2002.

Two or more arguments may be related to each other, in a Toulmin chart, because of the overlapping of one of the elements of Toulmin's structure. This model of argumentation originated with Toulmin (1958), but it has also been dealt with e.g. in Nissan (2012, Ch. 3); cf. Nissan (2008a, 2008b, 2008c).

5. The Trolleybus in the History of Urban Transportation

A nostalgic recollection of trolleybuses from a London local newspaper (no such vehicles are in service in London any more) evocatively characterises them as follows: "Trolleybuses — the whispering giants — operated in many parts of the capital throughout the 1940s and 50s" (Smith 2004). Note the contrast: the voice of giants could be expected to be louder than that of normal humans; this particular kind of giant instead whispers. This is an apt characterisation, as trolleybuses are relatively quiet in comparison to both buses and trams.[8]

"London's first trolleys ran in the Kingston area in 1931". "In May 1962 Londoners finally said goodbye to their last trolleys" (Smith 2004). Morever (*ibid.*):

> At the height of the system, in 1952, London had almost 3,000 trolleybuses which, for a short time at least, made it the largest network in the world. Although popular in northern and midland industrial towns, where the 'trackless tram' had been enthusiastically embraced to replace ageing and noisy tramways, the trolleybus was not as common in the south of England. However, Bournemouth, Brighton, Hastings, Reading, Maidstone and parts of south-east London used this quiet, clean mode of transport quite extensively.

Trolleybus routes replaced former tram routes, and were, in turn, replaced by diesel buses. "Britain's last trolleybus route closed in Bradford in 1973 where, ironically, the first public 'trackless' had opened in 1911" (Smith 2004). When, in 1962, the last of London's trolleybuses were withdrawn, "all 80 of the final class of London trolleybuses were exported to Spain where they ran until the 1980s" (*ibid.*). Trams are more durable than buses and trolleybuses: when, in the 1970s, the city of Genoa, under the Communist mayor Cerofolini, gave up its trams, they had been in operation for nearly fifty years. Controversially, they were exported to Zagreb, in Yugoslavia (now in Croatia), with a life expectancy of nearly fifty more years.

The very first trolleybus in Italy was in the town of la Spezia, at the easternmost tip of Liguria, the coastal region (with Genoa being its capital) south of landlocked Piedmont. In Piedmont, historically there have been the following trolleybus networks, not only between towns, but even between towns:[9]

> The city network of Alessandria, active from 1952 to 1974;
> The city network of Cuneo, active from 1932 to 1968;
> The intercity network of Cuneo, active from 1935 to 1957;
> The intercity network of Ivrea, active from 1908 to 1935;
> The regional network of the Langhe, active from 1910 tol 1919;
> The city network of Stresa, active from 1909 (but no longer in existence);
> The city network of Torino (Turin), active from 1931 tol 1980;
> The intercity network of Torino, active from 1951 to 1979.

There exist more advances trolleybus models such that powering is bimodal. That is to say, they have a second engine, which is not necessarily electric. In such case (or then if the model can use batteries), then the trolleybus can travel to the depot as though it was an ordinary bus. This is also useful in case there is a power cut, or if along part of the route there are no power lines for the trolleybus to use. Because of there being no tracks on the road for the trolleybus, this vehicle requires its trolley to be powered by two lines above it, whereas for a tram, one line is sufficient. In Pescara in Italy, a Phileas trolleybus model is being introduced in which the vehicle uses a magnetic guidance system. Light railways are now considered more

[8] British trolleybus networks are dealt with at http://www.trolleybus.co.uk/
[9] According to http://it.wikipedia.org/wiki/Elenco_di_linee_filoviarie_italiane#Piemonte

efficient than trolleybuses, and moreover, it has long been the case that introducing a bus line with a Diesel engine is considerably cheaper than introducing a trolleybus line (even though the latter is not as costly as the initial investment in a tramway).

Interestingly in consideration of the joke with which we have been concerned, in the early 20th century the trolleybus was considered as a compromise between a tramway and using gasoline-fuelled buses. An advantage recognised when using a trolleybus was that in case there was some obstacle on the road, a trolleybus could avoid it. A tram could not. Clearly, as there was such a public perception, not only among technicians, the joke drew inspiration from it. Another advantage of trolleybuses is that introducing them was not as costly as building a tramway.

Trolleybuses are advantageous in hilly cities (such as San Francisco and Seattle), because their traction is more efficient than in buses burning liquid fuel, but this advantage does not extend to all electrically powered streetcars (thus, both trams and trolleybuses), because trams do not adhere to their tracks as well, on hilly ground, as the tires of trolleybuses and buses do. Trolleybuses are not as noisy as buses and trams. A disadvantage of such trolleybuses whose traction is not bimodal is that if the vehicle swerves too much, and in particular, if by error it takes the wrong road at a crossway, then its trolley can no longer draw power, and the vehicle remains immobilised.[10]

6. Motor Vehicles Perceived as Being Animate Beings

In the 1990s, it was reported about a doctoral student in anthropology from the United States who brought back a bride from the rain forests of north-eastern South America;[11] according to what she eventually reported about how she initially coped with environments entirely novel to her, on seeing people open the bonnet (the hood, in American parlance) of a car, she fled, in the belief that the car was an animal that might devour her. In this case, there is some structural analogy: the headlights may be taken to resemble eyes, and the bonnet that was raised, being placed between the "eyes", may be analogised as a mouth.

Actually, Hiroyuki Takeshita, an engineer, presented at the Idea Expo in Tokyo a customised version, called *Boro Cop*, of the MR-S car model made by Toyota. The front of the *Boro Cop* car was so devised that it could reproduce some human facial expressions, or, perhaps we should rather say, some of the facial expressions shared by humans and mammals. This customised, bright-red car could drop its "lower jaw" and uncover its "teeth". Moreover, it could open wide, as though in surprise, its "eyes" — these being the car's headlights. In late January 2003, a Reuters report by Yuriko Nakao captioned a picture of the car as follows: "Toyota Motor Corp engineer Hiroyuki Takeshita demonstrates 'Boro Cop', a Toyota MR-S sports car customised to exhibit various facial expressions, at the Idea expo in Tokyo February 1, 2003. The expo features creative inventions by Toyota's employees which might exist 20 years in the future."

Whereas, in the *Boro Cop* car, the headlights correspond to eyes, and the grille to an open mouth, in contrast, in the 2006 film *Cars*, produced by Pixar Animation Studios for Disney, the grille is a far more expressive mouth with more humanised features, while the headlights are not exploited in the facial metaphor (they at most stress cheekbones, as it were), while the eyes are represented on the windscreen (no driver is shown). Most of the windscreen is white

[10] Sources include http://it.wikipedia.org/wiki/Filobus and http://en.wikipedia.org/wiki/Trolleybus

[11] In the basin of the Amazon River, or of another river flowing to the Atlantic. The report appeared in *Reader's Digest*. Unfortunately, an inquiry I made to the headquarters of that magazine, with the aim of having the publication data of the given report retrieved from their bibliographical database of published articles, was left unanswered.

(corresponding to the whites of both eyes), surmounted by partly lowered eyelids of the same colour as the car. The iris and pupil of both eyes appear on the white part of the windscreen. Individual car characters are patterned after given car models — e.g., Volkswagen AG, Mazda Miata, Dodge Hudson Hornet, Cadillac Coupe de Ville, and assorted models from Fiat, Ferrari, and Chevrolet.

7. More on Artefacts

Giacomo Romano (2005) has engaged specifically, within the perspective of cognitive science, with "the difference between the process that I call the individuation of an artefact, by means of which one recognises that a certain item is an artefact, and the process that I label as the identification of an artefact, by means of which one recognises that a certain item is an artefact of a certain kind" (*ibid.*, p. 189).

The problem of individuation of an artefact is one which Jacques Monod (1971) tried to solve (unsatisfactorily, according to Romano) by considering the regularity and geometry of objects as being the only symptom for categorising them as artefacts. Romano's attitude to Daniel Dennett's (1987, 1990) notion of *design stance* — an abstract explanatory schema of the relation between features of an entity and its purpose — is by asserting that it need not only be explanatory; to Romano, the design stance is part and parcel of human planning for action. In an article entitled "The Information Processing Organisms" and published in *Acta Biotheoretica*, Lydia Arianova (1996), in Plovdiv, Bulgaria, proposed a model for distinguishing between living and non-living objects. The observer is not external, but "an indelible part of the observation" (*ibid.*, p. 143).

> Although showing an immense variety, all objects, living and non-living, have some characteristics in common. They all obey the physical laws and they are all engaged in perpetual interactions. How do we tell then the difference between living and non-living objects? According to the traditional concept it is the capacity for reproduction that distinguishes living from non-living objects (Luria et al., 1981). [Arianova instead] stresses the way in which objects interact as the crucial point of difference between living and non-living objects. This concept claims that living objects assert themselves as such only when and while interacting in terms of information processing. Under such conditions only, living objects are able to display relative independence of the physical laws, for instance active movement.

One may retort that by that definition, even autonomously controlled robots fall within the category of living objects. Arianova also states however: "This display of relative independence is governed by biological laws and defines the behaviour of the living objects as active in principle" (*ibid.*). Again, one may retort that it is crucial to understand what is meant, here, by *biological*. Is the definition self-contained? Is there not a fallacy in respect of *petitio principii*? At any rate, Arianova introduces the "elementary unit of biological information", or *BIS*, which comprises two components: *impulse*, and *acceptor*; "the gradient of structural organisation introduces *the active acceptance* of impulses as fundamental principle of biological dynamics" (*ibid.*, p. 146). "[T]he recording of reiterating impulses secures identification of the external factors as well as *self-identification* of the individual *through the imprints of its own activity* upon the environment" (*ibid.*, p. 150).

One is left with the impression that everything that is said in her paper may be taken equally to apply to autonomous systems as embodied in the products of robotics. Is such inclusion intentional on the part of either Arianova or anybody accepting her proposal? It is of interest to point this out here, as it shows how, in scholarship, theory struggles in defining the basics of the distinction between 'animates' and 'inanimates'.

8. Ascription, in Language, of Will to Inanimate Objects

It is of interest to observe that the ascription of will to inanimates sometimes occurs idiomatically in ordinary speech. This is because a verb of will underwent grammaticalisation, and is no longer felt to actually ascribe will. The same thing happened for a verb of thought: in the Hebrew Bible, in Jonah, 1:4, the ship in the storm almost comes apart, and this is expressed with "and the ship *ḥišš*^{e}*vá* [thought/intended] to be broken".

What one would express in English with *he almost Xed* or *it almost Xed*, in standard Italian is expressed with *quasi Xva*, whereas historically or dialectally it is sometimes expressed with *volle Xre* — i.e., with the inflected form of the verb *volere*, 'to want', followed by the infinitive (Rohlfs 1969, §754). Also consider the etymological sense of the English verbal forms *will* and *would* which, as grammaticalised components in the context of verbal inflection, respectively express the future tense and the conditional mood, even when the subject is inanimate.

Such syntax of the conditional by means of the verb *volere* is also found in some Italian dialects (Rohlfs 1969, §754). For the imminent future, 'to want' + infinitive occurs in Italian historically and dialectally (Rohlfs 1969, §740, p. 134) — e.g., in Piedmontese, *u vör piöve* for 'it is going to rain'. In late Vulgar Latin, there used to exist a syntactic construct *volebam facere*, 'I would have done'; hence, in Rumanian, the conditional *vrea face* for 'I would do', originally 'I would have done' (Rohlfs 1969, §749, p. 147, fn. 2, which also provides an example from Old Spanish).

9. Attribution in a Mentalist Framework

In the previous subsection, it was pointed out that, along with the interpretation of, say, a car as an animate, the ascription of intentionality also occurs. The psychologically "normal" yet culturally incompetent lady from the South American forest, who believed that a car's raised bonnet was an open mouth, also fled, out of fear that the car may intend to devour her (which is what she eventually explained to her husband, an academic, and later on to an interviewer). By contrast, the user who is typing text in Microsoft Word, in all likelihood is able to realise that the animated assistants that come with the software are non-sentient fictional characters which were so contrived as to mimic such communication that is meaningful for humans.

The default animated assistant for Word or PowerPoint users is the character Clippit, who (or perhaps which) is shaped like a cheap piece of stationery: a metal clip, a thin, bent metal wire, yet with expressive eyes and human-like eyebrows. It even scratches its head. The user may choose whether to play along, and connive in the fiction that the animated character has intentionality. The character, Clippit, is in the Microsoft Agent package (Microsoft Agent 1999). In some of the displays, Clippit maintains its basic shape — e.g., when it looks as though it is listening to music. At other times, it radically modifies its shape — e.g., into electrons orbiting around an atom (Clippit's eyes become the atom and an electron), or into a mobile (i.e., a hanging sculpture moved gently by the breeze); or into a rotating hurricane; or into a shape resembling a shovel, were it not for the hollow contour that resembles a smiling mouth.

Let us turn to some basic notions of mentalist ascriptions. Within psychology, attribution theory is defined as follows in Edwards and Potter (1995, p. 87):

> Attribution theory is concerned with the ways in which ordinary people, acting as 'intuitive scientists', explain human actions and events to themselves. In the classical version, attributions are a perceptually derived species of social cognition in which people assign causal explanations to events, situations, and actions. Despite the fact that the theoretical foundation of classical

> attribution theory is essentially perceptual and cognitive, research methodology relies on verbal description of events, verbal communication of instructions, and verbal formulations of causal explanations. Experimental subjects are provided with linguistically formulated vignettes [...] and are asked 'Why?'. Language is part of method rather than part of theory [...]. Recent developments and alternatives to the classical model have started to place much more emphasis on the central role of language [...].

Concerning mentalist ascriptions, consider also the following sketchy remarks. Work on motion attribution, in psychology (e.g., Wallbott 1988), has been linked to research into face processing by the human mind, thus, into how people react to intersubjectively observable displays. There is more to face processing in psychology (Young and Ellis 1989) than facial expressions. Besides, as shown by Jean-Jacques Courtine and Claudine Haroche (1988) in *Histoire du visage,* expressing ones emotions or refraining from doing so, including through the face, is deeply shaped by culture. Consider playing poker: Rosalind Picard described software agents from Koda's master's project at her own MIT Media Laboratory, which impersonate poker-playing agents with facial expressions displaying emotions "in situations where an underlying emotion model determined what could be expressed" (Picard 1997, p. 199).

Tying this back in with our discussion of the cultural factor by which some observers may assume that, say, a car is some kind of beast, also consider that also some animal kinds appear to either

- interpret or misinterpret either behavioural displays of humans or of animals from a different species than their own (i.e., an example from ethology which has been repeated, even in an encyclopaedia, concerns South American deer, that cannot be safely made to share an enclosed space with kangaroos: when the deer perceive the kangaroo standing on its hind legs, which is a kangaroo's normal posture when about to jump, the deer misinterpret this as a threatening display, which precedes attack, as for deer standing on one's hind legs preludes to attack; therefore, the deer react by attacking the kangaroo);

- or interpret or misinterpret body morphology, i.e., details in the anatomy (and related displays), whether this is actually part of the anatomy of the living being they are facing, or is an artefact such as a mask worn by a human being other than where the human face is positioned in the natural human anatomy.

People have a naive, anthropomorphising theory of mind which they apply to their interaction with animals. Some animal kinds, in turn, both domestic and wild, respond to a human face, because of the detected stare. Let us say something more on this, as it is a kind of heterogeneous multiagent system we have. "Noting that the fearsome Sunderban tiger in West Bengal attacks men only from behind, wildlife management authorities at the tiger reserves there send honey collectors and other workers into the mangrove forest with rubber masks tied to the backs of their heads" (James 1989). The method was adopted in 1987, and allegedly no single worker who conformed was attacked, while, instead, of workers who did not, thirty were killed in one year. Tigers avoided attacking humans they (wrongly) believed were staring at them. Misascription of an emotional facial display also occurs the other way around, between human and animal. A serial cartoon featured the housewife protagonist in front of a large aquarium full of tiny, ornamental fish; she was asking the perplexed shopkeeper, who was standing holding the handle of a net in his hand, for a particular fish she

was pointing at. In the cartoon bubble, she described it to him as being the one with a sad face.[12]

Misinterpretation of animal behaviour or anatomical morphology as though as it conveyed a human facial display in a child's psychology is described in a letter from a reader was in London's *Woman* magazine of April 9, 1966 (p. 5): "The day following a visit to a farm I asked my little boy, aged three, what he had enjoyed the most. 'The chickens,' he said emphatically, 'because they smiled at me!'" Also see the essay, by Warren Shibles, "Semblances of emotion: the sad Saint Bernard" (Shibles 1995).

10. The Umbrella of Mushrooms: Technoid Metaphors for Natural Shapes, Explanation, and Humour

Tony Lord publishes a recollections and local history column in *The Mercury,* a local newspaper of Greenwich, South East London. Then in his eighties, Lord (2007) listed "some 'howlers' that I've collected over the years from pupils in Deptford and Woolwich. They show how useless I was as a teacher." One of the howlers was as follows:

> Mushrooms always grow in damp places, and so they look like umbrellas.

That item inspired the headline of Lord's article. We find that particular howler funny, because of the inadequate explanation it provides. After all, students' howlers (a genre of humour usually circulated among teachers) are about the inadequacy of the originator (a pupil, or even a university student, at any rate a person whose social status within the kind of institutions where the genre circulates is lower than that of both the person who proposes a collection of howlers as humour, and the audience of that humour).

The pupil who aetiologised the shape of mushrooms from their damp environment clearly made a *bona fide* statement. There is more to it. Had we had to invent it as a mock-explanation (thus, tongue in cheek), it would have been clever, because it so happens that it is fairly standard to liken mushrooms to umbrellas, and that this combines felicitously with their growing in the damp, and that you use an umbrella to avoid becoming wet with rain.

But yet again, there is more to it. Compare the howler about mushrooms with this other one, also from Lord (2007):

> Q. How do you know the world is round?
> A. Because they say in church "world without end" and round things haven't got no end.

— and it becomes apparent that the mushroom howler stands out because of something relevant to naturoid theory: a technoid is invoked. Likening the top of a mushroom (a natural kind) to a (man-made) umbrella is commonplace. It is an instance of *technoid metaphors.*In Nissan (in press, Sec. 22: "The likening of an animal kind to a human artefact"), I enumerated examples of such lexicalised metaphors. One such example is

> the name of the cobra in various languages, which literally means 'spectacles/glasses snake' because of the shape of the pattern on the back of this snake when inflated: e.g., French *naja* or *serpent à lunettes,* Italian *cobra* or *serpente dagli occhiali,* Modern Hebrew *qobra* or *nĕḥáš hammišqafáyim.* Clearly the existence of the pattern of the cobra predates the invention of glasses for seeing, but it is quite possible that the pattern's resemblance to a pair of large eyes increases the deterrent effect.

[12] This is related to companion animals — i.e, pets — as being a cultural construct involving some degree of anthropomorphisation of the animal. See Albert and Bulcroft (1987), as well as Yi-Fu Tuan's book (1984).

Another such example is the so-called "sling" or "slingshot", i.e., the two-pronged horn on the front of the muzzle of some fossil artiodactyls:

> It is not unheard of that some shape which is typically associated with a given kind of artefact would nevertheless occur in nature. This may occur at a time which predates the human invention of such artefacts, even though the similarity only came to be noticed in very recent times. Take the largest species among the *Protoceratidae,* which were Tertiary mammals from North America, belonging to *Artiodactyla,* and somewhat related to the camelids and, less so, to the ruminants. *Synthetoceras tricornatus* "has the longest and most anteriorly inclined rostral horn of any protoceratid. The frontal horns [...] are conspicuously knobbed" (Prothero 1998a, p. 436). The cores of all horns were of solid bone. Judging from extant ruminants, such horn cores may have been covered with tough skin (like in deer), rather than with keratin (which is the case of present-day cattle). The conformation of the hoof as in present-day ruminants was not complete as yet: feet were four-toed in the front (the two on the side, raised), but in the hind legs, the feet were two-toed instead.
>
> This animal was similar to a moose or a deer (reconstruction artists prefer either; e.g., a rather moose-like restoration of Synthetoceras, by Brian Regal, appears on p. 431 in Prothero 1998a), but with a huge and very long head, sporting a large protruding upper canine, and with the horns of a rhino (the rostral horn) and (though not hollow) of a cow (these occipital horns being moreover knobbed, as done sometimes with horns of cattle to blunt them). Its rostral horn was unlike that of a rhino in that at the top it was bifurcated, like a **sling.** Nevertheless, in *Synthetoceras* the bifurcation is only near the end of the very long rhino-like horn.
>
> The sling metaphor has been current in discussions of the related genera, as the extent to which the "sling" is bifurcated is one of the criteria of differentiation between this genus and close genera; e.g., in *Lambdoceras* (whose name is based on the rostral horn resembling a reversed lower-case Greek letter lambda) "the shaft is relatively long and the fork is shorter" (Prothero 1998a, p. 435). In *Syndyoceras,* "[u]nlike the rostral horn of the Synthetoceratini, it does not fuse to form a long stem or trunk, but branches immediately above the base" (*ibid.*), like in *Kyptoceras.* The sling is not the only artefact[13] whose shape appears to turn up in the horns of some of the *Protoceratidae*. "*Paratoceras* has many unique features, but the most bizarre is the forked occipital horn in the male that resembles the propeller on a beanie" (*ibid.*). "Later protoceratids all had some combination of horns, including the bizarre forked occipital 'propeller' of *Paratoceras* and the rostral 'slingshots' and orbital horns of the synthetoceratines" (*ibid.,* p. 431).
>
> The protoceratids disappeared during the latest Hemphillian, i.e., during the transition between the Miocene and the Pliocene (Prothero 1998a, p. 431), when the climate became much cooler and drier, and subtropical wooded habitats of the intermontane U.S. states and and savanna habitats of the U.S. Plains were lost, and over sixty mammal genera disappeared (Webb 1984); that was also the time when, e.g., the North American rhinoceros became extinguished (Prothero 1998b, pp. 595, 604; 2005, pp. 198–199).[14]

From the theoretical viewpoint (Nissan, in press, Sec. 22):

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[13] A staff (thus, an artefact) with a forked upper end is sometimes taken to be a symbol of horns, thus, reproducing a structure observed in nature. In her article "Shamanism in Inner Asia: Two archetypes", Skrynnikova (2002) provides, among the other things, some discussion of the goddess Umai of the Turkic- and Mongol-speaking peoples (*ibid.,* pp. 80–81 and note 52 on pp. 86–87). "Umai is mainly encountered among the *western* Turks" (*ibid.,* p. 80). Some scholars remarked on her connection with the earth, but "the Buriat Scholar, N. B Dashieva, has noted a connection between the goddess Umai and the *sun,* which derives from an earlier cosmological stratum at a time when the essence (hypostasis) of the sun was female" (*ibid.,* p. 81). (For comparison, consider that in Biblical Hebrew, the names for the sun and the moon are feminine and masculine, in that order.) "Dashieva [...] demonstrates the solar nature of the goddess by describing some of her attributes. For instance, she appears as a hoofed animal, the great Siberian deer (*maralukha*), transformed into the constellation of Orion; another attribute is the goddess's forked staff — a universal emblem of a hoofed animal (forked prongs = horns), which, in its turn, is a symbol of the sun; finally, the *maralukha* herself descends to earth down the rainbow in her role as great-mother-progenitrix" (*ibid.,* p. 81). Skrynnikova (*ibid.,* p. 82) recognises however that horns are an attribuite of the crescent, i.e., of the moon.

[14] Prothero (2005) was reviewed in Nissan (2006).

Such reconstructions of fossils are a *mixed kind:* in a naturoid-theoretic perspective, at given levels of observation, these reconstructions are *naturoids,* in that they reproduce (and combine) features — which Negrotti calls *performances* — that pertain either to the actual fossil remains, or to some presently extant animal species or other taxon which the artist (or his sources) tend to believe is similar enough to how the fossil animal may have looked like while alive. By contrast, concerning the occurrence, in nature (even in the pre-human past) of shapes that in human cultures are known because they are associated with artificial objects (such as the "slingshots" of *Synthetoceras*), neither that object nor the natural shape are *naturoids.*

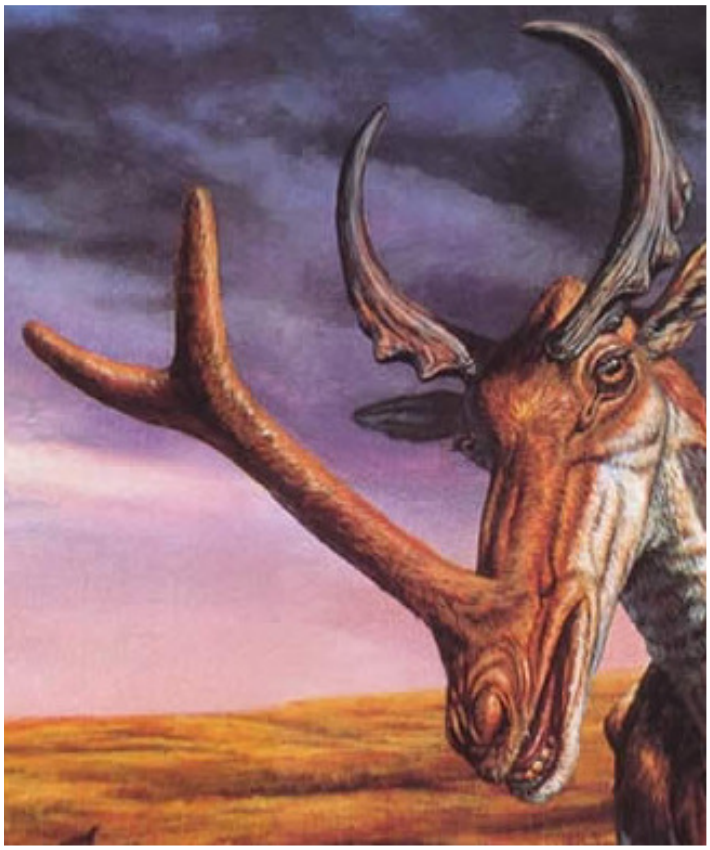

Fig. 1. The bifurcated, sling-like rostral horn of *Synthetoceras tricornatus,* in a detail of a painting by Mark Hallet. Courtesy of Mark Hallet, © 2001. In this reconstruction, the two occipital horns as shown are not knobbed, and the reconstruction is decidedly deer-like. The painting was exhibited at the Natural History Museum, Los Angeles.[15]

11. Concluding Remarks

This article argues for the usefulness of naturoid theory in humour studies. We have been mainly concerned with a joke that allegedly circulated in Piedmont, a region of northwestern Italy, and was inspired by the trolleybus being introduced in a particular town, which in turn had traditionally been considered a numskulls town in local humour. The joke mock-interpreted the workings of a trolleybus as opposed to a tram, and mock-aetiologised this from

[15] The painting by Mark Hallet is entitled "Epicyon attack Synthetoceras", and is posted at the webpage http://www.nhm.org/expeditions/rrc/images/images/MarkHelletart.html (inside the site of the Natural History Museum).

the supposedly lesser abilities of the inhabitants to cope with the built environment. Section 4, proposes a naturoid-theoretic analysis in formulae of that joke.

Section 6 discussed motor vehicles as being sometimes perceived to be animate beings. Ascription of will to inanimate objects in the context of linguistic expression is as early as the Bible: in Sec. 8, we considered an example from the Book of Jonah, as well as the grammaticalisation of the phenomenon in Italian dialects, or even in standard English.

We have also seen that naturoid theory is fairly useful for making sense of the occurrence of technoid metaphors in humour, and we considered in particular a pupil's howler from Lord (2007), about mushrooms being shaped like umbrellas because the grow in the damp. To clarify the concept, we have also considered other examples of natural shapes being likened to man-made artefacts.

Realistically, naturoid theory may be only of use to humour studies on occasion: it is only for some jokes or humorous items that naturoid theory is relevant. But when it is relevant, it is quite pertinent indeed, and helpful for clarifying the workings of humour in the given instances. Humour scholars, or at the very least, humour theorists, ought be aware of naturoid theory, as being a tool made available by epistemology.

Whereas some philosophers have been concerned with how humour works, the present application of a tool from philosophy is unusual, and only concerns a class of humour. This should not detract from its value for humour studies. The mirage of a universal theory is elusive for physicists; how much more so for humour, depending as the latter is upon human cognition and common sense, which are themselves disparate and with domains of specialisation.

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[16] The name of that journal should have rather been *Anthropozoös.*

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