

Taiga Penguins: Expressing existence and fictionality in a phenomenon-based classification

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Abstract:

The Integrative Levels Classification (ILC) lists phenomena of the real world rather than disciplines. This poses various challenges to represent in ILC fictional, hypothetical or metaphysical entities that are not listed among ordinary “phenomena”. One device to address this are ILC deictic classes for “reality/being”, “the present” and “the existent”. Their codes can be used either alone or attached to a class of phenomena, to express e.g. actual horses as opposed to horses in general. Some faceted combinations may stand for non-existent entities, like “taiga penguins” or “winged horses”. Fictional entities can be expressed by such combinations without an existence deictic. The representation of spiritual entities like divinities or demons may involve both deictics and classes defined at the cultural level, also depending on the metaphysical assumptions of the classification system. Some solutions as well as open problems are discussed with examples from ILC notation.

1.0 Introduction

Most bibliographic classifications, such as Dewey, UDC, Bliss or Colon, list classes of disciplines. This means that a document has to be classified as, e.g., one of astronomy, or one of economics, or one of philosophy, etc. The alternative approach, classification by phenomena, has been adopted by some other schemes, like the one drafted for NATO by the Classification Research Group (1969) and the Integrative Levels Classification (ILC). In such systems, a document is classified as, e.g. one about stars, or one about small enterprises, or one about being, etc.

While the other examples look quite straightforward, the last one is less so, as it requires to find a place for such an abstract concept as “being”. More generally, in a system structured to list classes of entities and to order them by some realistic principle (like that of levels or reality), it may be less evident how abstract, unreal, hypothetical or fictional entities, like e.g. demons or winged horses, should be treated. Indeed, while most users would probably agree that demonology is a really-existent branch of studies, based on the literary warrant of existing books on demons, the place of demons themselves in a scheme of phenomena is a more problematic issue.

This article starts to address such kinds of problems and proposes some possible solutions by using notation of the ILC Developing Version (that is ILC edition 2 as currently modified in view of the future publication of edition 3).

2.0 ILC deictics

Most ILC classes (a to y) represent classes of phenomena and their subclasses, such as $mqrvtteuf$ “horses” or qs “buildings”. These may be used to classify documents dealing with horses in general, or with buildings in general, which is the most common case. Additionally, phenomenon classes can be specified by deictics (A to Z), that is classes whose meaning depends on the present context, such as V “present”. Deictics are an original feature of ILC (Gnoli 2018). They can be attached to classes of phenomena, giving e.g. qsV “the present buildings”, to express actual entities that belong to the class of buildings, like the buildings that we are observing just now out of the window. Deictics can also stand alone to express a general meaning: V “the present; here and now”.

Of particular interest to our purposes here is deictic Y “existence”, which can also be appended to a class of phenomena to mean actual individual instances of it: qsY “actual buildings”. Indeed, the class of buildings qs can be used to refer to actual buildings, but also to hypothetical or imaginary buildings, like Babel Tower.

In order to treat abstract or fictional entities, a first requirement is that the metaphysics of ILC classes is made more clear. The identity and sequence of ILC classes are inspired by the theory of levels of reality, of which a major representative is Nicolai Hartmann. Although originally a scholar of the Neo-Kantian tradition, Hartmann departed from its cognitive trend by developing a realist ontology (Pietras 2011). He distinguishes between essence or “being” and its actualization in existence or “real being”. According to him, real being includes the major levels of matter, life, mind and culture, but not logical and mathematical entities which would instead be part of “ideal being”.

However, the separation between mathematics and physics is recently being questioned by

information theory and Wheeler’s “it from bit” idea. In an informational perspective, information is a fundamental entity and higher levels can be described as models of lower ones obtained by combining new kinds of modules (Gnoli, in press): thus cultural entities (ILC classes $q-y$) are seen as models of mental, living and material entities; mental entities ($o-p$) in turn as models of living and material entities; living entities ($k-n$) as models of their material environment as recorded in their adapted genes; and even material entities ($c-j$) can be seen as models of general logico-mathematical structures at the bottom level (a).

In this perspective, one could perhaps claim that all classes of phenomena ($a-y$) are in turn models of the actual phenomena as specified by deictic classes (the building out there, a given horse...). The most generic among these is class A , meaning the un-differentiated whole, Anaximander’s “boundless” (*apeiron*, see Couprie n.d., § 2) or total symmetry. While A means being as an undifferentiated whole that is not further specified, classifications characteristically analyze that whole into classes and subclasses, distinguishing between each other by the fundamental relation of difference (Floridi 2008). Such more distinct classes are the other deictics, the main classes of phenomena a to y and their subclasses.

Thus, being in general can be expressed in ILC by deictic A , while real being is Y . One could also conceive to define further deictics for fictional being, hypothetical being, conceptual being etc.; however, that approach could fall in a complex modal classification like Meinong’s one of the modes of being (Marek 2019, § 5.3). For now, we propose to limit such classes to the following:

A	reality; being; absolute; apeiron; logos; Tao; brahman; dharmakaya; God
V	the present; here and now; Dasein
X	something
Y	the existent; actual

(Notice that in ILC2, class A was $*$ and class V was A .) Another way of expressing the veracity of a class (false, fictional, hypothetical, realistic etc.) in ILC is by the perspective facet 08 , that will not be discussed further in this article. The remaining deictics: B to U , W and Z , are used for local or favourite classes and for references internal to the structure of the classification.

Class A above is labelled with many terms from various philosophical and religious traditions, that are mostly dealt with by such fields as mystic, theology and metaphysics. It can also be used to classify *noumena*, that is Kant’s “things in themselves” as opposed to the phenomena which are listed in classes a to y . Noumena are just one among various kinds of “non-phenomena” or “pre-phenomena” that can be discussed in the mentioned fields of knowledge. However, it seems that this class should be unanalyzable by definition, so that it cannot have such subclasses as Aa , Ab ... Deictic A can also be appended to specific classes to express such philosophical ideas as *mqvtteufA* “horses in themselves”; while a user is unlikely to search for such an abstract concept, she can search for horses and find “horses in themselves” listed among other results in a consistent sequence.

To summarize various ways of qualifying a class of phenomena, see the following examples:

qs	buildings (the class of all buildings)
$qs08f$	buildings, fictional
$qs08o$	buildings, hypothetical
qsA	buildings in themselves
qsV	the present buildings
qsX	some unspecified buildings
qsY	those actual buildings

3.0 Non-existent faceted combinations

Another problematic kind of classes are those standing for syntactical combinations that are conceivable, but do not have any correspondence in reality or are logically contradictory. Our reflection on them has been stimulated by a recent paper by Lee et al. (2020) investigating the facets of music. Lee et al. find that certain facets of music are not fully “orthogonal”, like facets are usually supposed to be, but rather “dependent” on each other, because the selection of a focus in one facet limits the choice of foci in another: for example, in the words of the authors, “choosing a solo instrument such as a solo violin excludes the classifier from selecting the form/genre of symphony, which is usually associated with a group such as an orchestra”. In other terms, such a faceted combination as “symphonies, for solo violin” would be a paradox.

Although Lee et al.’s study focuses on the peculiarities of the music domain, similar situations may be identified in many other domains. The very syntax of the most wide- spread classification system, the Dewey Decimal Classification (DDC), allows for “non-orthogonal” facets. For example, class 590 of zoology is divided primarily by the taxa of the studied organisms, like 598.47 penguins

(“sphenisciformes” by their scientific term). A place facet can then be added to any group of animals in order to specify the geographical area where they live and are investigated, including -1737 “taiga”. A syntactically legal DDC combination is thus 598.471737 “taiga penguins”, despite the fact that no penguin population lives in the taiga forests! It is then possible to construct a valid DDC number for non-existent entities.

Even simpler examples can be identified, also in other classification schemes: in the second edition of the Bliss Classification (BC2), *FRONIVU* is a faceted combination literally meaning “pine flowers”, although pines – like all conifers – by definition have no flowers. “Rumen” is a concept that should be listed in a facet of animal organs, and the *domain* where such organ facet is defined (in ontology terms) will reasonably be the class of all animals; this, however, can result in non-existent combinations like “monkey rumen”.

In the literature, such non-existent combinations will hardly be found, so that there will be no literary warrant for their use in indexing. However, it is also possible that some literature discusses non-existent entities for the sake of argumentation, like we just did above, or in the case of fictional characters that are discussed in the next section: a recent animated movie is *Penguins of Madagascar* despite Madagascar does not belong to the real distribution areal of any subclass of penguins...

After all, the possibility to combine any concepts is a feature of all languages, so that such unreal sentences as “colourless ideas sleep furiously” (to take Noam Chomsky’s famous example) are perfectly grammatical. The availability of deictics in ILC allows to express these cases in a more clear way. While *mqvox* “penguins” means the class of penguins as a concept, *mqvoxV* “the present penguins” or *mqvoxY* “actual penguins” refer to existing, known specimens. In the same way, “taiga penguins” is a conceptual class, while “actual taiga penguins” will hardly occur.

4.0 Fictional and controversial entities

The approach described above leads us to treat fictional entities, such as Pegasus the winged horse, by faceted combinations that are also legal (“horses, with wings”) though they will not have deictic -Y “actual”. While discussing the classification of persons, Dobreski and Kwasnik (2021) observe that “[f]ormally defining a person is challenging”, especially in such cases as spirits, animals, artificial intelligence and fictional characters. Almeida and Gnoli (2021) discuss the detailed indexing by ILC of *Pereira declares*, the story of journalist Pereira living under the Portuguese dictatorship in 1938. Although they found that not all the possible facets of persons (cf. Gnoli and Tudhope 2021) were relevant enough to be expressed in classmarks, in principle such a character as Pereira could be represented by facets for his gender, personality, occupation, age etc., much as in Beghtol’s (1991) Experimental Fiction Analysis System (EFAS): ILC can thus have *px96p92ezp91pw90y(6ce)* “persons, adult, Portuguese, born in the 19th century, dealing with newspapers”.

While this specific journalist is fictional, it might be true, as such components of his personality and milieu as Portugal, dictatorship etc. are real, and may well be relevant for people looking for information about them by a subject search. As stated by Broussard and Doty (2016, 7), “[i]f we ignore fiction as informative and dismiss such information as mere entertainment, we ignore behavioral realities, that is, what people do, rather than what a systems-based, idealized model would predict”. Fictional entities do exist, though as a fiction so that their existence is not independent in the same way as non-fictional entities. They are products of human creativity, have a beginning, and can even transcend their creators and endure as long as someone keeps them alive.

Also, the border between fiction and reality is sometimes not clear. García-Marco et al. (2010, 264) observed that “there is a blurring frontier between fiction and not fiction that is evident, and affects both sides of the line”. The human imagination can be seen as a plan or a form of reality, while the imagination itself creates what science can confirm. Aliens were fictional but nowadays many believe that they can also exist. As the topic of non-fictional documents, they are theoretical entities with some probability to be found empirically. History itself is in fact a fictional story tailed and told by historians that believe that something went on that way – it is a possible history. It can be said that both literature and history are the fruits of the imaginative effort of writers and historians, based on certain facts, which can be true or just credible (Almeida 2018).

In such cases as Dr. Pereira or Sherlock Holmes, the fiction is found in the specific character, while his facets can be found among ILC classes in a non-problematic way. Other cases are more complex, like with Harry Potter, Mickey Mouse or the Giving Tree. Here, fiction is found both in the specific individual and in some of his characteristics. Let us call them extra-natural dispositions, like magic abilities in the first character and anthropomorphic features in the two others. However, the types of these characters (mice, trees) are also represented in ILC classes. In both cases, it seems possible to use a strategy similar to that of Almeida and Gnoli (2021), where contextualization can play a differentiating role with regard to their fictional mode of existence.

The issue becomes really problematic in cases where both the characteristics and the types of the characters are fictional, like “angels” or “unicorns”. Even so, in indexing works where these characters are included, they do not need to be discriminated. Even in fantasy works, their aboutness is often perfectly mundane, involving e.g. bravery, romance, war among other human interactions, emotions and activities. We now come to the heart of the matter. Having, putatively, exhausted the alternatives, there still is a need to represent in ILC notation such entities as angels and unicorns, so these will have to be placed in some class.

One alternative is to consider them as the product of human creativity, that is, as a mentefact to be included in the class x “artworks”. Prima facie, the mode of existence of the fictional entities discussed here depends on their human creators in the respective fictional works.

Let us now consider another alternative with regard to such creatures as angels: their inclusion in a new hypothetical class of “divine entities”. Several questions immediately arise. Would this class include mythological entities? And demonic entities? Would any entities be contemplated as long as they are postulated by a religious, mystical, spiritual (or alike) creed?

At this point, it will be prudent to reflect on the potential theological influence on the ontological foundation that is intended to underpin the ILC. Perhaps it is necessary to clarify the understanding commonly held today in metaphysics, differentiating it from its original onto-theological discourse. In modern and contemporary thought, there has been a tendency to eliminate the theological attribute, retaining only the ontological component (Frăteanu 2002). There is, however, a possible difference in the use of the two terms – *metaphysics* and *ontology* – which, if not explicitly stated, could lead to misunderstandings. In this sense, the distinction made by Poli (2010, 1) will be relevant:

1. Ontology deals with what, at least in principle, can be categorized (objectified, that is, included in distinguishable categories).
2. Metaphysics deals with the problem of totality; in general, there is no way to exclude that the totality may present aspects that we may be forever incapable of rationalizing, that is, submitting ourselves to a rational analysis.

While 1 can be represented by some combinations of ILC classes and their facets, 2 should only be represented by class A for undifferentiated being.

5.0 Provisional conclusions

The discussion in the previous section makes it clear that even a phenomenon-based classification, such as ILC, is based on some assumed perspective. We can broadly describe it as a realist, scientifically-oriented perspective, though also described as an “ontologically pluralist” one (Yokoyama 2020). ILC acknowledges that reality is a whole not fully known by present-day knowledge, and provides class A for referring to the undifferentiated reality in general. Some ways to express more specific topics in metaphysics and theology may need to be developed in future, although the matter is obviously difficult.

Classes a to y are provided to express the different known types of phenomena and their many subtypes. These can also accommodate for many fictional or hypothetical entities, that can be expressed by faceted combinations not necessarily connected to any specific modal deictic. One could distinguish between combinations that are not factual for accidental reasons, like taiga penguins, and combinations that are logically contradictory, like solo orchestras or squared circles. We could not embark in such a systematic ontology of the in-existent in the limited space of this paper.

Neither have we discussed in this paper the status of abstract logical and mathematical entities, such as numbers: these are covered by ILC class a “forms” although some may find it problematic to include them in “phenomena”. Clarifying this would need to develop a more clear theory of the relationships between information as a fundamental entity and the other classes of phenomena in which information manifests itself, e.g. between the number three and the sets of three actual objects.

Other problematic concepts, as we have seen, include spiritual entities. While some aspects of religion, such as ceremonies or temples, clearly are phenomena lying at the cultural levels of reality, the spiritual entities themselves can be treated either as contents of such cultures or as metaphysical entities, according to one’s belief (reminding of BC2 alternative locations for religion, either with social sciences at P or after all other classes at Z). A combination of concepts from both these can probably allow to index documents dealing with them, although no test has been performed with ILC yet. Concepts of polytheist religions appear to be an even more complex challenge.

We can observe that keeping all these concepts together in a class of “religion” would risk being a way back towards the disciplinary approach that ILC is attempting to overcome. Although the problems discussed in this article are not commonly addressed in the daily practice of indexing, we believe that they need to be studied further in order to develop a stronger theoretical basis for classification systems.

Acknowledgements

This research was partially funded by the Portuguese Foundation for Science and Technology, within the scope of the PhD research grant SFRH / BD / 145937/2019, co-financed by the European Social Fund through the Regional Operational Programme (Centro 2020).

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