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# TAGS AND FOLKSONOMIES AS ARTEFACTS OF MEANING

ALEXANDRE MONNIN

## 1. Introduction

The advent of the so-called Web 2.0 and the Semantic Web, for all their seemingly apparent (Floridi, 2009) differences, was instrumental in a renewed interest in questions that used to be addressed solely by the philosophy of language. Amongst these, the problem of meaning is paramount to many a Webservice. The fact that philosophical *problematiques* of such a magnitude as this one are brought up both in the design process and effective use of technical devices, forces us to realize that some topics are already moving from the traditional realm of theoretical questions to an area packed with innumerable “artefacts of meaning” - tagging systems among many (we will focus on these for the time being).

This shift, that we’ve chosen to dub “artefactualization” elsewhere (Monnin, 2009a), bespeaks the now common coupling between philosophical questions and technological realities. In other words, a process that exhibits continuity as well as radical change and deeply subverts established views about the relationships symbolic forms and artefacts entertain with one another.

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In this paper, we try to give a characterization of tags, drawing from previous work accomplished in the wake of the Semantic Web “identity crisis” and at the same time with regards to keywords, descriptors, and other lexical components found in library sciences in order to dispel widespread confusion on these matters. Eventually we show that the meaning of a tag is not a question that can be restrained either to its technological or symbolic dimensions.

## **2. Tags: Material Props and Labels, between Access & Reference**

### **2.1. The Three Canonical Dimensions and the Access/Reference Duality**

In his initial definition of folksonomies, Thomas Vander Wal was keen to underline their dependence on tags, thus observing the latter's precedence:

Folksonomy is the result of personal free tagging of information and objects (...) for one's own retrieval. The tagging is done in a social environment (usually [my emphasis] shared and open to others). Folksonomy is created from the act of tagging by the person consuming the information. (Vander Wal, 2007)

Indeed, two years had to pass after the creation of Muxway, the first self-proclaimed tagging system, for the coinage of the word "folksonomies" to happen. Since then, the lack of a proper characterization of tags has consistently remained conspicuous. Research eagerly followed the trail of folksonomies, understood as a collaborative phenomenon, in the hope of leveraging users' contributions on a large scale (also known as crowdsourcing), rather than foundational trends. It is also to be acknowledged that the topic remains quite laden with confusion mainly due to the constant equivocation between the recurring and holdall notion of *keyword*, *descriptors* pertaining to documentary languages, natural language *words* used to launch search engines' queries, HTML <meta> "tags" embedded in Webpages and, strictly speaking, tags. Hence, the existing vocabulary in library sciences no doubt acted as a serious hindrance which prevented any clear-sighted depiction of the main issues at stake in this debate for a relatively long time. To draw such a depiction with accuracy, it is necessary to focus our attention on the ever-changing technological context which saw the emergence of tagging systems. Only if this condition is fulfilled will it become possible to bring the "symbolic" dimension of tags to fore and show how inescapably it is intertwined with complementary technical aspects. *Symbolic* is here to be understood as a broadly encompassing term. We have to acknowledge the influence of Belgian philosopher of technology Gilbert Hottois' thought, which contrasts "symbolicity" and technology – yet we also try hard not to underestimate the symbolic activity of technosciences. For Hottois, it is on a level of its own as evidenced in this excerpt, strikingly reminiscent of the Semantic Web:

Le langage des technosciences se veut purement objectif. En termes logiques, ce devrait être un langage purement extensionnel ou référentiel, dépourvu de toute étendue de sens. *Un langage qui étiquette le réel afin d'offrir des prises et de permettre l'organisation collective des relations opératoires* [my emphasis] – techniques, mathématiques – au réel. Un tel étiquetage est conventionnel et instrumental : ses mots n'apportent rien – ni sens ni supplément de maîtrise – à la maîtrise technomathématique des objets, des opérations et des processus qu'ils désignent. (Hottois, 1996, 91)

We thus go as far as to temporarily subsume, under the word « symbolic », iconic representations as well as linguistic signifiers.

While no canonical definition of tags is available on the academic market, thanks to early (Newman, 2005a) attempts to model tags with such ontological web languages as RDF and OWL, tag ontologies do however exist. The reifications they afford will temporarily palliate the lack of genuine definitions and provide this investigation with a commonly shared starting point – albeit an ontological one which may sound a bit ironic considering how much publicity the alleged opposition between ontologies and folksonomies has received (Shirky). (Wikipedia gives the clearest imaginable definition of reification: “making a data model for a previously abstract concept”.)

Newman's tag ontology (the same is also true of Thomas Gruber's *TagOntology* from 2005) aims to describe a single tagging process by distinguishing between:

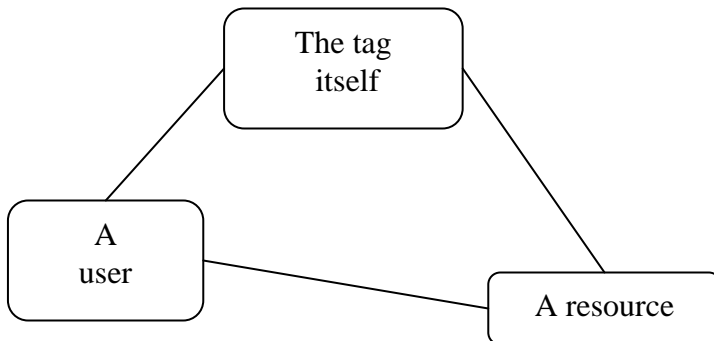


Fig. 1. – The three axis of Newman's tag reification

## Tags and Folksonomies as Artefacts of Meaning

For all its limitations, a quick survey would nevertheless show that such a threefold division is barely challenged by any alternative. With the ensuing risk of obfuscating the dual nature of tags: as much *material* devices (an echo of the concrete nature of the object after which they were named) as *symbolic* ones. To conflate the two aspects is tantamount to overlooking the simple fact that *symbolic bonds between words and things do not in the least require to be technically implemented in any way*. No technical apparatus is necessary for a word to point to an object, no artefact will ever make up for this possibility; in other words, reference pertains to the domain of semantics (or pragmatics, thereof - though the question remains open as to whether or not others factors can affect it – cf. *infra*). On the other hand, every tagging system is implemented according to the rules dictated by the needs of the website it serves (who's allowed to tag? what? how? etc.). *Reference* is thus *de facto* complemented on another level by the association, on the technical side of things (the Internet being a physical network where information is exchanged, this should not come out as a surprise), of a *tag* with a *resource*. (The word "resource" is here used in the technical sense it has received from the W3C. A resource thus understood can be anything. Cf. *infra* §3.3.)

Its ins and outs concern interfaces informational design and the tangible realities of networks and protocols - especially the Web architecture centred around the HTTP protocol (RFC 2616, 1999) and URIs (RFC 3986, 2005). "Access" is the name Patrick Hayes (2006) has given to this relationship in the ongoing debate about the "identity crisis" faced by the semantic Web (Halpin, 2006). He convincingly underlines the necessity to carefully dissociate the two dimensions in his discussion of URIs. Our main assumption is that it is essential to reckon what this discussion revealed, and transpose its result to our endeavour to characterize tags in a twofold fashion; first, as words, or rather potentially meaningful strings of characters; then as a « material » reality granting access to a resource and tightly constrained through limitations attributable to the computerized systems it belongs to (be it the Web or a local application like *Photo Gallery* on Microsoft Vista OS – cf. *infra*).

Deprived of this distinction, Newman's endeavour raises serious issues. First and foremost, such an ontology's worth has to be evaluated with regards to what it makes more explicit as much as what it obfuscates. Any *description* of tags revolving around the same three axes without showing any concern to the complexities of interfaces would seem at best questionable. Yet, once implemented, it will provide an "adequate" means

to achieve (or rather *prescribe*) interoperability between miscellaneous tagging Webservices, thus giving birth to a unified conception of tags without any room left for second thought.

Computer ontologies serve not only to describe reality but rather as tools to *build* knowledge systems around a given set of *representations*. Belonging to the same technical realm as the entities they model – at least in the digital context of the current discussion, one simply cannot confuse them with “mere words” wholly deprived of technological efficiency; a good reason to show special care and dedication towards the objects being modelled.

## **2.2. From Tags to Machine-Tags: Blank Spaces, Labels and Material Tags**

Access relationships differ from reference inasmuch as the former are altogether causal in nature, therefore material, and relate users and resources through a relation of *ostension*. Ostension as philosophers have noticed, in particular since Wittgenstein (1953), inescapably points to its objects in an indeterminate fashion, or, to update our description in a way that better suits the current realities behind the Web, to the resource it designates.

It could be argued that causality is (obviously) central to causal theories of reference, which would undermine the distinction we’re trying to draw. However, whereas in causal theories ostension plays a major role, they also tend to rely on naming conventions reintroducing, as a result, an element that escapes causal reduction. As Hayes puts it:

“reference to accessible entities still differs from access. Establishing reference by ostension requires naming conventions”. (Hayes, 2006)

The label itself is nothing more than the string of characters inscribed on the tag – construed as a material support and artefact belonging to an informational network. While contriving access to a resource (informational or not, cf. *infra*), this prop also allows users to add any required bit of texts. It thence becomes possible to index, evaluate, share or find again objects that previously overstepped the customary limits of annotation. This is precisely what the traditional post-it – a material device by all account – offers: a blank inscribable surface attachable on other (supposedly) non-inscribable surfaces. To put it bluntly: annotations where it used to be lacking. For instance, the software « Time Line », developed in France by the IRI (see *bibliography*), makes it possible to set apart and

annotate movie sequences at will with tags (a feature also found on Yahoo's recent *VideoTagGame* (SANDBOX, see bibliography) with an emphasis on collaboration typical of GWAPs, *games with a purpose*).

Another manifestation of the wide dissemination of ad hoc apparatus supporting input of meta-data by users would be Window Vista *Gallery* (Smith, 2008, 197-201). The main feature it offers is the possibility to tag photos on a local machine not simply by tying together a tag and a digital resource but rather by injecting the tag into the said resource. Contrary to post-its, often used as mere reminders with no guarantee that they won't get lost themselves, *Gallery* keeps track of every tag in the system to secure lasting access to all marked resources. The rationale behind it is no longer akin to that of shortcuts for it is well-known that whenever the target of a shortcut is moved to another directory the shortcut will still point to the same direction and miss the mark. Incorporating tags inside resources, provided tags are traceable without fail, will make the former impossible to lose – just as tags themselves. Hence both tags and tagged resources happen to form a new whole, sharing the properties of its parts, including infallible traceability.

Nothing, as betokens the analogy with paper tags, constrains users to write down strings of characters that necessarily take the shape of words – let alone lemmatised ones (whatever the syntactic constrains each tagging system tries to enforce on its users; for instance tags may be separated by either by spaces or commas). It follows therefore that it is simply not desirable to roughly equate tags with any known linguistic form. The reality is infinitely more complex than the previous schema would let us assume, for the reason that the status of the “tag” entity in Newman's ontology isn't critically addressed. However, it is not so much advisable either to get rid of a threefold partition, which has done much to help operationalize tags by adding relevant handleable ontological attributes (the choice of every facet is left upon the user; see Monnin (2009c) for a brief historical reminder), than to expand it by introducing more complexity. Namely, the already mentioned distinction between the material reality pointing to a resource (or rather, the *representation of a resource*, as we shall see) thanks to their common belonging to a given technical network, and a semiotic and linguistic relationship carried out through items that eventually boil down to strings of characters.

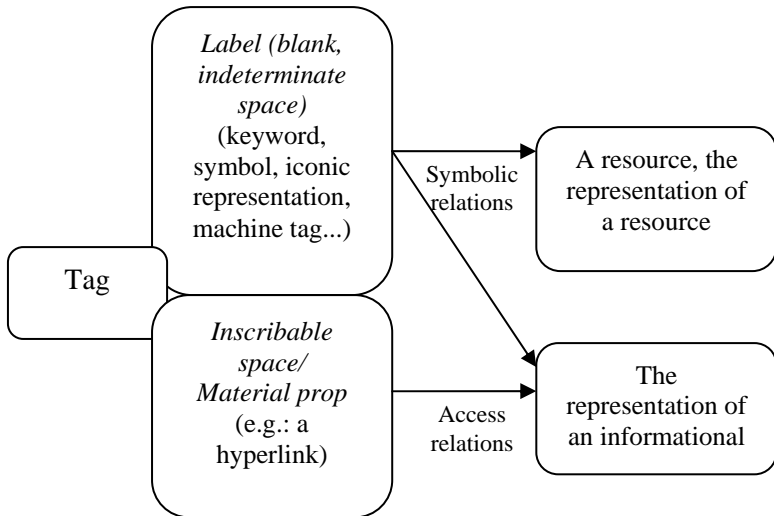


Fig. 2. – The twofold nature of tags.

Thanks to the freedom characteristic of what we chose to call an “inscribable space”, it is even possible to mix these two dimensions. Actually, Flickr’s machine tags do just that. As a lightweight way to bring more structure to users contents, they articulate three dimensions (actually this is where they first got their name: *triple tags*):

### **namespace:predicate=value**

Breaking data following this pattern allows Flickr teams to send the “facets” (as in “facet classifications”) of a machine tag to a database where they can be queried through the website API. In this way people are offered the opportunity to formulate any query starting from a given namespace, a predicate and a value or any number of combinations of the three.

These tags provide a borderline case which nevertheless illustrates the relevance of the access/reference duality integral to the model depicted in Figure 2. Historically, two possibilities make themselves available.

*Either* machine tags will be treated as mere *triple tags*. Triple tags used to be labels written according to the above schematization: their syntax heavily influenced by the XML family of languages, microformats and the spread of RDF graph-like models, provided users with an effective and low-cost way to express complex relationships with only one label. The



latter, once embedded in a URL would then give rise to a tag that would in turn give access to any dereferenceable resource on the WWW.

*Or* (a possibility not incompatible with the previous one as we will see), they no longer need to be associated to a URL. Their parsable syntax made them sufficient to grant access to information resources by way of queries launched through APIs of websites like Flickr where triple tags, once used as mere symbolic tools, became machine-readable; that is, where triple tags can be used as machine tags (*thus bringing the access/reference duality at the very level of the label itself*).“For the moment, *machine tags* are principally an *API "thing"*” (FLICKR). Such a conclusion could even be generalized to any term that is part of a query made on a search engine.

Since no explicit rules require that labels should be limited to words or specific human-readable signs, nothing prevents using computer code either. Even more so since, as vague a syntax as the one people used simply as a means of abbreviation, gave birth to a new microformat on its own as soon as machines were programmed to “interpret” it the right way. Although extremely crude, from the proto-syntax it used to be, it nonetheless became *ipso facto* a legitimate computer syntax. From this angle, machine tags are the logical product of a tendency that leverages the fundamental duality of tags.

### 3. Which Semantics for Labels?

A striking feature in the debate surrounding the status of tags undoubtedly is how often they are put on a par with keywords without further ado. For that reason, it is a pressing necessity to give precise definitions of those notions borrowed from library sciences to which they are repeatedly assimilated. Otherwise, there would be a high risk of obfuscating every attempt to clarify questions related to the semantics of labels (and not, properly speaking, of tags).

Joshua Schacter’s comment on Wikipedia discussion page:

“While keywords are not new, I believe that tagging is a larger concept than just assigning keywords to things, however - I feel that it also includes the retrieval of the set of used terms/keywords/whatever upon view of the items. Additionally, I am reasonably sure that I named this.” (Schacter)

Given their conventional nature, lexical entities in documentary languages are very well defined (at least compared to other lexical components like words whose nature may include normative elements but

whose semantics is not the result of an explicit stipulation from end-to-end). Let's examine them.

### 3.1. Descriptors

International ISO norm 2788 for the establishment of monolingual thesauri, already quoted by Manuel Zacklad, defines them as

*“vocabulary of a controlled indexing language formally organized so as to make explicit a priori relations between notions (for instance, the generic-specific relation).”* (Zacklad, 2007, p. 5)

The first consequence of this definition – if indexing is all about giving an account of a document's content – namely, the lack of referential relationship, provides indexers with the possibility to have recourse to an indefinite number of descriptors. These descriptors cannot therefore be in a one-to-one correspondence with subjects. The latter can however be apprehended through a bundle of notions drawn from a thesaurus.

Thesauri consist in networks of a limited number of relations between their components (descriptors), including genericity, specificity and association as regards the main ones. In order to pick up a descriptor, it is necessary to spell out, upstream, all the connections it entertains with other descriptors, for descriptors only exist as far as they're interwoven with each others in a controlled vocabulary which allocates a defining place to each and every one of them. Accordingly, the meaning of descriptors needs to be properly understood from an inferential point of view for relations like hyponymy, hyperonymy or synonymy only betoken the intrinsic order of the thesaurus.

An obvious objection to this claim would no doubt be that descriptors are also supposed to denote concepts. However, Manuel Zacklad rightly underlines how much these concepts are in fact the direct expression of vernacular languages, a feat that is reflected through their intrinsic variability. Because it is difficult to isolate an autonomous conceptual level from its linguistic representation (or rather, from *any* linguistic expression), a shadow is thus cast on the real scope of the referential semantics traditionally ascribed to descriptors.

One way to slightly alter this judgement would be to stress the difficulty to choose between several terms in order to represent a concept.

Cf. Zacklad:

“the creators of a thesaurus will adopt a linguistic expression, the descriptor, and consider it, *ceteris paribus*, as the best surrogate of the intended concept” (Zacklad, 2007, p. 6)

However, the exhibited similarities, relying on a semantic apparatus that includes synonymy and translation (intra-linguistic as well as inter-linguistic), they finally, correspond to the much criticized notion of “meaning postulates”, the one advocated by Rudolf Carnap in his book *Meaning and Necessity*, and famously criticized later on by his student, Willard Quine. (We lack space to further elaborate on the locus where inferential semantics, meaning postulates, and the principle of literary warrant in library sciences all collide).

As regards tags, whereas relations are *de facto* established between them, contrary to descriptors, they’re never specified.

Of course, this does not take into account systems which tap into thesauri to add more structure to a folksonomy. It could nonetheless be argued that label idiosyncrasies escape all attempt of regiment. Moreover, for the same reasons but from a referential point of view this time, the denotational status of label is an intractable question (cf. *infra* §3.4 sq.).

### 3.2. Subject Headings

A subject heading is no simple word. It is a compound lexical entity singled out from a documentary language – instead of a natural language. In other words, a syntagm created after the coordination of several descriptors. The distance between natural and artificial (documentary) languages is to be measured, on a semantic level, by the distance between the models (the model-theoretic sense of the word) used to clarify the meaning of the lexical items discussed. As Helen Svevonius (2000, chapter 8) noted, “subject language terms differ “referentially” from words used in ordinary language. The former do not refer to *objects in the real world* or *concepts in a mentalistic world* but to *subjects*. As a name of a subject, the term “Butterflies” refers not to actual butterflies but rather to the set of all indexed documents about butterflies” [my emphasis]. What is at stake in formal approaches to semantics is, amongst other things, what Emon Bach (1989) called the “natural language metaphysics”, a critical analysis of how linguistic components denote (to which entities they refer to). As regards subject headings, the putative domain of their model (the set of all the things they denote) is composed of documents about the same content; which share a common theme.

The norm AFNOR NF Z 44-070 adds this:

Each subject heading corresponds to only one subject, simple or complex. One document can have more than one subject thus prompting the wording of a plurality of subject headings. (AFNOR, 1986)

Beyond the well-known challenge raised by lexical entities to formal semantics, every attempt to interpret a language according to only one model is doomed to shed light on the design process behind the production of that language rather than on its effective use. Tags, on the other hand, are free from this limitation. One need only point at “*to-do*” tags (Bach, 1999, Marlow et. al. 2006), traces of actions related in one way or another to resources without the need for them to denote them, to dismiss any attempt to equate subject headings and tags (labels).

### 3.3. Keywords

Admittedly, it is difficult if not altogether impossible to reach a consensual agreement regarding the definition of keywords. The very success of this notion comes with a high price to pay: unrestrained fuzziness. From “natural language” queries typical of search engines to keywords as defined in library sciences the gap seems almost preposterous. That is why only this well-established usage will be our concern for the time being. As the norm AFNOR NF Z 47-102 puts it, a keyword is a “word or group of words picked up either from the title and the main body of a document or from a document request, in order to describe its content”. A keyword, albeit bound by its origins to natural languages, is the result of a careful analysis of a written document. Tags, thanks to the versatility of the digital environment of the WWW, best characterized by the word “hypermedia”, are used with a variety of resources that far exceeds written documents from which keywords are extracted. For this simple reason, the label of a tag cannot be assimilated to a keyword. Huge as it is, the variety of written documents is nothing compared to that of tagged resources since the latter may indeed include photos, audio recordings or even real-world events as we shall see. Let’s go even further by noting that the impossibility to extract keywords from audio recordings (computerized metadata being another thing) or world events (the website “Upcoming.org”, for example, allows one to [machine] tag events) stands in sharp contrast with the main feature of tagging: the opportunity to add strings of characters to a resource, a resource being, according to the W3C “whatever might be identified by a URI” (RFC 3986). A logic of expression, wherein content is *added* rather than *parsed*, takes over the one behind the definition of keywords. With the emphasis shifting solely from description towards expression, we also get the means

to distinguish “real tags” from fake ones. Those applications which quite spuriously pretend to produce *tags* from text analysis are in fact only able to *extract* keywords whereas tagging is, in a very large measure, tantamount to *adding* absent or rather *extrinsic* content to a resource.

### 3.4. Labels as Blank Spaces

The most striking contrast with previous existing bodies of practices and norms, from the point of view of professional indexers, must have been the shift from *a priori*, controlled indexing to the current freer forms. An immediate consequence of this newly acquired freedom, in a nutshell, is that labels are no longer terms of a thesaurus, subject headings, or even words, but all this at the same time and even much more than that, including, among other things: triple and/or machine tags, URLs, smileys (iconic representations in general), messages written in Windings, code, etc.

Nothing prevents infusing a sign like “@” with an idiosyncratic meaning, to the extent that one fears not dwelling at the frontier of the idiolect and distance oneself with the received sociolect. Machine tags are another borderline case where machine-readable computer code, designed specifically in accordance with blue-ribbon Webservices, supplies human-understandable information owing to an artificial syntax that mimics that of natural languages (those technological devices we qualified as “artefacts of meaning” are deeply teratological in nature from a linguistic point of view; they deeply alter our language games in a way previously inconceivable).

If the freedom to choose one’s own labels that is now offered to users was to be properly acknowledged then there would remain only one conclusion to be drawn. Contrary to subject headings or descriptors whose semantics is rigidly established in line with a single model of interpretation or through a well-ordered lexicon – thanks to a small number of relations established and postulated in order to evacuate every remainder of ambiguity – labels written on tags are able to comprise various entities, linguistic or not, thus forbidding all global theorizing on the semantics behind their use. In other words, *the label of a tag is a blank space that is fit to accommodate any sort of inscribable entities* (as far as the system is made to be compliant.). As such, it is therefore completely devoid of any fixed semantics (such a question doesn’t even have a sense as regards tags understood exclusively as technological devices).

## 4. Resource Indeterminacy

Rashmi Sinha (2005), in her widely quoted analysis of the cognitive dimensions of tagging, undertakes an explanation revolving around the idea that it constitutes a softening of categorizing, one whereby directories and their well-publicized shortcomings are no longer needed. According to Sinha, in order to make use of directories one has to pay a tremendous cognitive cost, an outlay that may be easily dispensed with thanks to the low-entry barrier of tagging. Of course, this is not to say that everyone by simply using tags is automatically rewarded with the skills of a professional indexer. Yet, indexing as an activity, now that it allows a higher rate of errors, redundancies, nonce words and hapaxes, is certainly made to suit, more so than any preceding comparable system before, the layman's needs.

Such a vision, though appealing, is nevertheless missing a fundamental element. In spite of its seeming simplicity, tagging hides a repeatedly overlooked difficulty. It has been painstakingly argued that tags instantiate relationships of reference and access (and many others but we've been only focusing on these two). Now it's time to ask another question: to what? Real entities? Digital resources? Far from obvious, the answers to this question echo in a large measure those raised by dereferenceable URIs on an information network such as the WWW. The various forms of "aboutness" displayed by tags suggest the possibility that each of them corresponds to a different kind of entity.

As regards those available on the Web, they qualify for a large part as "intentional artefacts" – to borrow a concept from Daniel Dennett (1990). The way we deal with such artefacts is unavoidably tainted by their aboutness. An image might be *about* something as well as a text or an audio recording. Hence, whenever a user is tagging an image for instance, he is at the same time asserting something about (and referring to) an entity located either on the Web and/or outside of the Web (the image *per se* vs. what it stands for), and leveraging the possibility to *access* it afresh at any time (the picture located on a given website where it has been allocated an identifier which is also – potentially – an address).

This relation of access itself is just as indeterminate as any linguistic description.

(In order to circumvent the phenomenon called *deixis*, the concept of «*deferred ostension*» is sometimes used to distinguish the index from the referent, *pointing at* from *referring to*. It follows from this perspective that "*monstration*" (to use a French word) is located halfway between

technological access and linguistic reference: an area where language embodies gestures – and extends as far as to incorporate tools and artefacts.)

True, the resolution of a URI into a URL is the result of a controlled negotiation between agents dictated by the technical standards defined in protocols (most notably HTTP). Once a page (what exactly is a Webpage remains a difficult question.) has been generated though, the exact nature of what has been described thanks to the label of a tag remains open: is it the page itself, or a part of it? And which one? A blog post, a commentary or both? The hyperlink itself? An action that should be prompted by accessing something like a resource?

We've already alluded to the intangible nature of resources. Strictly speaking, to be a resource is tantamount to being just about anything. Still, since only informational entities are available on the Web, a notion was eventually forged in order to single out a subclass of resources in a more explicit fashion; that of "information resources" (Halpin and Presutti, 2009, 521-534). Information resources are described as resources which can be represented online (an information resource might be "the weather today", its representation would then, for example, be a webpage generated at a given moment containing the daily weather report). The role of agents is, for each HTTP (*Hypertext Transfer Protocol*) request, to generate a representation in accordance with a set of technical parameters. Of course, agents have their say in determining the kind of representations the user of a tag is given access to. However, from her point of view, what the tag is able to retrieve is inescapably intermeshed with what the label of a tag refers to, except when the two strongly differ (a real-time event can hardly be taken for a webpage describing that event, while a given document can, *ceteris paribus*, undergo conversion from PDF to HTML or any other format that maintains its legibility without too much alteration).

Hence, whenever access and reference are jointly associated, as is the case with tags, what *the user* may have access to (whenever tags play a pivotal role in her browsing) happens to be filtered by the labels she used when she referred to it (and in some cases it happens that access is given to just what a label refers to, for instance when the representation of a resource is indistinguishable from the resource itself; though a difference remains in principle which explains why reference may be made specifically to a resource and not to its representation, thus inducing more confusion – or complexity, depending on one's standpoint).

## **5. Conclusion**

We postpone the examination of this question for further research, in the hope that a full blown inquiry into the hows and whys of this (at least) “bi-dimensionalist” (to distinguish it from two-dimensionalist approaches to meaning) approach to meaning, rooted in language, semiotics and technology, would help to identify and evaluate enough relevant case-studies for a theory primer to emerge. Comparable phenomena of indeterminacy have been already identified in natural language use under the name of “systematic polysemy”. Yet, it remains to be seen whether or not lessons learnt from studying this issue are relevant – let alone transposable – when it comes to such artefacts of meaning as tagging systems. If technology is truly altering the rules of our languages games the task that is awaiting us is to honestly assess to what extent.