Douglas Niño and Germán Serventi

Universidad Jorge Tadeo Lozano, Bogotá

Cognitive Type and Visual Metaphorical Expression

The purpose of this paper is, first, to present a systematic cognitive type theory, which we believe can provide a better explanation of the semantic work of iconic signs than the iconic type theory proposed by Groupe μ (1992). The second objective is to present Conceptual Metaphor Theory (CMT) and to show its limitations in accounting for visual metaphoric phenomena. We suggest those constraints can be corrected with the cognitive type model. At the end, we attempt to illustrate how the cognitive type notion can explain visual metaphoric phenomena, taking into account the main aspects of CMT.

Keywords: visual metaphor, iconic type, cognitive type, idealized cognitive model, Conceptual Metaphor Theory.

1. INTRODUCTION

Conceptual Metaphor Theory (CMT) (Lakoff & Johnson 1980) offers an account of certain conceptualization phenomena. George Lakoff (1993) tries to show it can provide an explanation of how metaphorical expressions (known as 'tropes' in the rhetoric tradition) work. This has resulted in linguistic metaphorical expressions being privileged while other expressions, manifest in other signification systems, have been overlooked. We hope to show how visual iconic metaphorical expressions can be understood within the framework of CMT, and why it should take into account some of the peculiarities made evident by their manifestation – even though such peculiarities are, by no means, exclusively visual.

Among the visual semiotics concepts that have been proposed for understanding how visual iconic metaphorical expressions work – "iconic tropes," by Groupe μ's (1992) definition – there is *iconic type*, suggested by that same Belgium group. However, that notion – which primarily involves perceptual knowledge or understanding (Klinkenberg, 1996: 393) – has limitations when it comes to explaining the semantic effects of iconic signs: particularly, how they remit non-perceptive conceptual information. We propose replacing iconic type with *cognitive type*: a notion first advanced by Umberto Eco (1997). We believe it helps establish a better understanding of both the semantic bearing of iconic signs and their purport in a visual iconic metaphorical expression. In our opinion, this substitution improves the comprehension of visual iconic metaphorical expressions in CMT.

The structure of this paper is as follows. First, we describe and assess Groupe μ's proposal concerning the notion of iconic type and its role in visual metaphorization. Second, we outline

Address for correspondence: Maestría en Semiótica, Universidad Jorge Tadeo Lozano, Carrera 4 N° 22-61, Bogotá, Colombia, *edison.nino@utadeo.edu.co, germanserventi@yahoo.es.*

Umberto Eco's notion of cognitive type as an alternative to Groupe μ's notion of iconic type, together with our proposal for cognitive type's four-dimensional internal structure. Third, we introduce Lakoff's idealized cognitive models (ICM) and compare them to Eco's cognitive types, to show how ICM can take advantage of information proposed and organized by cognitive types. Fourth, we outline CMT and raise several critical points concerning its capacity to explain visual metaphorical expressions, which, in our opinion, can be tackled by taking into account the contribution of cognitive types. We end with an analytical proposal showing how cognitive types can help to comprehend the semantic work of visual metaphorical expressions.

2. THE ICONIC TYPE

Iconic type is one of the key concepts in Groupe μ's semiotic model of iconic signs (1992). It is presented as a mental model that organizes perceptual information and allows visual recognition of objects and their iconic representations. The iconic sign model (Groupe μ 1992: 120-138) is grounded in 'co-typeness' (*cotipie*): any iconicity arises because both an eventual referent and an iconic significant, which pretends to represent it, remit the same iconic type.

According to Groupe μ, iconic types make it possible to organize categorical and perceptual object information. Any given iconic type functions as the definition of an object, including information about the classes to which the object belongs and the invariant perceptual elements that comprise it (1992: 85). That said, when dealing with the notion of type in their work, the Belgian group seems to suggest that perceptual information is what really defines an iconic type's semantic role.[1]

Serventi (2008) illustrates the problem with this proposal: namely, by privileging perceptual information of the iconic type, the semantic function of the iconic sign is limited misleadingly to mere perceptual recognition. This implies that the function of the iconic sign in visual messages is exhausted in recognition; for the same reason, interpreting an iconic sign consists merely of recognizing the representation of this or that object in its visual configuration. Obviously, this oversimplifies the semantic function of the iconic sign: recognition of the object represented is just the first step: one that opens the door to the association of a great deal of non-perceptual information. The solution to the problem is not achieved by distinguishing two different types or forms (in Louis Hjelmslev's sense): one concerning the plane of expression and the other the plane of content, as proposed by Klinkenberg (1996) and Sönesson (2006). In developing a theory of iconic motivation – according to which one's models of objects are responsible for one's ability to recognize their visual

[1] This is evident in several passages. First (1992: 82), doubt is voiced whether the repertory – as a set of types – describes the expression or the plane of content. Second (1992: 130), the notion of type is associated with that of 'perceptual concept', as previously proposed by Rudolf Arnheim (1989: 49-51). Finally (1992: 131), iconic type is compared to linguistic meaning. Groupe μ (2004: 76-77) associates Stephen Palmer's early model, which inspired the hierarchy *supratype-type-subtype* (1992: 89, 137), with referential semantic articulation, or *arborescence de type Π*.

iconic representations – it is important to ask if those models also contain non-perceptive information about objects: information one also learns from experience. A theory that accounts for how one organizes the information one has about objects seems more useful than distinguishing between perceptive (plane of expression) and non-perceptive models (plane of content). As we will illustrate, we believe that Umberto Eco's notion of cognitive type poses an accurate solution to this problem.

3. ICONIC TROPE

Groupe µ defines *iconic trope* as that phenomenon that gives rise to visual metaphorization. The iconic trope is an iconic rhetorical figure whereby an iconic entity (perceived grade) appears to substitute for another iconic entity (conceived grade), insofar as a general zero grade puts it in evidence. In other words: from a horizon of expectations imposed on the enunciate, stemming from the redundancies and *isotopies* of statements and restrictions of the iconic code, an element appears in a statement that neither concords with the zero grade nor fulfills the iconic interpretation. Thus, the interpreter must advance a new interpretation, in which the content of the perceived grade amalgamates with the content of the conceived grade (1992: 234-247).

Yet – regardless of how the iconic type organizes perceptual information – the iconic trope would not be a figure of content but of expression – or, at least, a figure whose semantic effect has a bearing only on operations involving 'perceptual concepts', as Arnheim indicates. Of course, Groupe µ is aware that tropes generate far-reaching semantic effects when one's encyclopedic competence intervenes (1992: 138, 259, 270, 274). However, it is unclear how their iconic sign model – where the notion of *type* is fundamental, though insufficient – explains those semantic non-perceptual effects of iconic rhetoric. They should rather be explained by appealing to the generic notion of encyclopedia. On Groupe µ's approach, an iconic trope only becomes different from a linguistic metaphor at the plane of expression, as the two function the same way at the plane of content. However, this seems to contradict their own idea that iconic sign and linguistic sign cut the plane of content differently.

We believe that these problems arise because of an excessively *perceptual* conception of the iconic type that facilitates understanding perceptive information as part of the plane of content[2] but neglects the systematic inclusion of another kind of information – non-perceptual – established in the type production process. We propose replacing the notion of iconic type with Umberto Eco's notion of *cognitive type*, which seems better able to explain the visual metaphorization phenomenon and the semantic work of iconic visual signs, pursuant to the requirements of contemporary metaphor theory.

4. THE COGNITIVE TYPE

In *Kant and the Platypus*, Umberto Eco introduces a theory to explain how external objects participate in semiosis (1997: 143-258). His proposal does not address the empirical object directly. However,

[2] Eco arrives at this same idea in *Kant and the Platypus* (1997: 419*ff.*).

one's experience with it – whether direct or indirect – bears on the structuring of a semantic model (1997: 419*ff.*) correlative to a cognitive model, which Eco refers to as a *cognitive type* (CT). On the one hand, this model lets the subject organize information about the object that he has stabilized from his past direct experience with it. On the other, it allows him to organize information that he has culturally acquired from semiotic practices, where one finds information about the same object. For Eco, the CT is tantamount to a competence. Overall, this model lets the agent determine those contents that he believes interpret the object. That the subject determines which contents do or do not interpret the object highlights the subject's internal conceptual organization: hence, the CT notion. Those contents are manifest in several semiotic practices such as verbal language, visual imagery, and, indeed, any type of representation used to 'talk' about an object.[3]

Analyzing the contents manifested by subjects when they interpret an object, Eco suggests that the objectual information has four components: *iconic*, *propositional*, *narrative*, and *thymic*. The *iconic component* is the most important and the reason why the CT is referred to as a 'type' (1997: 153): it includes all relevant multimodal perceptive information for object recognition. The *propositional component* is not clearly explained by Eco. It can be understood as that information about an object that is expressible propositionally. Eco includes Gibson's (1979) *affordances*. The *narrative component* includes narrative schemas: action sequences about the object. The *thymic component* records information about the emotions that the object produces.

In this way, CT organizes all the information relevant for interacting with an object. Every subject has a private CT organized according to her own experience. However, so as not to fall into unbridled cognitive relativism, Eco suggests that subjects negotiate semantic values through actual semiotic practices: that is, the contents that interpret their cognitive types (CCTT) (1997: 160). Eco distinguishes three types of contents: *nuclear contents* and two types of *molar contents*. *Molar contents* are comprised of widened objectual knowledge that is not needed for perceptive recognition. They can either be individual (MC_1) or restricted to certain communities, such as those of a scientific nature (MC_2) (1997: 165). *Nuclear contents* (NC) are comprised of the most common interpretants that circulate among members of a society. Eco has the CCTT correspond to nuclear contents. We disagree. We believe that, because the CT is private, it has all the information a subject has acquired about an object. The distinction between NC and MC is socio-semiotical, relative to the encyclopedias in force in a culture at any given time. The CCTT underlies concepts expressed by both nuclear *and* molar contents.

Eco's notion of the CT incorporates Groupe µ's notion of iconic type, underscoring the semiotic role of perception in object recognition. Eco links to the CT three further components – narrative, propositional, and thymic – thus allowing for the development of stronger visual semantics. However,

[3] We adopt Eco's usage of 'content' in its public and not its mental sense (1997: 160-161). Thus, the CT has no contents; rather, the concepts that structure the CT are interpreted by the contents.

he is not clear about the CT's internal organization. Using as guide one of the tasks proposed by Serventi (2008), we consider it necessary to develop a systematic model of that organization.

Before presenting our proposal, it is important to clarify the distance separating us from Eco's original view. We maintain Eco's original architecture, although we have changed some terms. Four dimensions constitute our version of the CT: *perceptual*, *propositional*, *narrative*, and *affective*. We prefer the expression 'dimension' over 'component'. We want to insist on the differentiated nature of each dimension, even though all are conceptual. We prefer the expression 'perceptual' over 'iconic', because 'iconic' refers exclusively to representational phenomena, and – in semiotic terms – the CT is not a representation of the object. We have decided to use the expression 'propositional dimension' and avoid 'affordance', on the conclusion that Gibson's affordances should not be included in the CT. As stated by James Gibson (1979) himself, affordances constitute ecological information obtained directly from stimuli. It is better, we feel, to contemplate this phenomenon from within the framework of egocentric semantics and not an allocentric framework.[4] We prefer the expression 'affective dimension' over 'thymic' because – as we will show – positive or negative affective valuation is just one part of this dimension, which also includes orientation and intensity. Finally, we follow tradition in using 'iconic sign' and ignoring Eco's use of 'hypoicon'. In the next section, we offer a tentative outline of the CT dimensions, as summarized in Table One.

[4] In our opinion, two types of semantic information are retrieved in the meaning attribution process: *allocentric* and *egocentric*. *Allocentric semantics* accounts for information collected on common objects and contexts and includes the CCTT. *Egocentric semantics* accounts for the visual scene in its spatial, on-line aspect, which, we think, has received too little attention in visual semiotics; our present proposal makes it part of allocentric semantics.

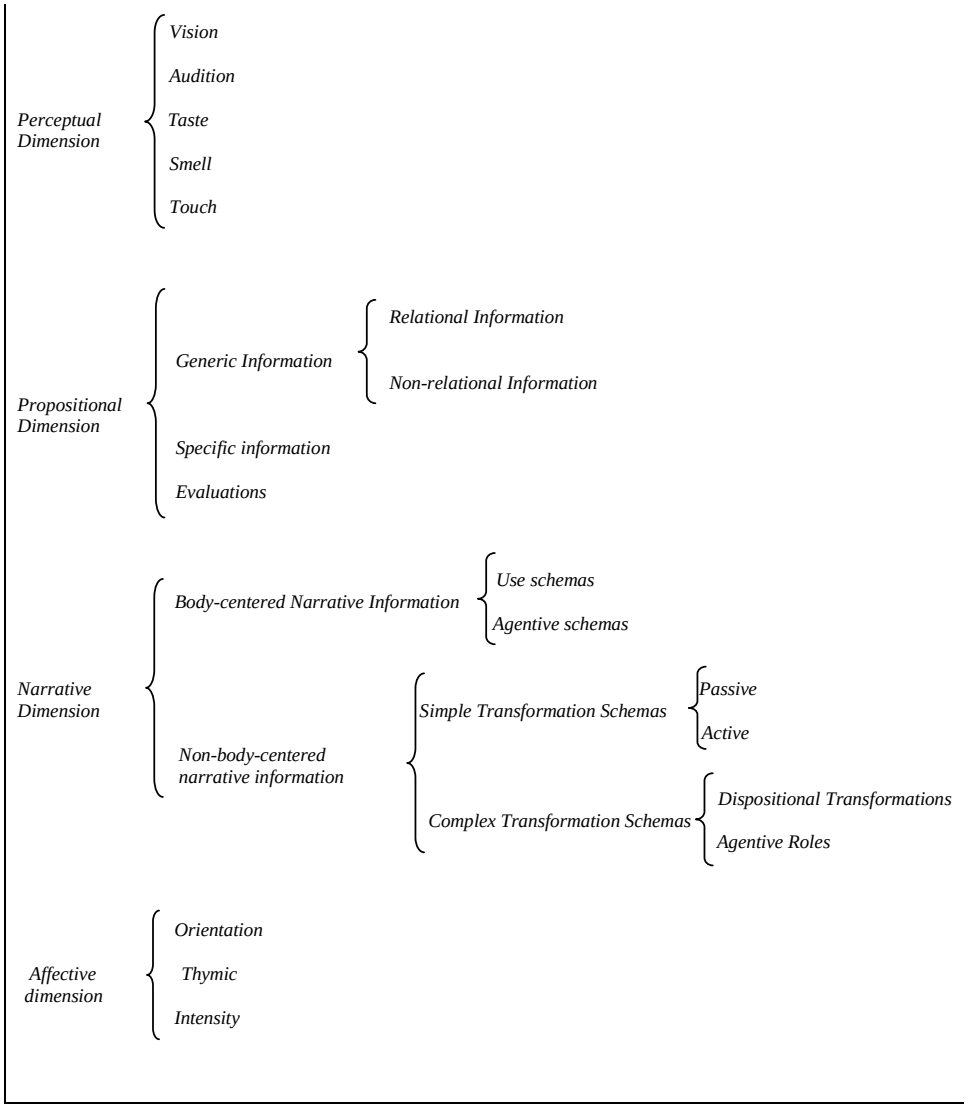

Table 1: Cognitive type structure.

4.1 Perceptual Dimension

This dimension includes perceptual multimodal information allowing for object perceptive recognition – information that is both static and dynamic. For instance, the CT of a human being includes not only static perceptual information (e.g., volumetric appearance) but also stabilized cues that let the person be recognized as performing different activities (e.g., walking, grasping, hitting).

Perceptual theories of recognition should support an accurate description of this dimension for every sensory modality. It covers what Groupe μ understands as iconic type, but goes beyond that concept, including not just visual but multimodal information, as well as dynamic/kinetic information on objects that cannot be derived via Groupe μ's visual de-codification model (1992: 79).[5] Most importantly, this information should be stabilized. It is difficult to say whether the CT of a brick

[5] This makes Groupe μ's model 'akinetopsic'.

includes information about its taste, because one generally does not consider that relevant for interacting with bricks – although they do, presumably, taste of something.

4.2 Propositional Dimension

This dimension organizes information on the status of an object. This information can be divided into generic, specific, and evaluative.

Generic information is information about the inclusion of an object in diverse categorical or paradigmatic sets, including relational and non-relational information. *Relational information* is information about the relations an object has with other objects. These relations constitute 'contiguity webs', which let objects be strongly or weakly related. Consider a screwdriver. Objects strongly stabilized by contiguity webs appear in the CT of //screwdriver//. Thus, a screwdriver relates to objects such as //screw//, //garage//, and //mechanic//. *Non-relational information* is information about the inclusion of the object in classes or categories.[6]

Specific information is object-changing information stabilized through time. It has a historical nature. It can be shared as part of history, in the usual sense; or it can be individual: e.g., knowing that John Doe's cat fell sick of rhinotracheitis when it was a kitten. Shared, it corresponds to nuclear contents; individual, it pertains to molar contents. Specific information should not be confused with the narrative dimension, although it can be presented as such: e.g., 'Napoleon died in 1821 on the island of St. Helena'. Specific information is concrete and referenced to spatiotemporal frames; whereas the narrative dimension, as we will show, consists of ahistorical – though culturally determined – narrative schemas.

*Evaluati*ve *information* is found in axiology values, deeply rooted in cultural or individual life, emerging via various motivations revealed in concepts like «antiquity» concerning a cathedral, «elegant» concerning a tuxedo, or «generous» concerning a person. These motivations are linked to the affective dimension.

4.3 The Narrative Dimension

This dimension relates to what an object is doing: i.e., about transformation from one state to another. Narrative information is schematic and independent of its instantiation at a particular time or place: i.e., regardless of any distinction between the concrete objects or subjects involved. It includes body-centered and non-body-centered narrative information.

[6]See e.g. (Rosch 1981, Lakoff 1987, Kleiber 1990, Gibbs 2005). We will not discuss the general problem of categorization; but certain conventional categories are stabilized in the CT: e.g., «bird», to which «dove» belongs.

Body-centered narrative information includes information on actions that can be performed by the interpreter's own body. The object in question, or 'O_{CT}'[7], fulfills an objectual function. It is not a subject-of-doing, but that which 'suffers' the action. It is something a subject would use – with his body – in a certain way. This kind of narrative information further divides into use schemas and agentive schemas.

Use schemas are organized in a structure where Subject (S) performs Action (A) with Object (O_{CT}) to fulfill Purpose (P). Table Two illustrates a possible use schema for a screwdriver.

Cognitive Type	**Use Schema**			
	Subject	*Action*	*Object$_{CT}$*	*Purpose*
«screwdriver»	variable subject	«unscrew»	//screwdriver//	*to fasten or loosen a screw*

Table 2: Screwdriver use schema.

The action described in the table with the word 'unscrew' should, in the CT, should consist of a series of instructions how to perform the action with one's body. The most informative thing in this kind of schema is the action, because the other elements can change. To understand the schemas that follow, it is important to keep in mind the structure that defines this use schema: S/A/O_{CT}/P.

Agentive schemas are explained by the notion of *agenda* (Gabbay & Woods, 2003). They may be defined as a set of ordered actions or activities that a subject performs to fulfill an aim or agenda. Each activity can have its own sub-agenda. Consider the agentive schema «fishing», whose aim is *to catch a fish from a source (river, sea, lake, etc.).* Fishing is really the set of ordered activities for achieving that aim, which, expressed in nuclear contents, would be something like: «to prepare the fishing line, fishing rod, and lure», «to assemble the lure on the fishing rod», «to throw the fishing line into the water», «to wait», «in the case of pulling, to haul in the fishing line to catch a fish». Each of these activities is constituted by its own S/A/O_{CT}/P schema; each has its own sub-agenda serving the ultimate aim: to catch a fish. The «fishing» agentive schema is shared by several CCTTs, including //fishing line//, //fishing rod//, //fishing reel//, //lure//, //bait//, //fish//, and //fisherman//.

Meanwhile, *non-body-centered narrative information* includes information about object$_{CT}$ transformations that do not depend on an interpreter's intervention. Here, the object$_{CT}$ is a subject-of-doing, though not necessarily an agent: i.e., it changes without an agent-interpreter's agency intervention. This information can be sub-divided into *simple* and *complex transformation schemas*.

Simple transformation schemas comprise information organized on the basis of a transformation (i.e., action) involving only one actant, which is the object$_{CT}$. It sub-divides into two types: passive and active.

[7] Expressions such as 'O_{CT}' or 'object-in-question' refer to a possible object concerned with the CT alluded to.

With *passive* schemas, the object$_{CT}$ suffers the transformation without the intervention of its own agency. Consider a withering flower: it is the transformational actant, but one does not attribute agency to it: i.e., a will to wither.

With *active* schemas, the object$_{CT}$ performs the transformation by virtue of its agency: that is, its will to transform its own state. An example is a barking dog, which transforms its own state from not barking to barking.

Complex transformation schemas involve more than one actant: i.e., both a subject and object. They sub-divide into dispositional transformations and agentive roles.

Dispositional transformations include the object$_{CT}$ transformations that would be produced by an external subject: i.e., if the object were subjected to certain actions, its state would be transformed. Consider the breaking of a wine glass, either by subjecting it to pressure or smashing it against a wall. This dispositional schema could be expressed by the content «fragility».

Agentive roles find inspiration in the notion of *role*, defined by Greimas as a 'denomination that subsumes a set of functions or behaviors' (1970: 298-299). We define it as a set of agentive schemas: i.e., a set of activities characterizing an acknowledged social subject. An example is a police officer. A police officer performs a role that supra-ordinates such agentive schemas as «to patrol», «to arrest», «to guard», etc. Insofar as they are performed with objects, each of these agentive schemas is composed of use schemas. Therefore, agentive roles constitute highly complex narrative organizations structured by the schemas mentioned earlier.

4.4 The Affective Dimension

A culture does not distinguish objects merely on the basis of having different aspects, involvement in metonymic or categorical relations, historical purport, or narrative configuration. Objects can also be distinguished by their affective values. Any object can be described from an affective standpoint, though some objects such as //rat//, //tarantula//, and //vomit// have more salient affective values than others.

It is important to remember that the affective dimension is not an *emotion*, which would make it a matter of performance; nor is it an *emotional concept* such as «anger», because anger is not an object$_{CT.}$. Neither is it an *evaluation*, which is an axiological matter of the propositional dimension. The affective dimension refers to truly *affective* information of an instructional nature (Niedenthal, 2008) that has been learned through one's direct or indirect interactions with objects. Think of the negative response most people have to sharks, even if they have never come into direct contact with one. This 'instruction' can be described along three axes, inspired by tensive semiotics (Greimas & Fontanille 1991, Fontanille & Zilberberg 1998, Zilberberg 2006): (1) *Orientation* is the orientation between a subject and an object, which attraction joins and repulsion disjoins. The resulting category is *attraction/repulsion*. (2) *Thymic* defines qualitative affective values that label the object as positive

or negative. The resulting category is *euphoria/dysphoria*. (3) *Intensity* defines affective intensity or quantity relative to the object. The resulting category is *intense/distense*. All three are discontinuous, non-discrete, tensive categories. Something can be more or less repulsive, euphoric, or intense.

Table Three shows the affective organization of several objects.

Object	*Attraction/Repulsion*	*Euphoria/Dysphoria*.	*Intense/Distense*
//snake//	repulsion	dysphoria	intense
//trophy//	attraction	euphoria	intense
//chair//	no repulsion	no dysphoria	no distense

Table 3: Affective analysis of several objects.

CCTT-stored information participates in interpretative processes in two ways: first, in the way significance consists of the mere manifestation of certain items and leaves the others 'drowsy'; and second, in the way manifest items are taken as operands for making inferences, whose products transcend information particular to the CT.

To conclude, a CT model of this sort – in contrast to Groupe μ's notion of iconic type – enables one to understand the semantic universe of objects not only in perceptual or categorical terms, but also in narrative and affective terms. It is not difficult to find visual images in which iconic representations require more than perceptual knowledge for interpretation. In many cases, the most important information may not be perceptual. Finally, this model can be useful not only for visual but also for objectual semiotics.

5. IDEALIZED COGNITIVE MODELS AND COGNITIVE TYPES

Idealized cognitive models (ICMs) are those cognitive models that account for one's conceptual system. According to Lakoff (1987: 271-292), they are organized on the basis of five structuring principles into image-schema, propositional, metaphoric, metonymic, and symbolic ICMs.

*Image schema ICM*s are directly meaningful, preconceptual, unconscious, and highly flexible. They are highly schematic gestalts that capture the structural contours of sensorimotor experience by integrating multimodal information. They include such schemas such as 'CONTAINER', 'PART-WHOLE', 'LINK', 'CENTER-PERIPHERY', 'SOURCE-PATH-GOAL', and 'UP-DOWN' (Lakoff 1987: 271-280).

*Propositional ICM*s include elements with properties, as well as the relations between them: particularly, part-whole relations. They come in five kinds: (1) simple proposition, (2) scenario, (3)

feature-bundle structure, (4) classical taxonomic structure, and (5) radial category structure (Lakoff 1987: 285-288).

Metaphoric[8] *ICM*s involve partial mappings from source to target domain; it is assumed that other models structure the source domain. For instance, the 'LINK' image schema and the mapping 'SOURCE-PATH-GOAL' (see Section 6) help structure source and target domains.

*Metonymic ICM*s are, for Lakoff (1987: 288), those that involve mapping inside a single conceptual domain structured by another ICM. These ICMs account for the construction of stereotypes, models, or ideals where an individual stands for the entire category. This 'standing for' uses a 'SOURCE-PATH-GOAL' image schema.

Contra the other four types, which are purely conceptual, *symbolic ICM*s are closely linked to language, stemming from the association of linguistic items with conceptual ICMs. They represent those knowledge structures Fillmore calls 'semantic frames'. The meaning of each lexical item remits an element in ICM.

In the strict sense, these five types or structuring principles are not equivalent to ICMs – notwithstanding Lakoff's assertion (1987: 284) that they are. The fifth is the one possible exception. In other words, these principles do not provide a classification of ICMs, but they do account for the way ICMs emerge. This is so because, first – as Lakoff suggests (1987: 68, 113-114) – one ICM can have its basis in several structuring principles; and, second, the image schema principle is the basis for all the others.

5.1 ICM and CCTT

If one compares the ICM approach to that of CCTT, one could consider the four dimensions of CCTTs criteria for information organization, but not structuring principles in the way they are for ICM. Whereas ICM structuring principles are meant to allow for conceptual system structuring, CCTTs are models of 'common object' information organization. Consequently, although one has ICMs for concepts like anger, one does not have a CT for it. Looking the other way around, the object information afforded by CCTTs come not only from different ICM structuring principles, but also from different ICMs. Consider the notion of 'screw'. According to what we proposed earlier, 'screw' presents roughly the structure presented in Table Four.

[8] We will not address the accuracy of Lakoff's terminology. For a critical commentary, see (Haser 2005).

Perceptive dimension		helicoid, conic, grooved, ranging between such and such sizes
Propositional dimension	Relational information	screwdriver, nut mechanic garage, hardware shop
	Non-relational information	metallic instrument
Narrative dimension	Use schema	$S_{variable}$, $A_{screw\ in/unscrew\ up\ with\ screwdriver}$, O_{screw}, $P_{fasten/loosen}$
	Agentive schema	building/dismantling/rebuilding an object
Affective dimension		middle intensity, middle attraction, slight euphoria.

Table 4: Oversimplified $screw_{CT}$.

This rudimentary analysis shows how the *image schema* structuring principle generates embodied information, such as concerning its function: 'SOURCE-PATH-GOAL', 'LINK', etc. Likewise, the *propositional* structuring principle of *taxonomic structure* explains the paratactic relations for 'screwdriver' – i.e., the conventional rules for screwdriver use – and, at the same time, the classification of 'screw' as 'instrument'. The *propositional* structuring principle of *scenario* explains the use schema in the narrative dimension. The *metonymic* structuring principle allows one to retrieve a 'typical' screw: i.e., the 'best example' of its kind, able to be held in the fingers and not requiring the entire body, used with the hand by means of a typical metal screwdriver appropriately sized for the human body – not a one-ton, truck-sized 'screwdriver'.

The *metaphoric* structuring principle does not seem to be present in $Screw_{CT}$. However, one can make use of it – the $Screw_{CT}$ – along with an image schema principle to say that someone 'unscrewed his screws', 'has a screw loose', or 'needs to tighten his screws' (see Section 6).

5.2 ICM, CCTT, and Conceptual Structure

One of the fundamental principles of cognitive linguistics is that a semantic structure identifies itself with a conceptual structure (Evans & Green, 2006: 158). Likewise, one of Lakoff's central theses is that ICMs explicate conceptual structuring (1987: xv). When cognitive linguists refer to conceptual structure, they mean cognitive informational structure used as a resource for general cognitive operations. In this field of research, conceptual information includes perceptual information, in contrast to other disciplines such as philosophy. This has important consequences, both for Lakoff's proposal (see e.g. 1987, 1993) and Conceptual Metaphor Theory in general.[9] These consequences relate to the *affective* and *perceptual* dimensions of cognitive types.

[9] We will not address whether it is an *appropriate* consequence.

To begin with, ICM structuring principles do not account clearly for the perceptual information highlighted by CCTT for common objects.[10] The structuring principles use sensorimotor information, but this does not imply that they contain perceptual information. Whereas image schemas are highly abstract, perceptual information is not. Furthermore, it is unclear if the different types under the proposition structuring principle include perceptual information: e.g., in CT terms, the *scenario* 'restaurant', which structures 'waiter,' seems to organize information about an agentive role but not about that role's perceptual features. For radial categories such as 'color', what is important is that their members generate graded prototype effects, where some individuals are a better fit than others (Lakoff, 1987: 24-32) – and not the perceptual features of 'color'. The same can be said of the other propositional kinds: from their presentation, one cannot determine clearly whether propositional structuring principles can account for perceptual aspects. Likewise, although metonymic principles generate prototype effects, it is not apparent that they carry perceptual information – among other reasons, because they presuppose image and propositional schemas (Lakoff, 1987: 154). If, as Lakoff claims, metaphorical understanding is grounded in non-metaphorical (1993: 232), then perceptual data must be taken to be non-metaphorical. In the emergence of image metaphors, mental images *are* used (Lakoff, 1993: 215-217) and so contain perceptual-like information, but ICMs do not say how those mental images emerge.

In short, perceptual information is a cognitive resource found in conceptual structure. It is used for object recognition and implicated systematically in image metaphors. It is not clear how ICM can account for it.

Second, ICM structuring principles apparently cannot account for the affective dimension of CCTTs, at least as it is usually conceived. This is not to say that structuring principles cannot account for emotional concepts such as «anger». On the contrary, Lakoff (1987: 380-415) and Kövecses (2000) have shown marvelously how this can be done. Neither does it say whether the metaphoric structuring principle is at work behind the emergence of the attraction/repulsion, euphoria/dysphoria, and intense/distense axes. What it does say is that the affective dimension of CCTTs generates a series of *affective values*, understood as the product of the intersection of results showing the different valences of the three affective axes for each object for which one has a CT. Such values display the affective valuation of those objects. Finally, with CCTTs, these affective valuations can have *conceptual evaluations* as counterparts. Certainly, they appear in the propositional dimension as *evaluations* relative to the axiology systems of different agents and cultures. Let us illustrate this

[10] We remark again that ICMs can presumably explain the entire organization of conceptual structure, whereas CCTTs only gather and organize 'common objects' information, which always has a perceptual dimension (Eco 1997, Serventi & Niño 2009). The list of 'uncommon objects' includes certain representations (melodies), institutions (Supreme Court of Justice), and mathematical objects (π). Second, whereas ICMs have a hierarchical organization because different structuring principles can be presupposed, the different dimensions of CCTTs are not hierarchical. Finally, whereas ICM structuring principles can account for conceptual organization's *origin* and *emergency*, CCTTs try to give an account of conceptual organization's *results*.

through the example of «rat». One factor is the stabilized *affective value* for «rat»: 'dysphoria, repulsion, intense'; another is its *axiology evaluation*, by virtue of which the rat is *evaluated* as 'destructive' and 'invasive', based on its 'negative' behavior (relative to the axiological system). In addition, its presence can be evaluated as e.g. 'pathogenic'. One must distinguish between *emotional concept*, *evaluation*, and *valuation*. ICMs account for the first two, but it is not clear if or how they explain the third.

In sum, CCTT theory offers ICMs a direct way to deal with perceptual and affective information. Whether these aspects are otherwise absent from ICMs is unclear. This lack of clarity becomes a weakness, particularly when they are meant to ground an explanation of visual rhetoric phenomena.

6. CONCEPTUAL METAPHOR THEORY

In our opinion, Conceptual (or Contemporary) Metaphor Theory (CMT) can be considered an extension or specification of ICM theory, mainly by way of the metaphoric structuring principle. The most important concept in CMT – borrowed from mathematics – is *mapping* (Grady 2007: 190). Lakoff writes (1993: 191): 'metaphors are mappings; that is, sets of conceptual correspondences'. Mappings are established conventionally and operate from a *source* to a *target* domain. The correspondences can be both ontological and epistemic (Lakoff 1987: 387; 1993: 191). The source domain structures specify the constitution conditions of the target domain, as in the well-known cases 'LOVE IS A JOURNEY' and 'A DISCUSSION IS A WAR' (Lakoff & Johnson 1980, 1999; Lakoff 1993: 191-194). The source domain / mapping / target domain structure depends on the image schema 'SOURCE-PATH-GOAL', as is true of all metaphorical structuring. As the image schema is oriented, so is the resulting metaphor: this is the origin of the source-to-target asymmetry, not vice versa. It allows for inferences about the target domain in terms of the entities and knowledge – i.e., cognitive topology – one has of the source domain. Any similarity between the target and the source domain is a byproduct of the structuring of the target domain by the source domain and not a reflection of prior similarity between the domains.

Second, in CMT, the mapped domains are chosen from supra-ordinate not basic-level categories (Lakoff 1993: 195). For instance, in the metaphor 'LOVE IS A JOURNEY', the love relationship is understood primarily as a 'vehicle' and not as e.g. a 'car', 'train', or 'boat'. Both cognitive topology preservation and supra-ordinate mapping categories account for metaphorical systematicity.

Third, metaphors are relative to conceptual structure and not to linguistic expressions. Lakoff writes (1993: 192): 'the metaphor is not just a matter of language, but of thought and reason. The language is secondary. The mapping is primary, in that it sanctions the use of source domain language and inference patterns for target domain concepts'. In other words, in CMT, linguistic expressions – as manifest in concrete discourse – must be distinguished from (conceptual) metaphor proper, which is a matter of content.

Finally, CMT explains novel metaphor – that which seems poetic as opposed to conventional and used systematically in the cognitive economy – in three ways: as extension of conventional metaphor; as generic-level metaphor, including phenomena such as personification, proverbs and analogy; and as image metaphor (Lakoff 1993: 217-223). The last is the most relevant for visual semiotics, because it 'map[s] one conventional mental image onto another' (Lakoff 1993: 215) – as in Breton's line 'my wife… whose waist is an hourglass' (Lakoff & Turner 1989). The image metaphor differs from other kinds of metaphor – extensions, generic-level metaphor, and analogy – since their mappings are developed on conceptual dominions, where various concepts intervene; whereas, with the *image metaphor*, there is a 'one-shot' mapping produced by superimposing one mental 'image' onto another (Lakoff 1993: 215).

6.1 Some Problems with CMT

In Section 5.2, we showed that ICMs could not account accurately for both perceptual and affective information relative to common objects. As we noted earlier, CMT can be considered part of the ICM approach. As such, it inherits both its pros and cons.

At first glance, it might seem that the aforementioned limitations of ICMs are partially resolved by introducing the image metaphor, which makes explicit use of perceptual-like information.[11] This would be misleading: image metaphor explication is highly partial and creates new problems, as we will show. In explaining image metaphors, Lakoff assumes that they work the same way other metaphors do: i.e., by mappings. However, *this* mapping is special, because it is a one-shot process. Lakoff writes (1993: 215-216): 'image metaphors… are «one-shot» metaphors: they map only one image onto one other image…. In particular, we map aspects of the part-whole structure of one image onto aspects of the part-whole structure of another…. The proliferation of detail in the images limits image mappings to highly specific cases'. In the case of image metaphor, both source and target domain operate with mental 'images'. This means that they operate with the object information of basic-level categories and, therefore, with perceptual-like[12] information (Lakoff 1987: 46-47). The idea that mappings are fashioned from supra-ordinate categories does not seem to apply. Moreover, CMT does not say clearly what the origin of the perceptual information for any mental 'image' is, or if it depends on some ICM structuring principle. Insofar as perceptual information seems to be directly meaningful – derived from 'experiential gestalts' – mental 'images' would seemingly not be metaphorical (Lakoff 1987: 267-268; see also Section 5.2).[13] Accordingly, in 'my wife… whose waist is an hourglass', the mental 'image' of the source domain (hourglass) does *not* structure the mental

[11] The problem of affective values in CMT, as in the ICM approach, remains unsolved.

[12] Lakoff does not say whether 'conventional mental images' (1993: 216) also contain non-perceptual information. In what follows, we assume they do not and, thus, conventional mental images, with visual information, will be close to 'iconic types'.

[13] Saying something is 'directly meaningful' means only that one is not aware of the processes that make it meaningful – not that it has an intrinsically meaningful nature.

'image' of the target domain (woman's waist). The perceptual – or at least the imaginistic information in both images – has been obtained separately. Contrary to other metaphor types, mapping is not the foundation for similarity: perceptual similarity is part of the metaphorical foundation. The asymmetry thesis *simpliciter* does not seem to apply. Indeed, one can also imagine the metaphor 'the hourglass has been broken at the waist'.

On the other hand, the 'one-shot' mapping of image metaphor does not mean that interpretation stops at that point. When Lakoff quotes the Navaho poem 'My Horse with a Mane Made of Short Rainbows', he adds (1993: 216): 'we know that rainbows are beautiful, special, inspiring, larger than life, almost mystic, and that seeing them makes us happy and inspires us with awe. This knowledge is mapped onto what we know of the horse: it too is awe-inspiring, beautiful, larger than life, and almost mystic'. At the same time, what the poem is talking about here is more than direct derivation of additional or collateral information. It is not just 'one shot'. It is one thing is to speak – as Borges does in defining metaphor – of establishing 'the momentary contact of two images' (1952: 662). It is quite another to say of this or that mental 'image' that it should be considered in a certain way. In Breton's line, it is from the 'waist/hourglass' relation that one might think that time passes for the wife as the sand passes through the 'waist' of the hourglass. In the Navaho poem, the 'mane/rainbow' relation opens the path to relevant non-perceptual information that seems to be organized, in this instance, on the basis of supra-ordinate categories: particularly, the propositional categories of CCTT. In other words, it is one thing to establish an image metaphor and another *to follow* it: movement that is part of the interpretative task. In establishing the metaphor, the mapping relation is constituted – in an image metaphor, the mapping involves mental 'images'; in following the metaphor, other correspondences are projected from the initial mapping.[14]

[14] The CMT and its theoretic assumptions (see e.g. Lakoff & Johnson 1980, 1999) have been criticized both by their adherents (Grady *et al*. 1999; Stern 2000; Croft & Kruse 2004; Zlatev 2005, 2007, 2010) and their detractors (e.g., Aron & Jackendoff 1991, Haser 2005). Haser is particularly important, given her wide influence – although it is certainly true that not all scholars accept her criticism: see (Fontaine 2007). According to Haser, the CMT – in its standard version – should explain better (1) why certain linguistic expressions are selected for manifestation and not others, and (2) what the criteria are that allow one to determine that a set of linguistic expressions is structured by one conceptual metaphor *and not another*. We agree with Haser that any theoretical proposal about metaphors needs to respond to these criticisms; and, in our proposal for *visual iconic metaphorization*, we answer them directly. The visual recognition of objects and their iconic representations clearly defines the CCTT from which the information is projected; this answers (1). Point (2) is not a problem for us, because the organization of conceptual information inside the CCTT is not established through metaphorical mappings.

6.2. A Proposal for Visual Metaphorical Expressions

In visual semiotics, it is important to bear in mind the distance that separates the linguistic use of mental 'images' – as in image metaphors – from the use of perceptual 'images' in the recognition of objects and interpretation of visual iconic messages. A linguistic expression serves as an indirect access point to an evocable mental image; a perceptual image serves as a direct access point to awareness of the presence of an object or its iconic representation – the precision of which can be graded. Compare the construal of Breton's line 'my wife… whose waist is an hourglass' to the two images in Figure One.

Figure 1: Two hourglass images (1A/1B).

The semantic construction of the line gives an aura of uncertainty and vagueness to the woman in the poem, including details of her age and her other physical attributes. In other words, the situation is semantically underspecified. In the semantic construction of figures 1A and 1B on the other hand, those details – and many more – are stated explicitly; but their grade and mode of manifestation is very different. For instance, Figure 1A is realist; Figure 1B is not. This is so, in part, because the resolution of the two images is different. The consequent granularity of the mental images one has access to allows one to attribute them different meanings:[15] i.e., the cognitive mnemonic/perceptual resources used to process the information in the images are different. This is so because perceptual

[15] Mental images can have varying grades of granularity from high to low. They can be classified into general, specific, contextual, and episodic/autobiographic (Cornoldi *et al*. 2008: 108).

information – from a realistic image or otherwise – is significant in itself, in all its richness.[16] (The other dimensions are meaningful as well.) This marks a fundamental difference in meaning construction compared to linguistic expressions. If the account is correct, it has consequences for CMT and cognitive semantics in general: if meaning construction pervades all of cognition, then the perceptual richness offered by objects and their representations should be taken seriously in semantics – as should their affective, propositional, and narrative dimensions.

In the rest of this section, we put forth a proposal for understanding visual metaphorical expressions[17] that involves aspects of both CMT and the ICM-based approach, as well as incorporating CCTT theory. Our goal is to address some of the limitations in CMT/ICM discussed above. To introduce and illustrate the proposal, we offer the cartoon in Figure Two.

Figure 2: A visual metaphor, from (Quino 1989:13) .

By means of visual icons and redundancy, it is visually recognizable as a typical scene where people are walking their pets. However, this 'zero grade' is immediately affected: one expects to see dogs,

[16] …As we tried to show earlier with CCTT.

[17] If one follow- Forceville's (2008, 2009; see also Ortiz 2011) approach, the type of visual metaphorical expression we address is classified as monomodal. However, CCTT theory says that one can interpret visual icons by associating *multimodal* perceptual contents. For example, confronted with the image of a frothy beer, one may find tasting or smelling contents to be manifest (see Footnote 18). In the language we introduced earlier, the distinction between monomodal and multimodal metaphorical expressions is useful with respect to the *establishment* of metaphor, but not its *following*. Addressing the latter is central to our proposal.

but one gets mice and mousetraps instead. On closer examination, one sees that each person with a mousetrap is pulling it along behind, whereas each person with a mouse is letting it go ahead. These egocentric values of forward and behind, up and down intervene in the cartoon's interpretation. However, we wish to focus only on the metaphorical iconic phenomenon.

In the picture, one can recognize the establishment of two visual metaphorical expressions or *iconic tropes*, reiterated several times over. In the first, the source domain is 'mousetrap' and the target domain is 'dog' – because one expects dogs instead of mousetraps. In the second, the source domain is 'mouse' and the target domain is 'dog' for essentially the same reason. In visual metaphorical expressions, the substituting entity is what prompts the source domain, while the substituted entity belongs to the target domain.

Establishment of the 'mousetrap'/'dog' and 'mouse'/'dog' relationships opens the door to further mappings: i.e., the visual discourse generates a local re-semanticization of 'dog' in terms of either 'mousetrap' or 'mouse'. The relevant manifest contents of $\text{mousetrap}_{\text{CT,}}$[18] include *perceptive content*: «armed mousetrap with cheese»; *non-relational content*: «mousetrap», «not-alive», «capture device»; *relational content*: «cheese», «mouse», «mouse catcher», «trapped»; *agentive schema*: «to catch/hunt a mouse»; *evaluation*: «strategic»; and *affective dimension*: «dysphoric», «repulsive», «distense». The relevant manifest contents of mouse_{CT} include *perceptive content*: «non-aggressive mouse»; *non-relational content*: «plague», «alive»; *relational content*: «cheese», «mousetrap», «invasion of an inhabited space ('plagued by mice')»; *agentive role*: «pest: invader, contaminator, infestator»; *evaluation*: «prey», «pathogenic»; and *affective dimension*: «dysphoric», «repulsive», «intense».

'Mouse' appears in the manifest contents of 'mousetrap' and *vice versa*. Consequently, a solidarity relation arises between them in the *following* of this visual metaphor, and the contents of both become projectable onto the target domain of 'dog'. In the one case, 'dog' is re-semanticized as a pest-extermination trap. In the other, it is re-semanticized as a pest to be exterminated. In both cases, the result includes information belonging to the target domain 'dog', whose relevant concepts, maintained in the interpretation, are *non-relational content*: «pet», «alive»; *agentive schema*: «walking»; and *evaluation*: «company», «naivety». These concepts are projected onto the source domain. Mousetraps are to be understood in this cartoon as living domestic companions, mice as naïve pets. That is to say, there can be a feedback effect in the *following* of the metaphor, whereby the original contents of the target domain are retro-projected onto the source domain.

[18] The notion of *manifestation* requires a semantic theory that cannot be offered here. All we can say is that encyclopedic information about an object is stored in each CT. Some of those informative elements – not all – are manifest in various instances of interaction with the object and its interpretation. Each time, the information chosen is that which is cognitively and semantically relevant – comparable to Langacker's (2002: 189-201) *active zones* in cognitive grammar, except that something is considered relevant or irrelevant only with respect to a certain purpose. In this way, the notion of *purpose* is indispensable for establishing the interpretability conditions of statements of all types (Niño 2010).

In the manifestation of both ‘mousetrap’ and ‘mouse’, the relational contents of «mouse catcher» and «plagued (invaded) by» appear respectively as the one responsible for the mousetrap and the pest’s victim. Insofar as ‘mousetrap’ and ‘mouse’ have a solidarity relation, it is possible to advance – *follow* – their counterpart contents, which appear and become salient: «trapped» (captured) and «plague» (invader). Insofar as ‘mousetrap’/‘dog’ and ‘mouse’/‘dog’ are ‘walked’ by their ‘walkers’, these contents can be projected onto the walkers as «he who traps» and «he who is trapped».

By appealing to the proverb ‘pets are like their owners’, one concludes that the solidarity relation between ‘mousetrap’ and ‘mouse’ can be projected – *followed* – onto their ‘owners’/‘walkers’. Thus, the «naivety» of the ‘dog’/‘mouse’ becomes the «naivety» of its ‘owner’/‘walker’. At the same time, the «strategic» dimension of ‘dog’/‘mousetrap’ (both used for hunting) is projected onto its ‘owner’/‘walker’ as «scheme-ness» «not-naivety». In this way, the image shows not only mousetraps, mice, and dogs, but hunters hunting men and men being hunted – even though it is not possible to distinguish the two interpretations perceptually. Although the men might seem at first to be equals, some are as naïve as mice, while others (the ones with mousetraps) are the schemers. These personality features ‘accompany’ the men – another projection – just as their pets do. Finally, the ‘hunter’/‘hunted’ solidarity relation allows extending – *following* – the metaphor to other relations such as ‘swindler’/‘swindled’, ‘murderer’/‘murdered’, etc.

7. FINAL REMARKS

With respect to the Groupe μ proposal versus that of the CMT approach, a crucial point is the acceptability or otherwise of the idea that metaphorical expressions – particularly visual metaphorical expressions – are the product of some sort of deviation. On the Groupe μ proposal, the iconic trope is understood as the deviant identification of a perceived degree (source domain) rather than a conceived degree (target domain) – based on the regularities of the iconic code, or degree zero, and the contextual and discursive constructions, or local degree.

Consider the mental image produced by the image metaphor ‘my wife… whose waist is an hourglass’ while looking at Figure One. The supposed deviation consists of replacing the waist with an hourglass, thus arriving at a superposition of the perceived grade (source domain) «hourglass» onto the conceived grade (target domain) «woman’s waist». The problem with this explanation, as said earlier, is that its reach is strictly perceptual. It does not allow one to see that the waist/hourglass comparison in Breton’s line and in the two images in Figure One can also be understood as having manifest non-perceptual semantic values: categorical values such as «voluptuousness», affective values such as «attraction» and «intensity», and narrative values such as the transformative passive schema «passing of time».

CMT, on the other hand, understands the rhetoric figure as an expressive addition to the usual conventional system of fixed conceptual correspondences; metaphorical meaning depends not on

expression, but on conventional conceptual mappings. Thus, there is no deviation in the metaphorical expression.

The problem with CMT is that, although it offers a way of *following* conceptual values, it does not say how those values attach to objects with perceptual characteristics – which is also the problem with the ICM-based approach. At least for common objects, the CT-based proposal offers a way to deal with both perceptual and non-perceptual information in a non-deviation way. In our opinion, both Groupe µ's proposal and a 'literal' translation of CMT to the visual entities would be faulty or imperfect.

Figure 3 (source: http://osocio.org/message/verbal_abuse_can_be_just_as_horrific/).

Visual semiotics faces an additional challenge when it is called to deal with a target domain (conceived grade) without perceptual characteristics, even as the source domain (perceived grade) has those characteristics. Such is the case in Figure Three, where 'uttered words' constitute the target domain and 'punch' the source domain. One cannot speak of iconic trope, because the 'uttered words' are not a visual entity recognizable via an iconic type. This image seems, instead, to be a novel visual metaphorical expression derived from a conceptual metaphor such as 'DISCUSSION IS A WAR/STRUGGLE' (Lakoff & Johnson 1980). It seems that one needs to speak of a phenomenon that involves dominions of a different conceptual nature.

Not at all similar are the cases where symbolic representation is based upon iconic representation. If one considers Figure Four, one understands that, if the /bald eagle/, as a predator, grabs the /dove of peace/ (the iconic part), and the bald eagle's behavior represents the behavior of the US (the symbolic part), the interpretation is that US intervention makes peace impossible.

A complete explanation of such cases would require an expanded CT theory that addresses not only common objects but also contexts and institutions: e.g., countries; as well as a set of criteria that specifies which mappings are or are not relevant.[19] Such a theory will be the subject of a future study.

[19] An expanded, iconic-type model would not suffice, because it would only include perceptual information.

Figure 4: The bald eagle and the dove of peace.

Returning to the present proposal, note that, on our analysis, Quino's cartoon (Figure Two) differs both from image metaphor *à la* Lakoff and iconic trope *à la* Groupe µ. First – apart from the obvious fact that Figure Two is visual, whereas Lakoff's analyses are linguistic – establishment of the metaphor is not accomplished by virtue of a perceptual homological superposition, even though there is one between 'dog' and 'mouse'. It depends instead on the manifestation of categorical contents – relational, but not perceptual – to generate solidarity relations. This same kind of projection allows establishment of the expression 'Achilles is a lion', in which the perceptual homology becomes irrelevant – at least in principle.[20]

Second, the substitution of one entity for another constitutes expressive evidence whose semantic bearing remains unaccounted for. Even if any deviation is involved, its detection would hardly be a step to establishing the metaphor. On Groupe µ's approach, Max Earnt's collage and Hergé's Tin Tin (Figure Five) are both iconic tropes. Ernst's collage (1992: 232), which replaces the head of a human being with the head of a bird, is just as much an iconic trope as is the Tin Tin image, which replaces Captain Haddock's pupils with bottles and the cork of the bottle – which Haddock sees with his 'bottle' eyes – with Tin Tin's head.

In Ernst's collage, the substitution allows establishment to take place at the level of non-relational propositional content: «bird» vs. «human being». In the case of Captain Haddock, establishment obeys the narrative contents of agentive schemas: «hallucination due to desperate thirst». There is no way to make this distinction on Groupe µ's account. Likewise, our notion of

[20] We anticipate one possible objection. We said previously that CTM and the ICM-based approach do not account accurately for perceptual information. Here we seem to be saying that perceptual information is not important in metaphorical establishment. One can object that metaphorical establishment presupposes the recognition of iconic entities: specifically, if metaphorization is present, the entities recognized perceptively constitute part of the source domain, which allows for metaphoric establishment. Whenever the initial mapping determines a superposition of homologous perceptive information, one sees the establishment of (visual or verbal) metaphorical expression. Nevertheless, as Quino's cartoon shows, this is a possibility in the visual iconic case, but not a necessity.

following has no counterpart in their account. Both our notions of *establishment* and *following* are but special applications of CMT's notion of *mapping.* Whereas the usual mappings privilege conceptual structure phenomena, a rhetorical approach brings out the manifestation, with the mappings being part of the interpretation. The result does not necessarily lead to a new conceptual structuring, although a local and partial re-semanticization/blending does take place.

Finally, our proposal bears on CMT. CCTT theory allows Lakoff's project to reconsider the cognitive role of both the perceptual and affective dimensions of common objects and thereby reconsider conceptual metaphor – and, by extension, both conceptual structure and verbal metaphorical expression. In return, CMT affords CCTT theory a way to become more 'cognitive' by allowing mappings between CCTTs. Therefore, our proposal has consequences that go beyond visual semiotics; however, clarifying this must be the subject of a different paper.

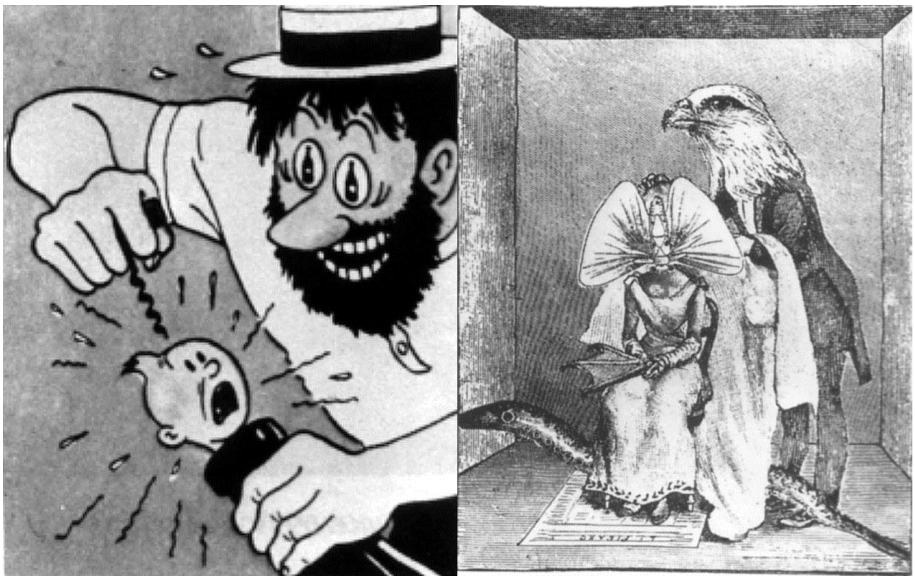

Figure 5: **Hergé's Tin Tin and Max Earnt's *Rencontre entre deux sourires***.

Aknowledgments

The authors wish to thank Juan Conde, Álvaro Corral, and Carlos Pérez for their helpful comments; Camilo Martínez and Shannon de Navarro for their assistance with the translation; and Andrés Narváez for drawing figures One and Four. They are also indebted to two anonymous reviewers for their useful comments on earlier versions of this paper.

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