The interdisciplinary research group BITrum was constituted to develop a conceptual and theoretical clarification of information, intending to gather all the relevant points of view and pursuing to preserve all the interests at stake (scientific, technical and social). Born at the First international Meeting of Experts in Information Theories-An interdisciplinary approach (León, November 2008, in collaboration with INTECO, University of León and Sierra-Pambley Foundation), BITrum group has deployed a set of activities, publications and initiatives which are here accounted for. BITrum allegorically refers to the conjunction of the information unit “BIT” and the Latin term vitrum (standing for the assembly of a multiplicity of colours).

Other entries by the author: hermeneutics, intercultural information ethics, message, roboethics

### Hermeneutics

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#### 1. Is difference enough or do we also need interpretation?

Concerning hermeneutics and information theory, at the very beginning of the former we found a reflection contrasting with the famous definition of the cybernetician Bateson, by whom information is “a difference what makes a difference” (Bateson 1972: 459). In contrast with this causal relation, we found in Plato’s Theaetetus that “the reason [of what is said] is an interpretation (hermēnéia) of the difference” ("λόγος δέ γε ἧν ἡ της σις διαφορότπτος ἐρμηνεία", Theaetetus: 209a). What has been understood by interpretation has a long and varied history, but in any case, it refers to a problematic rather than a univocal process, also stressing a
sense of effort. Such endeavour for a problematic sense clearly differs from the most common viewpoint regarding information, for which there is a kind of causal and blind relation between information and its results in recipients. The dominance of this viewpoint in information concerns—which can be for instance observed in the automatic benefits expected by the investment in information technologies (Pérez-Montoro 2008)—might draw us away from the awareness of the problems regarding the uncovering of sense. To this regard, Søren Brier claims that “information is not enough” in the problem solving enterprise of our contemporary societies (Brier 2008).

As mentioned above, interpretation, whose modern sense usually refers to the going back from the sign to its sense, has a long tradition (in the extensions of both the latin interpretatio or its corresponding Greek term hermēnéia) where we also might encounter a root for the –so to say- transparency of information.

2. Roots of hermeneutics

a) Between obscurity and clarity. Antiquity and Christianity.

In addition to the mentioned sense in Plato’s work of interpretation as a problematic apprehension of sense, we also found hermēnéia in other Plato’s works as an act of accounting for an obscure and distant meaning (Ion: 535a, Statesman: 260d). Such strain in the uncovering of the hidden is to be extensibly deepened in the medieval exegesis and its influence in the humanism trends (in both positive and negative senses).

Aristotle points out a connection, which is going to maintain a long tradition in hermeneutics: for him, hermēnéia is linked to language as an externalist expression of thoughts (De an. 420b). On the other hand, by using the term to name one of the treaties of the Organon, Perì hermēnéias, it is going to be later on identified as a technical term.

In Christian Middle Ages, two main trends might be identified regarding the reception of the holy truth, whose weight varied throughout this long period, and reaching both lines the consecutive times:

- In early high middle ages, the Agustine’s dictum “credo ut intelligam” stands for a transparency and clarity of the holy message, relegating interpretation just for allegorical images of the old testament (Augustine 1888: §89).
- From later high middle ages, such transparency will be doubted and moved towards the whole holy texts. In some contrast to Augustine’s dictum we find Anselm of Canterbury’s assert: “Fidens quaerens intellectum” (c. 1033 - 1109), remarking that the apprehension has to be active (Ortega 1956, Williams 2007).

The sense of deepening into obscure meanings to bring them to light will be stressed towards the humanism period, where these two tendencies can again be identified: on the one hand, an ecmenical strive for an interpretation of allegorical writings of neoplatonic ascendance, as in the case of Pico della Mirandola (1463-1494); on the other hand, a relative rejection of allegoric readings in contrast with the clarity of God’s word, which must be accessible to all men, as in Erasmus of Rotterdam (c.1466-1536). This last trend, alienated with the Augustinian tradition can easily be identified with the endeavour for clarity in the very core of modernity, where the question of truth is not going to be tightened to religious discourse.

b) Modernity and the epistemology of clearness

Although the prevalence of the discourse of clarity, the contrasting stances regarding the reception of sense do not diminish with the advent of modernity,
on the contrary, it sometimes showed an open and sharpen conflict between the role of authority in counter-reformation and all men accessible strive for clarity in rationalism. While among the former, authority is a mediating warranty in the hardness of interpretation, in the latter, clarity is the main guidance for the spirit: “all the things which we clearly and distinctly conceive are true” (Descartes 2008, §4). This topic of clearness is going to be dominant in the rationalist and enlightenment movement, founding an epistemology in which the transparency of sense and true will be, for instance, the base of Locke’s semiotic theory, which is going to play an influential role in the scientific tradition—especially in the Anglo-Saxon world (Copleston, v.5, §7.8).

In Locke we observe two tendencies that we may later encounter in the communication models of the Mathematical Theory of Communication: 1) the already mentioned transparency contrasting with the hardness of interpretation, 2) the regardless of context contrasting with the necessity to rebuild the—so to speak—sense scene (Díaz and Hadithi 2009). Regarding the first, Locke concludes his appraisal on general terms stating that: “[…] men making abstract ideas, and settling them in their minds with names annexed to them, do thereby enable themselves to consider things, and discourse of them, as it were in bundles, for the easier and readier improvement and communication of their knowledge […]” (Locke 1690, B.III, §3.20)

But these general terms—supporting communication and knowledge— are bounded to general ideas which must be decontextualize:

“Words become general by being made the signs of general ideas: and ideas become general, by separating from them the circumstances of time and place, and any other ideas that may determine them to this or that particular existence.” (ibidem, B.III, §3.6).

c) From the evening of enlightenment towards postmodernity

After the relative unfulfillment of the Enlightenment promises, right after the French Revolution, the topic of clearness opens towards a deeper consideration of the obscure, noteworthy in the Romanticism movement as well as in the idealism. In the nineteenth century, for instance in the work of Schleiermacher, the non transparency of the text is going to be acquainted not with respect to a transcendental distance, but to linguistic, historical and cultural reasons. The restoration of the context comes to the first plane and the interpretation aims—in Schleiermacher—to “understand the author better than he understood himself” (Bolinion 1949), in the sense that even something about the historical-cultural context can be found out in the hermeneutical process (thus beyond author’s intention). The historical knowledge and interpretation becomes two faces of a same process. Such identification is going to be stressed in Dilthey for whom interpretation is an intentional understanding (verstehen) of life manifestations permanently fixed (Dilthey 1909: 319). Such interpretation process clearly differs from the “easier and readier” “communication” of knowledge depicted by Locke. Hermeneutics become circular: the interpretation of a reality to be understood is based on some previous (contextual) data, but the sense of this data is at the same time given by the understanding of the reality being interpreted. In other words, the outer perspectives allegedly used to ‘explain’ phenomena—usually by means of causal reason—, is here substituted by a inner perspective in which phenomena is recursively grasped. A similar change in the perspective of understanding is experienced in the foundations of second order →cybernetics.

In the XXth century, most hermeneutical theories continue the paths opened by
Schleiermacher and Dilthey. If we consider the phenomenological reduction (epoijé), through which phenomena should clearly manifest (Husserl 1970), as probably the last serious philosophical attempt of rebuilding the clearness project of modernity (Marías 1967: 403ss, 1980: 263-266), we might then regard the time after recognising the impossibility of the phenomenological reduction as post-modernity.

It is possible to establish a link between this breakdown and the discovery of Godel's incompleteness in formal systems or Heisenberg's uncertainty in physics (Díaz 2003), which might also be considered as some formal foundations of post-modernity.

As Ortega showed in his early refutation of Husserl's epoijé (Ortega 1914) the apprehension can never be done without assumption. This is the fundament of Heidegger's hermeneutics (Heidegger 1927: §32) for whom any existence has an inherent pre-understanding of the world where it "is thrown" (geworfen); and such pre-understanding is embodied in the language which is available to that existence. Interpretation in Heidegger becomes "the articulation of that which is understood" as well as a constitutive dimension of the existence (ibidem). This existence is "being-in-the-world with Others" and to that extend cannot be fully analysed (ibidem, §34). However the original worldly pre-understanding can be grasped in the unveiled "world", i.e. in the system of semantic relations allowing us to understand something as what can "stand out explicitly". Deepening in this line, Gadamer develops (especially focusing on art, history and language, therefore in a narrower sense that Heidegger) a fully hermeneutical ontology (Gadamer 1975).

But if we take a look at the Anglo-Saxon tradition we find out a practical absent of the interpretation concept as it was generalised first in the nineteenth century historicism and afterwards by Heidegger. In this tradition, interpretation has been restricted in two directions: 1st) the comprehension of discourses and literary texts, stressing devotion on literacy criticism and methodology; 2nd) pragmatism, where Peirce is the most relevant source. In this second line, the influence of Peirce's concept of interpretation as concerning the effects conveyed by signs (Peirce 1958: 5.475) has been of major relevance in the development of communication theory and semiotics, and also in several concepts of information.

As we posed at the beginning of this article, is there not a lack of concern in information theories with respect to the problems revealed by hermeneutic? Could not an approach between these two lines of interpretation bring new lights into information concerns?

3. Hermeneutics in the digital era

We live in societies whose political, legal, military, cultural and economic systems are based on digital communication and information networks or in societies that are making major efforts to bridge the so-called digital divide (Capurro et al. 2007). Maybe this is one reason why hermeneutics, the philosophic theory dealing with issues of interpretation and communication, has apparently lost the academic interest it had in the nineteenth century as a relevant methodology in the humanities as well as a way of understanding human existence in the twentieth century. Santiago Zabala, editor of a recent book in honor of the Italian philosopher Gianni Vattimo, quotes Hans-Georg Gadamer, the founding father of philosophic hermeneutics, as follows:

Vattimo has specifically called hermeneutics a koiné: the common language in which philosophical thought after Heidegger and Wittgenstein, after Quine,
Derrida and Ricoeur, has spread everywhere; virtually a universal philosophical language. (Zabala 2007, p. 3)

Vattimo's hermeneutical critique of metaphysics and his plea for "weak thinking" can be related to Turing's halting theorem, basic to computational theory, as well as to Gödel's incompleteness theorem (Chaitin 1982) as far as these theorems state some fundamental limits to our seeking after truth, which forces us to stand back from the claims to truth of modernity as mentioned above. According to these limits, we always make theoretical and/or practical presuppositions that cannot be made completely explicit once and for all.

As shown in Capurro's paper “Interpreting the digital human” (2008) hermeneutics is intimately related since the 1970s with digital technology. After having passed through critical theory (J. Habermas), critical rationalism (K. Popper), analytic philosophy (early L. Wittgenstein, Hilary Putnam, Donald Davidson), deconstructivism (J. Derrida), the phenomenology of the symbol (P. Ricoeur), psychoanalysis (J. Lacan), dialectic materialism (A. Badiou), mediology (R. Debray), the hermeneutics of the subject (M. Foucault) and particularly through Gianni Vattimo's “weak thought” ("pensiero debole"), to mention just some of the prominent contemporary philosophic schools, Hermeneutics is facing today the challenge arising from digital technology by becoming what Capurro calls digital hermeneutics. Every revolutionary transformation in philosophy that leads to the creation of a new type of rationality arises usually from an outstanding scientific or technological breakthrough (Bosteels 2006, p. 116). Today's global and interactive digital network, the Internet is one of those breakthroughs. The Internet's challenge to hermeneutics concerns primarily its social relevance for the creation, communication and interpretation of knowledge. This challenge implies a questioning of the pseudo-critical rejection of hermeneutics with regard to technology in general and to digital technology in particular (Capurro 1990). Facing the digital challenge hermeneutics must develop a “productive logic” (Heidegger 1976, p. 10) towards understanding the foundations of digital technology and its interplay with human existence. A productive logic “leaps ahead” (ibid.) of the established self-understanding of a given science, in this case of hermeneutics, in order to undertake a revision of its main concepts and disclose a new area of research.

There is a blindness in some studies of contemporary hermeneutics with regard to these challenges (Figal 2007), with a few exceptions (Irrgang 2005, 2007; Fellmann 1998; Kurthen 1992), as well as in seemingly comprehensive encyclopaedia articles (Gadamer 1974, Grondin 1996, Ramberg and Gjesdal 2005) also with a few exceptions (Introna 2005; Mallery, Hurwitz and Duffy 1990). In their article “Hermeneutics” in the Encyclopedia of Artificial Intelligence Mallery et al. do speak about the "precomputational nature of contemporary hermeneutics" and suggest "the reformulation and refinement of ideas about both hermeneutics and AI.” (Mallery et al. 1990, p. 374).

4. Towards a digital hermeneutics

As argued elsewhere (Capurro 2008, 2009) the task of hermeneutics in the digital age is twofold, namely to think the digital and at the same time to be addressed by it. The first task leads to the question of the way in which the digital code has an impact on all kinds of processes, particularly the societal ones. In this regard, digital hermeneutics is at the core of →information
ethics understood as the ethical reflection on rules of behaviour underlying the global digital network including its interaction with other social systems as well as with natural processes. The second task refers to the challenge of the digital with regard to the self-interpretation of human beings in all their existential dimensions, particularly their bodies, their autonomy, their way of conceiving and living in time and space, their moods and understanding of the world, the building of social structures, their understanding of history, their imagination, their conception of science, and their religious beliefs.

According to Lawrence Lessig “code is law” (Lessig 1999). If this is the case then hermeneutics must reflect on the nature of this code and its interaction with economics, politics and morality. The balance between these spheres, including nature, is related to what was often called justice (“dike”).

In Greek classical philosophy, this concept is broader than the one applied to social interactions, particularly with regard to the distribution of economic wealth. It implies the complex interplay between humans and nature using different programs or digital codes that interact with natural processes (Eldred 2006). It would be ‘unjust’ if cyberspace were to dominate other spheres by becoming a digital metaphysics. The task of weakening such a project is a major task of digital hermeneutics. One example of a strong version of the digital is the dominance of mass media with their hierarchical structures in the twentieth century. Vilém Flusser feared that this power would eventually become the dominant one over dialogical structures of communication (Flusser 2006). The Internet weakens media monopolies. The digital code makes possible the interaction of the human with the natural and the artificial. The digital network weakens the classic Western view of an autonomous subject and makes possible a dialogue with Taoist views of nature (Jullien 2003) as well as with Japanese Buddhism (Capurro 2006).

Ethics deals mainly with one question: who am I? This question is not to be understood as asked by an isolated individual but as a basic human question that is stated implicitly or explicitly in practical life by every human being no less than by groups, states and today's global dimension: who are we as humankind? This question is anything but academic. It is a question of survival. Hermeneutics in the digital age must become aware of this situation in order to make explicit the different political, legal and cultural norms and identities, the way they are affected by the digital code and the consequences for the construction of human identities as well as for the interaction between nature and society. Following Foucault, ethics can be understood as the questioning of morality (Foucault 1983). It works as a catalyst of social processes weakening the dogmatism of morality and law without just striving towards their replacement through another moral code. It is an open or free space that allows for a permanent critique of all kinds of blocking processes within and beyond the digital sphere. Who are we as a society at the local and global level in the age of digital and globalized communication? This question does not address a problem of text interpretation but our own self-understanding and ‘verification’ in the sense that the media itself and the processes that are object of hermeneutical study are at the same time existential dimensions of the interpreters themselves. The hermeneutic subject ‘verifies’ or makes herself a digital object.

Human existence is a valuing activity but the human evaluator has no value but a “dignity” or “Würde” as Kant called it. This is not necessarily based on a metaphysical view of man and world but arises already from the very situation of being-in-the-world itself as far as this being itself is not something we could valuate but is the horizon within which every valuation takes place. Within this horizon, all beings, human or not, have a dignity but non-human beings, as far as they are not subjects of valuation processes, have a relative value when they become object of human transactions within a social process of valuation. From this perspective, the economy as a process of permanent valuation is a main trait of every human community as such. This hermeneutic reflection makes clear why the digital sphere as a product of human invention, cannot become the final horizon of valuation for all possible understanding of the world and human existence. Being relative, the digital becomes an opportunity for the subjects of the twenty-first century to transform themselves and their connections in and within the world overcoming for instance the strong
metaphysical concepts that were leading for the self-understanding of Western societies for centuries. This does not mean that such concepts could be set aside or just replaced by the new ones, but they can be hybridized with different kind of reasons, imaginations, ambitions and utopias, hopes and disappointments arising from the digital code.

If this is the case, in different ways and intensities, the digital code becomes a real contribution to humanity as well as to its interaction with non-human spheres. It could weaken the metaphysical ambitions of (Western) logos by making it more flexible with regard to the global cultural interplay in which we look for reasons for our preferences in dialogue with different beliefs and desires of other human beings. A future world must be open to an open horizon of understanding in which the "principle of charity" plays a major role avoiding the danger of reasons becoming dogmatic beliefs to be eventually imposed on others by force. The digital network could become the place where such translations between different languages take place in a global scale in this new century. This means allowing the other to articulate herself in the network, looking for nodes of relations, becoming as a hermeneutic subject of the digital age. This is the reason for the relevance of intercultural information ethics (Hongladarom and Ess 2007; Capurro et al. 2007).

Who are we in the digital age? What does it mean for humanity to become transformed through the digital code? What are the epistemological, ontological and ethical consequences? How do human cultures become hybridized and in which way does this hybridization affect the interplay with natural processes and their interplay with the production and use of all kind of artificial products in a digital economy? These questions go far beyond the horizon of classic hermeneutics as a theory of text interpretation as well as beyond classic philosophic hermeneutics dealing with the question about human existence independently of the pervading impact of digital technology. We live in a world that is less and less a familiar “life-world.” We have become a troublesome field that requires hard labor and heavy sweat (“factus sum mihi terra difficultatis et sudoris nimii”; Augustinus 1998, X, p. 16). Hermeneutics misunderstands itself if it does not take care ontically and ontologically of digital technology with its overwhelming impact on our lives. Whereas digital technology would pursue an empty target, if we believe that “information is enough” and we neglect restoring “the reasons of what is said”. Thus we might be building up a “meaning-less” Information Society.

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La hermenéutica observa cómo el código digital es interpretado e implementado en las sociedades globalizadas del siglo XXI. Sus temas abarcan desde los procesos de la red digital a nivel social hasta los sistemas de comprensión autónomos (robótica) pasando por los sistemas híbridos biológicos (biónica) y la manipulación (digital) de la materia a nivel nano (nanotecnología). Este amplio espectro de problemas de interpretación y producción de sentido en el horizonte de las técnicas avanzadas del siglo XXI tiene como foco social el estudio de los sistemas de interpretación social en lo que actualmente se llama la Web 2.0. En este sentido se puede decir que el círculo hermenéutico como metáfora fundamental de la hermétic filosófica se transforma en lo que podemos llamar la red hermenéutica. Esto implica también un cambio de otra categoría central de la hermenéutica filosófica, la de “fusión de horizontes” (Gadamer 1975, 284).

En el caso de la hermenéutica digital no se trata de una “fusión” sino de un entrelazamiento de nodos que constituyen el tejido tanto de la red digital misma como de su hibridización con el “mundo de la vida” (“Lebenswelt”) con sus estructuras y sistemas sociales, culturales, religiosos, económicos y políticos así como con los procesos naturales. Esto implica no un reemplazar pero sí un desplazar los temas de la historicidad de la existencia humana y del lenguaje natural por los de la comunicación basada en el código digital y la artificialidad digital como tópicos centrales de la hermenéutica en el siglo XXI. El mismo carácter existencial de comprender (“Verstehen”) en el sentido de un proyectar(se) del ser humano ha de ser visto en este amplio marco de lo digital hibridizado con los proyectos humanos, en especial con sus productos artificiales pero también con la naturaleza y las posibilidades también híbridas que entran en juego. Retomando una famosa frase de Martin Heidegger en “Ser y tiempo” cuando hace referencia a que el conocimiento humano se encuentra en un círculo no vicioso con respecto al cual no se trata de buscar una salida sino de entrar en él “de forma adecuada” (“nach der rechten Weise”) (Heidegger 1976, 153) podemos decir que en el siglo XXI las sociedades buscan una entrada /adecuada/ a la red digital. En otras palabras, el código digital es actualmente una pre-comprensión (“Vorverständniss”) óntica de los procesos de interpretación (“Auslegung”) y construcción, almacenamiento y transmisión de sentido de las sociedades advenientes.
En un mundo digitalmente globalizado con sociedades estructuradas en base a sistemas que interactúan sin tener un meta-sistema fijo y único al cual puedan referirse tanto en su búsqueda de criterios de verdad como de legitimación ética y política, el tema de las tensiones, malentendidos, conflictos, oposiciones, conjunciones, ambiciones, intereses e ilusiones con relación a los procesos comprensión de sentido a nivel global y local deviene un punto clave sobre todo si se lo ve en el horizonte de los procesos técnicos acelerados y socialmente generalizados que comenzaron con la popularización de la Internet a fines del siglo pasado y se expansión en base a las técnicas móviles de comunicación. Pero el impacto de la computación digital va más allá de un sistema global de comunicación, pues implica una perspectiva metodológica que hace por ejemplo de la biología genética una técnica de transformación de los seres vivientes, de la física atómica una técnica de transformación de la base material de la realidad a nivel nano, de la investigación de los procesos síquicos y de su base orgánica una manipulación de los mismos en base a implantes y técnicas de perfeccionamiento y/o ampliación (“enhancement”) de los mismos. En otras palabras, el así llamado cuarteto mágico /bio-nano-info-cogno/ tiene su base en una hermenéutica filosófica digital implícita que no sólo comprende sino también construye dichos procesos y fenómenos valiéndose de la técnica digital.

Mientras la hermenéutica filológica estaba ocupada en comprender la verdad de un texto en base a criterios que aseguraran la objetividad de su interpretación, la hermenéutica filosófica descubre que siendo la comprensión una dimensión ontológica del intérprete, este no puede menos que incluirse en dicho proceso lo cual puede entenderse superficialmente como una visión subjetivista y relativista del conocimiento siendo así que se trata de un proceso de autoobjetivación y construcción social e histórica del sujeto así como también, paradójicamente, de una desubjetivización fundamental del mismo. La hermenéutica digital radicaliza este proceso de autocomprensión y autoconstrucción incluyendo los procesos biológicos que vienen siendo entendidos como procesos de comunicación de mensajes que pueden ser modificados artificialmente.

Referencias