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Social Semiotics

The agency of things: how spaces and artefacts organize the moral order of an intensive care unit

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The agency of things: how spaces and artefacts organize the moral order of an intensive care unit

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This article focuses on the constitutive role of space and artefacts in delineating the moral order of a specific context. Building on the premises of a post-humanistic phenomenology, it proposes a theoretical contribution to a critical understanding of communication as a complex phenomenon distributed between human and non-human semiotic agents. Drawing on ethnographic research in an Intensive Care Unit (ICU), the article empirically illustrates this point. It analyses how the interior architecture and some ordinary objects (e.g. the glove box and the alcoholic dispenser, the monitors and the handwritten clinical record) delineate the range of the "right things to do" and participate in telling which philosophy of medicine is at play in this ICU.

Keywords: agency of things; affordances; artefacts; ethnography; materiality; methodology; phenomenology of space; philosophy of care

Introduction

The study of the material features of social places (i.e. working places, classrooms, households) and of things that inhabit these places has a long-standing tradition in the social sciences (see among others, Appadurai 1986; Augè [1992] 1995; Barthes 1964; Baudrillard [1968] 1996; Cieraad 1999; Hall 1966). Broadly speaking, commodities, goods, technologies, the location, form and design of everyday objects and even the spatial organization of places have been conceptualized as semiotic devices provided with both an ideational function and a pragmatic function (relational and instrumental function, Halliday 1973). According to this tradition, objects and the social organization of space have been conceived as symbolic tools through which individuals communicate who they are and how they want to be perceived, which group they belong to and what their cultural references and practices are (Csikszentmihalyi and Rochberg-Halton 1981; Douglas and Isherwood [1979] 1996). Objects have also been considered as shaping entities that set the user agenda and user identities, and define the culture of domestic as well as working spaces (Bruni 2005; Iori 1996). In both cases, objects are carriers of meanings, vehicles of ways of life that interact with people in the meaning-making process and in the construction of the social world. Differences arise as how to conceive this interaction between human (discursive) practices and the artefacts inhabiting the world.

This article proposes a theoretical contribution to a critical understanding of communication as a complex and distributed phenomenon. We advance and empirically illustrate *that* human and non-human agents participate in building the life-world and *how* they cooperate in this shared meaning-making process. Following a post-humanistic phenomenological approach (Caronia and Katz 2010), we contend that there is no ontological primacy of humans over material reality; rather, they belong to the same "ecology of representations" (Gibson 1979). Therefore, we consider communication as a joint accomplishment of both human (linguistic) practices and object affordances.

The first part of the article discusses the relevant theoretical perspectives for analysing the relationship between human socio-linguistic practices and the material world. It also discusses methodological issues that recent approaches to "the agency of things" seem to neglect. In the second part, we analyse some ethnographic data collected during a fieldwork in an Intensive Care Unit (ICU).[1] The analysis empirically illustrates how architecture and artefacts contribute in constituting the moral order of this community of practice and how they share with humans the task of trans-contextual communication. In the conclusive remarks we focus on the theoretical implications and methodological challenges of investigating the agency of things.

The individual's agency vs. the shaping role of things

Against any form of social, cultural and even material determinism, the "human side" perspective on the role of objects in the life-world, stresses that people create their social and cultural world and even the meaning of the material features of everyday life contexts through their everyday actions and interactions (Berger and Luckmann 1966; Garfinkel 1967). Everyday practices of ordinary people are the effective tools that make supposedly passive users behave as active subjects. Defying any material determinism, social actors create, moment by moment, the meaning and functions of things circulating in their social space (De Certeau 1984). These approaches to social life and phenomena share a crucial theoretical assumption: the strength of human agency (Giddens 1979, 1984) and subject intentionality in making the meaningful dimensions of the world people inhabit. Objects, things, artefacts and technologies are essentially seen as quasi-inert "in search of meaning" entities. As Douglas put it, "goods are neutral, their uses are social; they can be used as fences or bridges" (Douglas and Isherwood [1979] 1996, XV). The humanistic approach to the role of things in everyday life as well as the so-called "linguistic turn" in studying organizational phenomena (Deetz 2003) emphasize that – as people establish meaningful interactions with objects and artefacts – they make them exist in the social world, making sense of and domesticating them according to their frames of relevance and "moral economy" (Silverstone, Hirsch, and Morley 1992). Within the acknowledged constitutive relationship between human socio-linguistic practices and materiality, an ultimate predominance is attributed to the former (Harré 2002).

In the never-ending oscillation of the epistemological pendulum, contemporary research "on the side of things", the recent material turn in the social sciences (Cooren, Fairhurst, and Huët 2012), has questioned the basic assumption of the humanistic approach to social life: the ontological priority of the human subject over any other entity in the sense-making process. This assumption implies an implicit and basically undemonstrated hierarchy among social agents according to which the

relevant features of the world (even the material world and the system of objects) are those signalled and used as relevant by human beings in their contingent actions and social interactions (Schegloff 1987, 1992).

On the side of things: the agency and intentionality of non-human actors

Research "on the side of things" underlines how and to what extent the material features of everyday life contexts are more than an inert background for social practice. Even though things do not determine people's life, they delineate the conditions of possibility for behaviours and ways of life. Their features and engineering anticipate paths of action and project new possible identities for the users. Human artefacts are part of the environment and – as the affordance theory (Gibson 1977, 1979; Hutchby 2001; Norman 1988) reminds us, any environment (or object) has cues that indicate possibilities for action. Disregarding any radical technological determinism, the sociology of techniques as well as the semiotics of objects (Landowski and Marrone 2002; Latour 1992) underline that things set constraints and create possibilities which work in favour of the genesis of certain meanings and courses of action rather than others. Once designed and introduced into the interactional scene by humans, texts, artefacts and objects of any kind make sense and have an agency on their own (Latour 1996). They make a difference and have effects thanks to us but also despite us. We might use them, "but [we] also might be at their mercy" (Brummans 2007, 724).

Following Latour's critical stance toward a sociology without objects (Latour 1996), continental socio-semiotics (Akrich and Latour 1992; Landowski and Marrone 2002; Semprini 1999) and recent research on artefacts and texts as meaning-making devices (Aakhus 2007; Barley, Leonardi, and Bailey 2012; Brummans 2007; Bruni 2005) we conceive *objects* as subjects and, therefore, redefine the very notion of subject. According to this theoretical perspective, "subject" no longer refers to a human being but rather a pragmatic competence. This competence consists in originating courses of action, defining contexts as contexts of some kind, creating meanings and delineating available ways of life. Inasmuch as objects have this competence, they may be considered as intentional subjects. An example from the field can clarify the point.

With the introduction of monitors and other technical equipment into ICUs, the traditional script of the medical staff's gestures and gaze has been radically modified. As a physician told us during the exploratory phase of our study,[2] younger doctors or nurses will more likely look at the monitor first (if not only) rather than at the patient to get a grasp of his or her condition, while older ones will still rely on patient observation and physical examination. These objects have created "another context" and make relevant a specific representation of the patient's body, its boundaries and meaningful clues. This body is a hybrid that includes the machines; skin is no longer its boundary marker and diagrams are its clues. Within this context new courses of action are more relevant and appropriate than others. Objects have shaped some crucial processes such as diagnosis and caregiving.

Not only does research "on the thing' side" shed light on their contribution to delineating the range of relevant practices within the context; it also sheds light on how things make sense by simply relating to one another. This world of things has already been given its name: the semiotics of objects calls it *inter-objectivity*

(Landowski and Marrone 2002; Latour 1996). This label identifies a world where objects have meaningful ties with other objects and, therefore, with humans. Juxtaposition (Jayyusi 1984) is the principle governing meaning-making: inferences can be drawn upon the spatial proximity of the objects.

Consider the following scenario observed during our exploratory fieldwork: there is a poster on the wall that shows some icons of hand-washing; there is also a dispenser of antibacterial soap. These two things on the wall create meaning simply by being there and their spatial proximity. The two artefacts have constructed "hand-washing" as the preferred[3] action in this context and, therefore, set the range of consequent actions for humans: either they accomplish the preferred action or they provide justification for their dispreferred move. As the head physician told us: "if nurses had to wash their hands each time they were supposed to, they would spend a third of their working time at the sink; changing gloves is sufficient" (Ferdinando C. Md senior).

Things are performing entities in that they define a context as a certain kind of context, create some state of being that simply was not there before, shape occurring activities and create the premises for further action. Through their design and location in a given context, objects participate in the construction of social reality. However, this does not imply, by any means, that human beings are passively made to act by things. As the example of the two objects calling for "hand washing" suggests, human beings may resist the "performative force of things" (Caron and Caronia 2007, 36) on behalf of their beliefs, culture, education, habits, needs or taste. They may (and actually do) choose from a range of available and concurrent courses of action. However, even resistance is an action. The objects on the wall have contributed to delineating the range of possible, yet non-equivalent, courses of action: washing and not washing hands. Whatever action is undertaken, the performance is a joint accomplishment of an interaction where non-human and human subjects participate.

En archē ēn ho Lógos: the humanistic critique to the agency of things

Since Latour's seminal example on the agency of a wooden fence in creating a new context and new possible (and impossible) courses of action for the shepherd and for the flock as well (Latour 1996, 239), perspectives underlying the role of things in the making of the life-world make a critique relevant: isn't the shepherd who conceived, created and installed the fence to prevent his flock to run away? Aren't him, his competences and skills that transformed some pieces of wood in a fence that makes a difference and has a traceable agency? Aren't therefore the human beings, their culture and semiotic practices at the very beginning and at the end of the agency of things (if any)? Of course they are. Most of the things that inhabit our social world and shape our conduct in it are created, installed, interpreted and used by humans: behind any architecture there is an architect and behind any object there is not only a design but moreover a designer provided with ideas, theories, expert knowledge, methods and creativity. Theoretical perspectives centred on the role of things do not deny at all the human roots of materiality nor the interpretative role humans play when acting according to those "things that make us do something" (Caron and Caronia 2007; Caronia and Cooren 2014; Cooren 2010; Cooren and Bencherki 2010). What these perspectives underlie is that laypersons acting and interacting in a socio-material context do not cope with humans that conceived the

artefacts, nor with the Discourses (with capital D; Gee 2010) that a critical discourse analytical approach can infer from artefacts or architectures. On a daily basis, people rather cope with the meanings, ideas, constraints, possibilities, presuppositions and consequences embodied in and enacted by these artefacts. This theoretical perspective zooms in precisely where people meet an already conceived material context and skilfully interact with its affordances that define a "model reader" (Eco 1979) or a simulacrum of the user.

Once things has been created, constructed, installed in a social context by human beings, and once they have been delegated by humans (Latour 1996) and provided with the competence of "doing something", they do something and accomplish the work they have been created for in ways that – here and now – no longer depends on their author (i.e. a carpenter, a designer, an architect). Artefacts have agency and a human-independent existence at least *post hoc*: after they have being created by their authors, they enter into the social world endowed with meaning and performativity (Brummans 2007; Cooren 2004, 2010).

Whether social actors are aware of the shaping role and formatting presence of things, whether they acknowledge in their social interactions the motives underlying the presence of some objects or the culture embodied in a given spatial arrangement is an empirical question: as we will see illustrating the example of an elevator out of order in a hospital ward, this awareness often occurs when people face those "unusual routines" (Rice and Cooper 2010) where things do not work as expected. Most of the time people act as if "materiality" (i.e. the semiotically designed features of a given context) was simply out there as a quasi-natural landscape: its organizing properties go seen but unnoticed and people's conduct appears to be naturally or smoothly shaped by the presence and affordances of things. In some sense this is precisely how the culture, ideas and even ideologies brought into being by texts, artefacts, images, technologies and semiotically arranged spaces enter the micro-order of everyday life and make it a cultural world: these meanings or discourses are re-instantiated, ratified, stabilized by people any time they interact – for another next first time (Garfinkel 2002) – according to the "strength of things" (Caronia and Katz 2010).

In many respect, a theoretical perspective centred on the agency of things underlines that the understandable, accountable, justifiable character of human praxis depends upon a chain of agencies embodied in and enacted by a plethora of different entities with different ontologies (Latour 1996; Licoppe and Dumoulin 2010): objects, cultures, norms, ideologies, discourses, signs, texts, images take part in making meaning and shaping human praxis, each one as an "actant in its own right" (Latour 1996, 239). As Licoppe and Dumoulin put it, things make a difference in the unfolding of social interaction not as extrainteractional objects but as interactants having a part in a "network of social and material, linguistic and non-linguistic agencies which shapes the activity setting and the relevance and force of the linguistic performances occurring within it" (Licoppe and Dumoulin 2010, 213).

In brief, this perspective recognizes that agency is distributed among more "subjects" than the object and the object user alone. Something that is recognized also by social semiotics and multimodal approaches to communication. These approaches underline that objects mediate human interaction: far from being neutral tools they are semiotic artifacts provided with meanings and condensing social discourses and world visions.

Is there any crucial difference with analyses that take into account the communicative properties of materiality within the multimodal communication framework (see Streeck, Goodwin, and LeBaron 2011)?

From a social semiotics perspective, architectures, design, objects and technologies available in the social world are seen as semiotic resources or modes of communication in and through which *humans* both display and construct culture (Aakhus 2007; Kress and van Leeuwen 2001). As Scollon pointed out, interaction involves "mediational means or cultural tools such as language, gesture, material objects and institutions" (Scollon 2001, 7). Knowledge and habitus are, at the same time, displayed and built in social interactions through the semiotic artifacts we use, whether they are physical objects, gestures or language. In most communicative situations these heterogeneous semiotic resources are intertwined and meaning is situated in and distributed across them: none could effectively interpret a road sign without considering the social and physical world that surrounds it (Scollon and Scollon 2003). More recently, Streeck, Goodwin, and LeBaron (2011) remind us that we should recognize "the diversity of semiotic resources used by participants in interaction" (2) and take into account "how these resources interact with each other to build locally relevant action" (2). Although the role of materiality is acknowledged the more and more by multimodal approach to communication, it remains that analyses of embodied interaction in the material world still appear to explicitly or implicitly adopts *a human-centred approach* to interaction. In this world where cultural meanings are embodied in artifacts and materiality, these perspectives underline the active role of human subjects at the beginning (e.g. conception and design) and at the end (e.g. interpretation and uses) of the semiotic chain. As stated above, within the acknowledged mutually constitutive relationship between human socio-linguistic practices and materiality, an ultimate ontological primacy is attributed to the former (Harré 2002). Interactionism, social semiotics and, in many respect, ethnomethodology have relatively passed over in silence what could be called the passive dimension of any action (Cooren and Bencherki 2010).

Perspectives that focus on the "agency of things" basically propose to decentre the analytical position by acknowledging that artifacts, tools and architectural elements *contribute to* human activities and practice, how they do that and what their contribution is: if humans are always on the active site of meaning creation (as designers, interpreters, authors) they are always in the passive site also, they are "designed", interpreted and authorized by things. Depending on what we focus on in the interaction under scrutiny, we can notice that things make a difference, have effects and make us do things, thanks to us but also despite us.

Does this perspective imply a surreptitious return to material or technological determinism? We do not think so; it rather seeks to overcome the reductionisms implied in the "subject-object duality" which still seems to force the researcher to make a choice between an agency-oriented or a structure-oriented perspective. The constitutive (i.e. active) role of things is something that sounds deterministic for post-structuralist, constructivist and agency-oriented scholars, while the constitutive role of human interpretation sounds like a romantic celebration of the free activity of human beings for structure-oriented scholars. Acknowledging (also) the passive dimension of any interaction, the multiple ways and circumstances in which things do things (without words) or we are led by things to do things, does not minimize our active role in the unfolding of the interaction: whichever are the constraints

put forward by materiality, any action or reaction is actively implemented by individuals. We may diligently follow the path traced by things, challenge their force, use them in unpredictable ways and even resist to their performativity yet in any one of these hypothetical cases things make us do something as even resistance is a (re)action.

In some sense the difference or the theoretical tension between perspectives "on the side of things" and the human-centred approaches is a matter of "zooming in" different arches of the same and unique circle of reflexivity through which human and non-human beings, knowledge and praxis, structure and action create each other.

Describing and interpreting materiality: epistemological issues and methodological challenges

Inside a complex organization like an ICU, multiple elements concur to indicate – or radically constitute (Cooren 2010; Taylor and Van Every 2011) – the inner culture of the organization: the material disposition of a place, its spatial organization, texts and documents, the location of relevant artefacts (e.g. the patient's beds, its monitors, the computers) as well as everyday objects (e.g. the glove box). Put simply, these matters matter (Cooren, Fairhurst, and Huët 2012). The very question is not whether they matter, but how they matter and for whom. As Schegloff (1997) put it, claiming for a radical participant-oriented analytical perspective, we should always ask: "whose text, whose context" or object. This question raises the typical issue of any analytical endeavour: distinguishing and, hopefully, connecting the analyst's point of view and the members' point of view in describing and interpreting what is going on. Without entering into this open-ended debate (see among others Dupret 2011; Duranti 1997; Geertz 1983), we should recognize that the question of "which objects, texts, and contexts matter, how they matter, for whom, and how we know that" is a crucial methodological and even epistemological that cannot be simply ignored or easily resolved. This issue is even more relevant when analysing the agency of the nonverbal and non-linguistic aspects of a given community of practices. Recent approaches in organizational communication strongly advocate for never leaving the *terra firma* of interaction (Cooren and Bencherki 2010) to grasp the agency of things at work ("materiality in practice", Pentland and Singh 2012, 289). Following an ethnomethodological perspective on the constitution of social life, these approaches assume that the material aspects of any given context are embodied in the ways people carry on and order their practices (not necessarily nor always discursive). The agency of things is assumed to be visible (observable, traceable and analysable) in the design of people's actions and interaction, whether members know and acknowledge it or not. Although these approaches claim to avoid a human-centred perspective, they still rely on human practices (i.e. interaction) as the main and perhaps the only vehicle for identifying the agency of things. We contend that the analytical approaches programmatically rooted in members' local interactions[4] do not deal with all the possible ways in which things have or *may* have an agency.

We distinguish and discuss three clusters of empirical cases typically occurring in the field and often blurred in analysing the role and the meaning of things in a given community of practice.

(1) Members refer to (i.e. point to, evoke, account for) things and/or their agency in or through their discursive practices (i.e. when talking to the researcher or in situated verbal interactions).
(2) Members show an orientation to the material aspects of their daily life in the design of their non-discursive practices (i.e. movements, gestures, positioning).
(3) Members do not exhibit any particular public, ostensible and traceable orientation to the material features of the setting: the spatial organization and the objects are unmarked and seem to be just part of the background.

These different clusters require crossing different, yet not mutually exclusive, theoretical stances and methodological approaches. We contend that the more we move away from verbal interaction and discursive data (from cluster 1 to cluster 3) the more the analyst's perspective and interpretation gain ground over the members' one. This should not prevent us from also focusing on the meaning and agency of the "unmarked objects", that is, objects that are not pointed out nor referred to as relevant in any particular way by members.

When the agency of things is in the member's discursive practices

In order to analyse them, things and places should be described or otherwise represented (as with the video camera or through maps). Any form of "representation has an aspectual shape" (Searle 1995, 176) and encompasses a point of view (Caronia 2011). On a minimal level they should be singled out, pointed to and labelled. Yet these practices are by no means less dependent on a given perspective: any deictic is – at least minimally – constitutive as it encompasses a point of view concerning the relevance of what is shown/labelled among all the possible showable things. In these cases, it is relatively easy for the researcher to focus on what is ostensibly relevant and procedurally consequent for members (Schegloff 1987) and to be able to make a case for the agency of things from the members' point of view. Surely this approach respects the postulate of adequacy (Schutz 1962; see also the "unique adequacy requirement of methods", Garfinkel 2002, 175) and guarantees that the analyst's interpretation will be oriented to the members' position.

An example from the field may clarify the point.

Members are not always, nor necessarily, aware of the agency of things and places. More commonly, they use things and move in spaces, drawing on their affordances to organize their practices in ways that are routinely implemented and become natural by the means of iteration. Members become aware of the agency of things or, we should say, they invoke the agency of things when something suddenly goes wrong or when facing an "unusual routine" (Rice and Cooper 2010). Consider the following episode.

The elevator is out of order

The Charge Nurse is describing the different areas of the ICU to the researchers, indicating the official and normative function or destination of each different section. When we arrive inside the core area, she says:

> this is the clean corridor, the passage for the clean materials that transit from the technical rooms to the patients' beds, the dirty material should transit in the other corridor to avoid

> any contamination and it goes out from there. But right now it doesn't work this way because the elevator is out of order. (from field notes and audio recording)

This discourse exhibits the nurse's sense of the agency of things: the responsibility for how things function or for what practitioners do is attributed to the material features of the working place. When the utterances inscribed in the material disposition of the place are not aligned with the official culture of the community (i.e. old departments never renovated, obsolete infrastructures, the shutdown of the intranet and the consequent unavailability of the digital version of radiological exams) members often accomplish the work of discursive realignment by invoking the agency of things in creating that state of affairs. In these cases at least, matters clearly matter for them; their agency is publicly relevant and procedurally consequential for members. The analyst may easily draw on such discursive tracks and use them as interpretive resources to argue for the agency of things in ways that are oriented to the participants' point of view.

The agency of things in members' non-discursive practices

The same methodological requirement is also relatively easy to follow when the *terra firma* of interaction reveals the tracks of the agency of things. Yet it is less guaranteed. When members are "simply" acting (i.e. moving in the space and using objects) as usual, it becomes problematic to grasp the agency of things that are not directly referred to or talked about by members (see further on the example of the natural flow of people in the ICU). As Cicourel (1980, 1992) reminds us, the constitutive role of a given context (and, we can add, of things and other affairs) in shaping members' practices and interactions can be so deeply constitutive of the practices that it does not need to be marked in any specific and ostensible way by the members. In these cases, the analyst copes with movements, gestures and hyper-contextualised verbal interactions. His or her interpretation of the agency of things in constituting these practices is – at least partially – from outside. Following the etnomethodological perspective (Garfinkel 1967, 2002), we may argue that as far as the agency of things is *displayed* (embodied, enacted) in actions, it needs not be in the mind or the words (of participants). Far from minimizing the role of the analyst or devising a programme for "going native" (Lynch 1993, 274), this premise recognizes the epistemic role of the researcher, since it is precisely the analyst's responsibility to categorise and interpret movements, gestures and practices as clues of the agency of things.

Unmarked objects: do they have a voice?

The postulate of adequacy is far more difficult to pursue when the meaning and the agency of things cannot be traced in members' gestures, movements and actions. Sometimes, things or a given spatial organization are "simply there" with their affordances, size, texture and forms. Yet, even when unmarked, artefacts *project* certain uses over other, indicate *possible* courses of action and encode a given simulacrum of the user. Artefacts convey a particular culture of action (Nicolini 2009, 1406) by stating principles, values and even a moral order through their mere choreography (see examples below of the small bottle of antibacterial gel and the glass wall). Put simply, the fact that something is not referred to as relevant in a traceable, public and ostensible way by someone does not mean *eo ipso* that it is irrelevant.

Whether the presence and possible meanings of things are staged (embodied, incarnated, enacted) by members or not, things participate (i.e. have a voice) in defining the crucial dimensions of a given living context. In these cases, any interpretation or inference of their constitutive role relies on their material features and it is mostly, if not exclusively, advanced from the analyst's point of view.

Borrowing a metaphor from Nicolini (2009), we propose to use two, not mutually exclusive theoretical lenses: an interaction-driven lens which relies upon the clues traceable in members' practices (see above cluster 1 and 2) and, therefore, see the agency of things *from the members' point of view* and an object-driven lens which sees members' practices from the "things' point of view", the one inscribed in their affordances (cluster 3). The approach consists in crossing two interpretive perspectives to elucidate the seen and noticed, the "seen but unnoticed" (Garfinkel 1967) as well as the virtually visible and noticeable agency of things. The limit of such an approach consists in accepting the heuristic role of the analyst's point of view which not necessarily coincides with or mirrors the members' orientation. The advantage consists in transforming the different forms of material agency into noticeable and accountable dimensions open to interpretation by the members themselves. Clearly this is a more hazardous path as it evokes a structuralistic approach to the "system of objects" (Baudrillard [1968] 1996) and the dark cloud of essentialism (Lynch 1993). This is not a necessary corollary of focusing (also) on the unmarked objects of a living space.

In the following sections we will analyse some examples from an ethnographic study in an ICU[5] to empirically illustrate how things have different forms of agency and how they can be analysed.

Crossing contexts: the affordances of infection prevention

In the last decade, ICUs have become more and more concerned with nosocomial infection prevention and treatment. Due to the patients' highly critical conditions and the use of invasive devices (ventilators, catheters), the rate of these infections is 5 to 10 times higher in ICUs than in other hospital wards (Eggiman and Pittet 2001). Special attention is paid to multi-resistant bacteria (MRB). It is commonly recognized that the more dangerous (and unfortunately often deadly) MRB are not brought into the ward by outside visitors. Rather, they are triggered by antibiotic treatments and spread by hospital practitioners, mostly through their hands. Other carriers of infecting microorganisms are unsuspected objects such as pens, cellphones or stethoscopes. Competence and performance in coping with nosocomial infections mark the boundaries that separate two communities of practice: hygienic preventive strategies define the nurses' expertize; antibiotic treatment is the physicians' concern. Although knowledge and expertize are clearly distributed between the two communities, neither the power to put them into practice nor the prestige of their respective expert knowledge is equally distributed. Interestingly enough, most scientific literature on infection control in ICUs is addressed to physicians

> to convince them that the principles of infection control in the ICU are based on simple concepts and that the application of preventive strategies should not be viewed as an administrative or constraining control of their activity, but rather, as basic measures that are easy to implement at the bedside. (Eggiman and Pittet 2001, 2059)

In this ICU, plenty of policies and practices are officially stated and also routinely carried out by members to avoid cross contamination of these very critical and often highly immune-depressed patients. Here we focus on the presence of two small and apparently trivial common objects: the little bottles of antibacterial alcoholic gel and the glove box. We will see how they state the policy of prevention across the different working contexts in the ward. These objects are also used by members to indirectly call for the "right thing to do" when the boundaries of knowledge and power prevent them from doing it with words.

The case of the antibacterial gel dispensers

The bottles of antibacterial gel

> Small disposable bottles with the antibacterial gel are ubiquitous. They are on every single surface of the ward: on the top of the copying machine, in the kitchen, on the desk in the briefing room, in the changing room, on the desks along the corridors, near each computer and telephone and also near the Rotem and the Emogas analysis machines. I even noticed one on the little parapet of the glass window at the entrance of the "control room". More expectedly, they are on the trolley near the patients' beds. (from the field notes).

Of course mapping the location of the small bottles does not mean mapping *the practice* of disinfecting hands (as it also depends on and whether practitioners use the gel or not). However, the map exhibits the places where this practice should normatively be accomplished and indexes what members expect to be done. Placing such common objects in virtually all areas of the ward indicates that disinfecting hands is or should be a trans-contextual activity to be accomplished before or after almost every single activity inside the ward. The need to protect and maintain the ecology of the ward is embedded in these trivial and common objects: they carry a particular culture of health practices across the various working contexts which includes hand hygiene. Like more noble and sophisticated cultural artefacts, they constitute "a means of transmission of social knowledge by carrying, inscribed with them, objectified norms […], the assumptions on how work should be carried out, and the purposes of use" (Nicolini 2009, 1406).

Crossing the boundaries of power and knowledge: the glove box

In this ICU nurses proudly consider themselves and are also perceived as the vestals of good hygiene; however, they are not entitled to make the physicians respect the norms of prevention. Traditional yet currently operating knowledge-and-power boundaries position the nurses' voice and expertize on a lower level of the epistemic and authority hierarchy at play in the ward. The episode below shows the role objects play in communicating the expected behaviour to the doctor without violating the social norms governing communication in the ward.

The surgeon

> The surgeon who operated on Saverio S.'s abdomen arrives. He has to assess the wound and the drains. He talks briefly with another doctor. He does not wash his hands at the sink (did he before? In any case, he has not since he came into the ward), he approaches the bed, touches the sides of the bed, goes around the left hand side continuing to touch

12 the bed, uncovers Saverio and asks him if he feels pain anywhere […]. Francesca, a nurse, assists. The surgeon touches the abdomen in different areas, he removes the patch cover-ing the wound. He assesses Saverio's reactions. He checks the drains touching the tubes and the bags that are on the ground. He tells Francesca "I will remove these two, the third one tomorrow or the day after tomorrow". He explains to Saverio that he will feel some pain but not too much. He quickly removes the patch that covers the entrance of a drainage tube. Francesca takes the glove box from the trolley of medications that has been right there since the doctor arrived, she hands it to the surgeon accompanying the gesture with the vocative "Doctor". The surgeon takes the gloves from the box, thanks Francesca and puts them on. (from field notes)

The nurses we talked with told us this episode was not at all unusual: physicians, especially those from other departments, appear to care less about the practices of preventing infectious diseases than inside practitioners. This lack of attention to hygiene makes them "possible contaminators". For this reason the nurses silently supervise the physicians working on the patients and use some indirect strategies to make them notice this neglected aspect of the clinical work.

In this episode, the surgeon should have put the gloves on at some point before Francesca handed the box to him, but she could not tell him this directly: she used the glove box to speak on her behalf.

In the spectrum of objects used in cross-boundary collaborations (Barley, Leonardi, and Bailey 2012), the glove box belongs to the "clear objects" category: it has low ambiguity and "provides limited support for multiple meanings" (282). At least in this context, the box unambiguously stands for "put on the gloves before touching the patient". Its clear meaning allows the nurse to perform a directive speech act in a very indirect form and signal to the surgeon what the policy at stake in the ICU is.[6]

When cross-boundary collaboration among peers with different expert knowledge is at stake, joint accomplishment (e.g. making a diagnosis) appears to be better sustained by more ambiguous "boundary objects" (e.g. a patient's brain CAT). Yet, as the example shows, trivial "clear objects" may also shoulder the burden of trans-contextual communication and help in crossing the boundaries of territories defined by knowledge but especially by power.

So far we have investigated the agency of things in telling which alternative courses of action are institutionally preferred for preventing infections. The following sections focus on the agency of spaces and artefacts in delineating the philosophy of healthcare at stake.

The organizing property of space: constituting the centrality of the patient

The ICU consists in a long entrance area (entrance, Figure 1) which also serves as a waiting room for relatives. A brief, yet wide corridor called the "filter" connects this area with the core of the ICU by sliding doors that open onto a large inner corridor (corridor, Figure 1) right in front of the main and bigger in-patient ward. There is no door separating this ward area from the large inner corridor, just a wide opening. This multiple bed room is called the "testata" and hosts highly critical patients needing intensive monitoring and assistance. In between this area and the inner corridor there is a working room ("control room", Figure 1). The walls and doors separating this space from the ward area and the inner corridor are made of glass. The other three in-patient ward rooms are adjacent, yet distinct from this one.

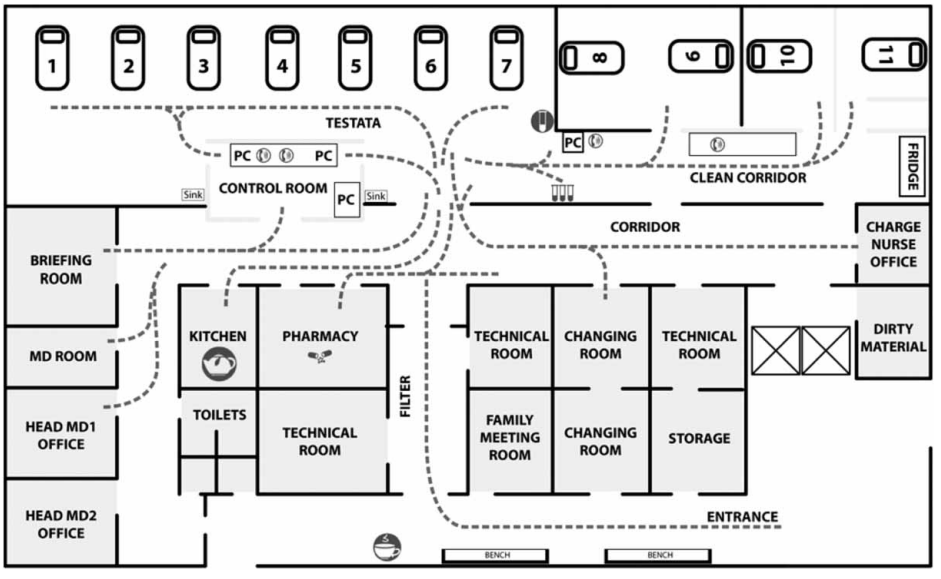

Figure 1. The organization of space and the natural flow of people.

They host patients in a sub critical phase, being weaned, awake or in the awakening phase that need a medium to a low degree of monitoring and assistance and who may benefit from longer visits from relatives (e.g. children). Patients in these rooms are visible from the glass walls by anyone walking along the right hand side of the clean corridor. However, they are not visible from the entrance, nor from the main in-patient ward area: to see the patients lying in these rooms one needs to turn right from this area and purposefully go towards the three rooms.[7,8]

The map in Figure 1 represents the inner architecture of the ward and the natural flow of people as it was observed and recorded through field notes and video camera.

As we can see from the map, all the trajectories converge in a traceable zone at the intersection between the filter zone, the corridors and the opening of the largest ward room, the "testata". The so called "filter" area leads to and ends at the first corridor running uninterrupted toward the ward area. Anyone entering from the filter zone necessarily ends up at that point and can immediately see the highly critical patients in foreground.

This liminal zone is also regularly crossed by practitioners already inside the ICU. When not engaged in activities at the patient's bed (physiotherapy, nursing, setting pumps with medicines, performing a tracheostomy or inserting a catheter) practitioners are constantly moving along the inner corridors to accomplish other tasks: testing blood at the small laboratory stations (Rotem and Emogas analysis machines), forwarding requests to the microbiology laboratory, and going back and forth from the private and technical rooms. In every case they have to cross this liminal space. Even displacements not oriented to a patient's bed pass through there.

The researchers' impressionist field notes (an overall sense of "traffic" in this "crowded zone") reflect the convergence of movements in this area. What we observed during the fieldwork was a continuous, yet – as we discovered – highly organized swarming of doctors and nurses in this area.

Interestingly enough, this area does not have any specific boundary marker, nor a label or an assigned official function: it is constituted as a nodal area by the trajectories of people converging here; these trajectories are, in turn, silently shaped by the spatial set up. Humans and artefacts participate in defining the core zone of the ICU: the liminal space where the highly critical patients are immediately visible and where three *a priori* functionally different contexts (i.e. the entrance, the working zone and the highly critical patients ward) converge and overlap.

The scenic intelligence of the in-patients ward

As we noted above, the inner architecture of the ward has clear organizing properties: it makes relevant a natural flow toward the patients especially those in a very acute phase and in need of constant monitoring. The transition is smooth: people do not notice they are crossing the corridor and seem to naturally land inside the main ward area facing the patients. Even the natural light comes from there. What physically comes first (e.g. the working areas in the corridors, the technical and meeting rooms, the doctors' and Charge Nurse's offices) is phenomenologically reversed and positioned in the background with respect to what comes afterward: the patients, who are positioned in the foreground.

Of course, practitioners can stay in the areas outside the ward area if they do not really need to go there. They can turn right or left at the corridor and go to the private or technical rooms, but the ward area is there, accessible and right in front of their eyes. Clearly, "not going to the patients' bed" is an option yet the space is organized to make "entering the ward area" the preferred and unmarked course of action. In brief, not going to the patient's bed (if not strictly necessary or routinely established) is possible (and actually occurs), yet one needs to choose not to go, as the spatial set up make the vectors of displacements naturally converge toward the highly monitored patients' area.

The interior architecture of this ICU silently states the relevance and centrality of "seeing the patient" as part of the working practices. Although movements within this space do not follow any pre-established choreography, they exhibit an orientation to this partially constraining framework: outside the canonical activities (e.g. the head physician ward rounds, the nursing, the medical treatments) practitioners are constantly circulating in the main ward area. As one of the physicians told us "here the patients are seen several times a day, at least four, five times, they are in our sight at all times" (Giuseppe S. MDs).

Other features of the interior design of the place also participate in the silent work of constituting the "patient-in-bed" as the centre of the physical as well as mental territory of practitioners.

How objects speak and what they say: the case of the glass walls

The use of glass walls to separate the working room from the main ward area can be easily explained in functional terms: the only windows in the whole unit are located on the main wall of the ward area, and the glass allows the light to come into the working room. Indeed, this is the point: the functional and material properties of the glass wall are the conditions of possibility for practices. They make the seven patients in the room visible at all times for anyone working in this room. The desks are located in

front of the glass wall: whether answering the phone, working at the computer or even chatting with colleagues, practitioners have the patients within their field of vision. Like the shepherd's fence discussed by Latour (1996, 239), the glass creates a specific entity – the always-visible-patients – which would not be there if the glass were not there. It both enables and constrains the members' life: patients are made visible and practitioners cannot ignore them. It also makes relevant the occurrence of a specific activity (having a look at the patients) among other activities occurring in this place. These activities are, in turn, indicated by the ordinary presence of some objects: telephones, computers, forms to fill in, a sofa.

In short, this working place is defined as such by a sort of objectual narrative stating the typical, expected or right things to do which include having a look at the patients lying unconscious on the other side of the glass wall while accomplishing other tasks. Do practitioners look at the patients? Not necessarily. If we follow their actions and interactions inside this room we barely see the agency of the glass at work or its "materiality in practice". Strictly speaking, we should conclude that this material feature (i.e. the glass wall) *does not* "appear to matter or be relevant to them" (Cooren, Fairhurst, and Huët 2012, 302). If, on the contrary, we change our theoretical lens and see the space from the "things' point of view" we are able to recognize how one affordance of the wall (i.e. its being glass) delineates *a possible but available* course of action: watching over the patients while accomplishing other tasks. Although it does not force practitioners to perform this specific activity, it invites them to and makes it possible, reminding practitioners what the core of their work is.

Things that make us do: the case of the monitors

Each bed has two monitors that constantly display the patient's vital parameter trends as well as other crucial indexes such as body temperature. They are located at the head of the bed at about the same height as the patient's head. As many computers are located in many different working areas (in the briefing room, in the control room, in the doctors' private rooms, in the corridors), we were interested in knowing if the information appearing on the monitors were centralized. This is actually the case in some Italian ICUs where the patients' vital signs and condition can be accessed at a distance: practitioners may evaluate the state of the inpatients and take some decisions without seeing or physically approaching them. In this ICU information is not centralised and runs only on the screens located close to the patient's bed: doctors and nurses need to physically approach the bed if they want to have a look and note the patient's status. Whether this material arrangement is due to a lack of resources and updating or not, it carries organizational as well as communicative properties: the location of the monitors and the absence of centralized information make "going to the patient's bed" the preferred course of action. They communicate also a principle governing this ICU's philosophy of the clinical work: the patient-in-the-bed is at the centre of the practices. As a junior physician told us: "where I used to work before, the monitors were centralized. On the one hand, it was far easier but you never saw the patients" (Francesco G. Mdj).

The location of the monitors and the absence of centralization may be conceived as a complex speech act condensing more than one illocutionary force: it is a statement about the ICU's policy, but it is also a directive since it tells the interlocutor what to do. Its success is evident as doctors and nurses do approach the patients' beds to gather information on their status and to update their clinical records. If people do things

with words, things speak and "make us do" (Caron and Caronia 2007, 40) with their affordances and through their locations. In this specific case, these objects participate in constituting the clinical centrality of the patient in flesh and blood and in delineating the right thing to do: going to the patients' beds.

Texts-in-context: the case of the handwritten clinical record

In front of each bed unit there is a tripod and a little movable table where the patient's clinical record is kept. It contains documents (e.g. tests results, antibiograms, anamnesis) including the handwritten medical report[9] kept by the nurses and the physicians. Both fill it in and consult it right there, *in front of the patient's bed*. Even the hand off between the nurses is routinely and normatively performed consulting the bedside report in front of the patient. There is only one official exception to this normative location of the clinical records. Just before the morning briefing they are gathered by the Case Manager and brought into the briefing room.[10] The night physician uses them as a mnemonic support when presenting the cases to the morning colleagues. As a nurse explained to us, right after the briefing, these documents must be put back on the tables in front of the patients' beds and not removed for the next 24 hours.

In this ward the texts documenting the patient's ongoing status (i.e. the monitors) and his/her remote and proximal clinical history (i.e. the clinical record) are (and should be) contiguous to the patient.

This is a typical example of inter-objectivity (Latour 1996): objects give and take meaning through their juxtaposition (Jayyusi 1984) and inferences can be drawn from their spatial proximity. This configuration of objects indicates that the patient's status is something that lies in-between the textualized information and the physical patient. It also indexes the triangulation among the texts, the patient and the practitioner as the institutionally preferred practice.

It could be argued that this triangulation is an obvious and taken-for-granted practice, yet it is not. The inpatients of an ICU are deeply sedated to relieve the pain and discomfort created by tracheal intubation, ventilation, suction and physiotherapy. Sedation and analgesia are also infused to help the organs' (e.g. brain) recovery after trauma or surgery. Most patients are sedated to complete unconsciousness and paralysis and can remain in this status for days.[11] They cannot speak, report their symptoms or subjectively contribute in any significant way to the diagnosis or assessment of their status: basically all inferences are based on texts (i.e. blood tests, radiological exams, the trends of vital parameters, the drugs and medicines they take) and all the physicians really need is to access and cross validate these data.

In these cases, positioning the patient in flesh and blood at the centre of the clinical work is more a symbolic choice than a practical necessity. This choice echoes a humanistic approach to the clinical practice and is embodied in and enacted by a choreography connecting the physical patient to her/his textual representations.

Staging the moral order of an ICU: concluding remarks

These concluding remarks concern the theoretical, methodological as well as substantive points of the article. Theoretically, we have contended and empirically shown that human and non-human agents participate in building some crucial dimensions of the life-world and share the burden of this meaning-making process. This perspective

implies broadening the boundaries of social semiotics to investigate a hybrid world made up by entities with different ontologies (Landowski and Marrone 2002; Latour 1996). As our data show, even very trivial objects may be carriers of meaning and agents of trans-contextual communication (within the ward and between the boundaries separating inside practitioners from outside practitioners). Sometimes the objects and the material disposition of places have an agency that is traceable and observable in the ways people use these objects (e.g. the glove box) or carry on and design their activities (e.g. converging where the highly critical patients are in full view or approaching the patient's bed). Yet, sometimes the agency of things is potential and suspended in the realm of the available conditions of possibility for action (e.g. the dissemination of the alcoholic gel dispensers or the glass wall). It can only be inferred from the objects' affordances, material texture, design and location as there is not *necessarily* a trace of it in people's actions, interactions and discourses. Yet – and this is our main theoretical point – it is still there like a silent but operating and ongoing contribution of things in constituting the inner culture and organization of the community. As we argued, this theoretical perspective raises a methodological challenge and calls for a multiple lens approach.

Avoiding any essentialist perspective (i.e. assuming that the meaning and agency of things are *in* the things and can be assessed by "a view from nowhere", Putnam 1990, 23) as well as a radical member's check perspective (i.e. relevant is what and only what is treated as such by members in a public and ostensible way) we need to re-legitimize the analyst's perspective in making sense of the "unmarked objects". As we have shown, if things have an agency that is embodied and traceable in people's interaction (Cooren, Fairhurst, and Huët 2012) they also carry the scripts encoded in their affordances, design and location (Caronia and Katz 2010; Nicolini 2009).

Which meanings are carried by non-human subjects is of course an empirical question. In this ICU, spaces and artefacts delineate the philosophy of care at stake in the ward. As we have shown, during the everyday life of an ICU, more than one option is available for doctors and nurses (e.g. going to the patient's bed or not, putting gloves on to touch the patient or not, handing off to the incoming colleague at the patient's bed or in another room). Like talking things, spaces and artefacts tell which alternative, yet non-equivalent, courses of action are institutionally preferred and, therefore, participate in constituting and maintaining the moral order of the community.

This moral order is not communicated only through the material dimension of the ward. It is also enacted in and evoked by the (discursive) practices of the members. The centrality of the patient, for instance, is traceable in the ways the physicians and the nurses refer to the patients when talking together: they routinely use the patients' first and/or last name and not (as in other wards) the number of the bed they occupy. During the morning briefings, the account concerning how patients spent the night and what their immediate status looks like begins each day by recalling their proximal and remote clinical history. The story is also completed by a reference to the patients' relatives' emotional reactions to the often highly critical situation. Physicians and nurses participating in the briefing listen each day to the same narratives[12] and are lead to re-localize new information and disaggregated numeric data within the history of every single patient.

What we observed during fieldwork was a "texture of practices" (Nicolini 2009, 1407) distributed among artefacts and human beings. This texture more than any

particular instance indicates the philosophy of medicine at stake in this ICU. Furthermore, research is needed to investigate what this texture looks like when the objects' utterance does not conform to the members' utterance. Prior studies (Caron and Caronia 2007; Cooren 2010) as well as data from this fieldwork suggest that people perceive the agency of things even more strongly: things are invoked as the primary if not the exclusive cause and are given the responsibility of the state of affairs. However, facing the constraining utterance of things, people also engage in counter-utterances to pursue their goals and even their mission despite the strength of things.

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Notes

1. The ethnographic study has been directed by the authors of the article. The first author also conducted part of the fieldwork. We wish to thank the other members of the research group Giuseppina Mesetti, Ph.D., Marco Pino, Ph.D. and Roberta Silva Ph.D. (University of Verona) for their collaboration in data collection and analysis. We wish to thank also the medical and nursing staffs of the ICUs where we conducted the field for their essential collaboration in data collection and interpretation.
2. In the exploratory phase of the fieldwork, researchers spent two days inside different ICUs under the "expert guide" of the head physicians to become familiar with the general and trans-contextual issues and features of this kind of hospital ward (e.g. the monitors, Hill-Rom hospital beds, the policies and practices adopted to prevent infectious diseases). These ICUs were not included in the sample of ICUs (4) where extended fieldwork was carried out for the study.
3. In language and social interaction analysis the notion of preference indicates that – given some prior relevant conditions – some kinds of subsequent courses of action are routinely expected over other available ones (Atkinson and Heritage 1984). The "choices among non-equivalent courses of action are implemented in ways that reflect an institutionalized ranking of alternatives" (53). We purposefully use this typical language-use category to analyse the referential and pragmatic functions of the objects.
4. Surprisingly, even recent theoretical approaches that strongly advocate for decentring "our analysis by *not* systematically *taking* what *people* are doing *as the only point* of departure of our inquiry" (Cooren, Fairhurst, and Huët 2012, 296, emphasis mine) still adopt a humanistic methodological standpoint (i.e. "the realm of action and communication" and humans' ways of "staging these various forms of agency in their conduct and talk", 299–300) to make sense and even demonstrate that "action is always shared and distributed among a variety of agents with variable ontologies" (297). We contend that – for this precise purpose – we need to radically go one step further and *also* consider objects that are "simply" present and the possible meanings encoded in their affordances and locations.
5. This fieldwork was carried out by two researchers who spent 12 full working days in an ICU, from 6.30 a.m. to 8 p.m. Different tools were used: video recording of specific events and practices, field notes and a diary, open-ended interviews with several members of the community, explanatory sessions of practices and triangulation of descriptions and interpretation. The corpus of audio/video recorded data consists in 11.35 hours of briefings; 15

hours of shadowing members' practices; 10 hours of interviews and contextualised explanatory sessions.

6. As an anonymous reviewer rightly remarks, these things (the dispenser, the gloves box, etc.) that make a difference, tell practitioners what to do, channel people's actions and shape their movements in the ward have been placed by someone and designed to make e a difference. From this perspective, the agency of things, (i.e. their power in making a difference and locutionary force) should be conceived as distributed among different "subjects" that have or are given a voice in the scene of dialogue. We couldn't agree more: to understand the local action and its success we need to go beyond the "nurse and doctor" interaction as a pure interactionist perspective would have considered. We need to take into account a plethora of different entities taking a part in the unfolding of interaction: the nurse who uses the object to speak on her behalf, the designers, the object that enacts a discourse on hygiene, the doctor and even the norms and protocols governing the spatial and material arrangement of this workplace. This plethora of agencies does not minimize the active role of things: the glove box is given an agency by someone because (1) it is normatively located on the medical trolley, (2) it is not just any kind of thing, it is a *disposable gloves* box and (3) it embodies, stands for and points to a norm. Yet once it is "in place" (Scollon and Scollon 2003) it makes a difference in the unfolding of the interaction thanks to physical presence and its affordances: these features are precisely what allow the nurse to use it to act she acts: she uses it to remind the norm to the doctor and to accomplish a directive without words. Is the glove box that exercises agency here or the nurse? In some sense the question raised by the anonymous reviewer appears to be inconsistent with the notion of "distributed agency" and reflects the kind of reductionism our perspective wish to overcome: either the agency is a typical human property and therefore we risk to celebrate the human being's unconditional intentionality, either it has to be traced on the side of things, and therefore we risk to fall in the black box of material determinism (Caronia and Katz 2010; Latour 1996). The example shows how the utterance is distributed between the two subjects and its "origin" oscillates between the artefact and the human being. In other words, the directive is co-constructed by the box and the nurse. She gives a voice to the object as much as the object provides her with a ready-made statement. If one of the two entities were not there, the interaction would unfold in different ways.
7. This hierarchy is also constantly re-enacted and confirmed by the members' themselves. We observed more than a few cues of this collective work of maintaining epistemic and power hierarchies in practices: while the physicians addressed the nurses using the familiar second person verbal and pronominal form (the Italian pronoun "tu"), the nurses address the doctors using the third person honorific form (the Italian "Lei").
8. The doctors and nurses who are, for whatever reason, in this section of the corridor can easily evaluate from the glass if a patient is particularly restless and therefore needs some drugs to rest. These patients, however, are not in the foreground. The organization of the inner architecture also contributes to sustaining, confirming and helping to make the subtle, delicate and not always clear-cut distinction between highly critical patients and low critical patients within this ICU.
9. The handwritten feature of this text has an interesting impact on medical practice. Comparing this traditional way of filling in the clinical record with the electronic method used in the ICU where he worked previously, Giuseppe S. (Mds) commented: "it is time consuming and old fashioned […] Anyway, there is something in hand writing that keeps me focused".
10. During the briefing some relevant information is selected from the handwritten records and entered into a database which constitutes the electronic patient's record. However, the only document used and considered (also for legal purposes) as the clinical record is the handwritten one. This textual redundancy has traceable consequences that we do not analyse here.
11. Sedation decreases as patients recover. Most practices change accordingly: patients are moved to the rooms less in view and practitioners traceably change their modes of interaction.
12. This redundancy of information is neither casual nor unnoticed by members. The storytelling format has been established by the head physician, members show an alignment to this form of talk, yet not necessarily an affiliation.

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