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4 Post-human sociality

Morphing experience and emergent forms

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1. Introduction: the challenge of post-human sociality

The boundary of the social world once coincided with the extension of relations between human beings. To be sure, it could be noted – in a Latourian mood – that tools and techniques have always been part of human practices, mediating human actions and interactions. But even if these could play a role, the face-to-face inter-action between human persons was the *ens realissimum* of what could be properly called the social realm. This was the generative core of all social phenomena at the micro, meso, and macro level, the stuff of which organizations, institutions, and forms of social order were ultimately made.

In this chapter, I begin to develop an analysis of the social processes that are challenging such a basic assumption. I call *post-human sociality* the emergent phenomenon of relations and networks in which human and non-human entities are involved together *as relationship partners*. This means that the bonds in ques-tion supposedly engender some kind of reciprocity. The primary aims of my study are to explore how these hybrid relations really differ from 'purely human' ones, what role they could play in the human experience of the world, and how the whole social realm might be transformed in their wake. The final point would be to understand what a post-human society might look like. In the present chapter, I introduce my perspective on the subject and begin to examine some characteris-tics of these relational experiences. For this reason, the title refers to post-human *sociality*, not to society as a whole.

The transformation in question could be attributed to many different factors, from the process of bureaucratization in modern societies to the more recent rise of internet-based interactions.[1] Be that as it may, technology features in most accounts of this deep change. In this respect, throughout the chapter I will coun-ter both the deterministic approaches, according to which 'social technologies'

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1 Let me just quickly notice that sociological theory is not unanimous in this respect. For example, Knorr-Cetina (1997; 2001) would sharply distinguish between these two trends, regarding the for-mer as a manifestation of the *expansion* of the social realm, and the latter as belonging to the fol-lowing phase of *contraction* of the social space and imaginary, paralleled by the rise of *post-social* technological environments. More on this later in this chapter, section 2.

automatically produce deep change in human relations, and the dismissive accounts that downplay the relevance of these phenomena, arguing against their capacity to elicit genuinely social experiences. In my view, this possibility must neither be taken for granted – as post-humanist ideologues do through coarse analogizing – nor be denied in principle. It is precisely the possible points of *discontinuity* between hybrid types of social experience and 'historical sociality' that invite intense investigation.

In the rest of this section, I clarify a few preliminary concepts that set the stage for the analysis. In section 2 I briefly review some approaches to post-human sociality that provide useful insights, to which I link my argument in the following parts. Section 3 lays out a grid of relational qualities that indicate what I regard as the points at which discontinuity occurs and post-human relations begin to reveal their nature and their possible impact. It is an essential thesis of this chapter that the changes happening on these sensitive spots do *not* just result from the technical features of non-human relational partners. I will argue that they *allow for* such differences as against historical sociality to emerge, but must be understood as the outcome of the meanings and expectations human subjects project onto social relations. In other words, a truly sociological approach to the post-human social world should not look at social and cultural change as a consequence of technical applications, but must regard the post-human phenomenon as a fully social and cultural fact. Technical developments must be understood as the instantiation of the ways social life is conceived, which in turn results in post-human outcomes. Whether or not non-human entities display some social capacities, they are the offspring of a more general transformation in human self-understanding. More precisely, the deep change concerns how human persons conceive of the role the social dimension of reality plays in their identity and self-fulfillment. Depending on what human subjects *expect of* their social life, and what they would *desire* in that field, various non-human entities – for example, social robots or software – come to appear as desirable relationship partners, or are still seen as genuinely odd. It must be added that deep change entails socialization processes, forming persons who conceive of themselves as 'differently human' through the novelty of their social relations, and thereby come to perceive the related techniques as desirable tools to fulfill their needs.

In section 4 I present a few examples of post-human sociality, highlighting how they illustrate my main theses concerning the symbolical matrix of human sociality presented in section 3. Section 5 contains a provisional conclusion.

A few words are needed to further delimit the issues I address and the approach I deploy. Firstly, the co-existence and interaction of humans with non-human entities in multiple spheres of social life may take various forms, which could be placed along a continuum from mediation to substitution of human social partners.

In some cases, communication technologies mediate inter-human relations. Of course, this is not in itself new. Technical mediation has always been there in some ways and to some extent – from smoke signals to letters, to telephones and email or other types of written messages. What we witness here is an *expansion* of technically mediated interactions, as well as fundamental *changes in their*

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quality. Such changes mostly concern the fact that media currently manage to render the mediated persons in ever more sensorially refined, multidimensional, and temporally synchronous ways. Holding a conference on an information and communication technology (ICT) platform, and even more projecting a tridimensional hologram, is obviously different from receiving a phone call or finding a letter in the mailbox. Let me point out that the three features mentioned previously – sensory refinement, multidimensionality, and simultaneity – do not necessarily amount to a 'thicker' or 'better' relational experience. This assessment would require more in-depth analysis. Be that as it may, along this path other forms emerge that can actually *fake* certain human subjects who are currently far from other human interlocutors. It is somewhere on this trail that the boundaries begin to be blurred. When professionals start to use avatars which fake their voice and other bodily or psychic features, in order to respond to queries while they are absent or even permanently to relieve them of some shallow or annoying parts of their work, the threshold between mediation and substitution is imperceptibly crossed.[2] With social robots and other forms of non-human entities as permanent social partners in their own right, the transition is fully accomplished. The space, time, and basic features of social relations undergo profound change.

I do not ignore that change is gradual, and that many kinds of technical mediation have a significant impact on the properties of social relations, as well as on the human subjects involved. However, my study is limited to the processes and forms that may properly be called post-human, that is where hybrid forms of social interactions and relations emerge.

Furthermore, the perspective taken in this chapter involves the idea that social interactions and relations have a *constitutive* – not just instrumental or regulative – meaning for human beings. Thus, their 'post-humanization' is a central component of the whole post-human syndrome, potentially modifying human identity and self-understanding. This general assumption can be spelled out more analytically:

1 Human beings are fundamentally social, and find their meaning in and through social relationships. As a consequence, deep changes in the social dimension of human experience – in institutions, symbols, and practices – are likely to have a profound influence on human reflexivity and identity.
2 When human beings reflect on their identity and on what they care about, they are always referring – at least implicitly – to the *type of entity* they believe they are, to what *relations with others* mean for their self-fulfillment, and to how they see their life over *time*.
3 Focusing on the social dimension, the *meanings of social relations strictly interweave with the morphogenesis of the Self*. The profound needs associated with human sociality can be variously articulated, and insofar as social

2 The current pressure of the labour market to destroy low-competence jobs, and to emphasize the need for human individuals to focus on high-skilled forms of activity, draws an increasingly sharp distinction between *deep* and *shallow* work, thereby encouraging this trend.

relations affect human qualities and properties, this tendency also has an onto-logical impact.

4   Through their contingent complementarity and compatibility with other ele-ments of the social structure and the cultural system, some transformations in social relationships may build up mechanisms that are conducive to such changes in human subjects as might result in 'post'-human outcomes.

5   In turn, those human subjects who undergo post-humanizing self-developments must come to exhibit a brand new sense of their own Self as a *being-in-relation*, or being-with-others.

Although these premises might be shared in many sociological quarters, the social dimension is relatively neglected in the vast domain of post-human studies. Most attention goes to ontological features, not to relations (Hayles, 1999; Nayar, 2014). Many authors talk of a post-human *society*, but what they mean with this phrase is that highly advanced non-human devices – AI, robots, software, and a whole set of hybrid entities resulting from the transformation of humans – are increasingly shar-ing the physical space with human individuals, and regularly feature in their eve-ryday life, being involved in many tasks and functions that are part of our regular working or leisure activities (Blackford, 2005; Büscher et al., 2016; Wilken, 2011).[3] So, even when social relations seem to be the focus, discussions often concern the 'real' qualities of non-human entities as agents. In other words, the point is usually *what they can do,* or *learn,* and *how much they resemble 'us'*. Of course, their own properties and powers do affect the possibility for humans to 'really' enter into spe-cifically *social* interactions with non-human devices. But such an emphasis diverts attention from the type and quality of interactions and relationships, which, I argue, must be the core issues. Thus, this chapter addresses the symbolical expectations and relational needs expressed in and through such interactions, exploring the *type of bond* that humans envision with non-human relationship partners.

Finally, the focus on the type of bond connecting humans to non-humans is the trigger for what should develop as a more complex set of studies. Post-human sociality at the micro-social level surely entails and engenders lifestyles and hab-its. These must be linked with those organizational forms that are evolving and constructing their inner complexity through post-human interactions. This is usu-ally done to enhance competitiveness – for example, reducing costs, increasing the cognitive capacities of a working community, and so forth – but it also triggers feedback mechanisms that may transform the social quality of relationships and ultimately the whole working experience of the people involved.

At the macro-social level, different societies may display divergent trajectories in the development of post-human sociality and of its related social forms. In other words, there can be several ways to become post-human. One thought-provoking case is that of East versus West. For example, if we consider industrial as well

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3   A special field of studies in this wider domain involves the way robots may come to interact among themselves, constituting some sort of 'society of robots' (Bicchi & Tamburrini, 2015).

as service robotics and AI, it would seem that Western societies tend to develop *personalizing* forms, that is to deploy their know-how to produce social forms that could appeal to personal desires and meet personal needs. As I will show in section 4, applications are innumerable in the domains of health, education, and various personalized services. It would be tempting to contrast this with Eastern societies – for example, China – where the post-humanizing evolution seems to be led by forms of social planning and social control. Examples that have recently raised public attention are the use of facial control and other devices to predict evidence of social unrest before it coalesces, but also to foster the growth of planned economy. For what truth such images may contain, the two hemispheres cannot be sharply divided from one another. As it is all too clear, social control is ubiquitous, and personalized services may be required anywhere in multiple niches of global society. The point I want to make here is just that concrete, not wildly generalizing studies about social processes leading to a post-human society could be usefully linked with the perspective of multiple modernities, which could help make sense of the many, possibly divergent paths of development, interpreting them as being contingent upon the various possible ways to be (late, or post) modern.

   These dimensions are clearly interrelated. Indeed, it has been demonstrated that the evolution of advanced knowledge societies shows increasingly strict connections between 'large' globalization processes and the dynamics of interaction. In other words, globalization processes are fundamentally accomplished in and dependent on the dimension of interaction (Knorr-Cetina, 2009). Such complexity must, therefore, be disentangled and controlled. In the present chapter, though, I confine myself to tackling the issue of changing sociality. I do not claim that the whole complexity of the social realm can be traced back to such a thick area of analysis, but I regard this as a fundamental key to interpreting the social meanings of the emerging post-human relations, which are part of their very constitution and may prove quite relevant in reading technological and economic developments, with their related psychological and cultural feedbacks.

2. Objectualization, objectivation, post-social, post-human: sociological responses

I now wish to take stock of two approaches that present instructive insights, which may be linked with my own way of framing the issue in question. As anticipated previously, the social dimension of the post-human syndrome is seldom put in a wider theoretical perspective. When it ever becomes the focus of discussion, the transformation of sociality is typically treated in connection with specific technical fields, and is seen as the outcome of technical advances. The reflections revolving around social robotics are a good example.[4] While such investigations are surely

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4 See the systematic discussions in Hakli & Seibt, 2017; Laitinen, 2016; Nørskov, 2016; Seibt, Hakli & Nørskov, 2016; Seibt, Nørskov & Andersen, 2016; see also Sakamoto & Ono, 2006. These texts also offer an updated glimpse on the literature in this field, which is, as always, widely extended.

important, more abstract approaches would be needed in order to grasp the deeper meanings and far-reaching implications of the various relevant phenomena.

The underlying sociological problem could be phrased as follows: What will 21st-century global social forms be like? Karin Knorr-Cetina and Urs Bruegger (2002) asked this question at the beginning of the new century, and went on to make the case for financial markets and their technically assisted agents as epitomizing the ideal-typical lifeform. Interestingly, Knorr Cetina deals with this, and other particular examples, in light of a broader thesis, namely that of 'objectualization'. She proposes this term to characterize the process through which objects "displace human beings as relationship partners and embedding environments, or [. . .] increasingly mediate human relationships, making the latter dependent on the former" (Knorr-Cetina, 1997: 1). The relations produced by this process are called 'postsocial'. Note that such a mention of displacement and mediation mirrors my former argument (section 1) about the continuum between mediation and substitution of humans in social relations.

This happens because objects may be "the risk winners of the relationship risks which many authors find inherent in contemporary human relations" (Ibid.). Knorr Cetina argues that these risks constitute one of the driving forces underlying the processes of objectualization (Ibid.: 23), generating novel relational possibilities and embedding environments. Thus, objectualization also indicates that human beings show "increasing orientation towards objects as sources of the self, of relational intimacy, of shared subjectivity and of social integration" (Ibid.: 9).

The 'strong thesis' of objectualization leads to focusing attention on new kinds of relations with objects, fundamentally different from the two classic notions of object-relations available in sociology, those referring to instruments and to commodities. Such new forms imply long-term engagement and some effects of reciprocity. The notion has been further elaborated through the idea of the 'synthetic situation' (Knorr-Cetina, 2009), that is, one in which the agents' response presence is separated by physical presence, being technically mediated by 'scopic components'. Such a situation leads to dismissing the primacy of physical face-to-face relations within the interaction order. Should these types of relations and environments come to prevail in most spheres of social life, the idea might be generalized as that of a 'synthetic society'.[5]

What is important here is the insight concerning the *emergence of new forms of relatedness*, in which humans would develop attachment and a sense of solidarity with non-human entities, as distinct from the need to face *relationship risks*. Being systematically connected to the process of individualization – that is, one of the master processes of modernization – of which the novel forms of embeddedness represent the flipside, objectualization is seen as a fully social and cultural process. As I will show in section 3, this is one juncture at which the argument could be linked with my own.

5 This, by the way, should be the topic of Knorr Cetina's forthcoming book.

Let me now pin down two critical points. One regards Knorr Cetina's usage of the term 'postsocial'. Here a remarkable ambivalence arises. As the author clearly explains, the new types of relationships brought about by the process of objectualization require a bold extension of the sociological imagination, stretching the very idea of the social. The challenge is to "dissociate the concept of sociality somewhat from its fixation on human groups" (Knorr-Cetina, 1997: 15), to embrace the new, hybrid types of relationships. Thus, "*postsocial relations are not a-social or non-social* [. . .]. *Rather they are relations specific to late modern societies, which are marked by the interweave of the social as it existed with 'other' cultures*" (Ibid.: 7, italics in the original text). Because these lifeforms are not supposed to be overcoming all sociality, but just the social *as it existed*, the question is why they should be called postsocial in the first place. In other words, the problem is whether historically known sociality is undergoing a process of symbolical generalization or the new forms of life involve a radical departure from anything that may be seriously called 'social'.

What might appear to be a trivial problem of word choice does in fact reveal a deeper conundrum, that could be phrased as follows: *Are post-human relations really social*? The second critical issue I want to consider is strictly connected with this question. The main examples the author uses to illustrate her objectualization thesis come from fields of professional practice, primarily those of knowledge workers like scientists and other symbolical analysts. By the way, the spread of knowledge cultures beyond the boundaries of specialized fields and into the spheres of everyday life is held to represent another, powerful driving force of objectualization itself. The point, then, is to understand what Knorr Cetina really means when she treats object-relations in these realms of action as generating their own kinds of solidarity and reciprocity. Beyond the characterization of knowledge objects as ontologically incomplete and continuously unfolding, which marks their difference from tools or commodities,[6] her description of the effects of reciprocity is hardly convincing. She relies upon the autobiographical accounts of scientists, who narrate their tendency to 'fuse together' with their objects of study, the sense of unity and the overwhelming feelings of contemplation and self-forgetfulness before them (1997: 15–20). However, all of this comes close to other types of human experience. In order to make sense of these, I would rather invoke the concepts of *resonance* and of *self-transcendence*. These concepts are part of systematic theories, and need not be reconstructed in-depth here. Let me provide just a quick definition, which should clarify their connection to the present theme.

Within social theory, the concept of resonance must be traced to the work of Hartmut Rosa (2016). It is meant to constitute the opposite of alienation, and a response to the acceleration of social dynamics, which this author sees as the

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6 Although this is sufficiently clear about tools, I am not sure that the thesis would hold in the case of commodities, precisely because of the current refinement of what can be sold as a consumption good.

hallmark of modernization. Such a term indicates a particular form of relation-with-the-world, in which subjects and (some aspect of) the world touch and transform each other. It is based on affection, emotion, and a sense of self-efficacy. Such a relationship involves the idea of *response* (it is an *Antwortbeziehung*). This means that both sides 'speak with their own voice', which is only possible if both display a certain degree of inner closure and of mutual openness, so that they can have their own voice *and* be reached by each other.

The notion of self-transcendence (Joas, 2000; 2008) indicates any intense experience of being overwhelmed by someone or something, which may be both attractive or scary, and results in blurring the boundaries of personal identity – often permanently.

Now, resonance and self-transcendence are neither necessarily nor exclusively related to the social dimension of reality. Human relations of love or friendship, as well as 'big' social phenomena like collective rituals or events (of the Durkheimian kind), may well be one source of self-transcendence. And many aspects of social life may 'say something' to us – they may touch us profoundly and represent essential domains of our self-realization. But both resonance and self-transcendence may also occur when a human subject (or a group) is confronted with other, non-social aspects of reality, from grandiose natural phenomena to works of art (e.g. music), to religious experiences, and more. There is nothing in them that is inherently social, nor is sociality the archetype of all resonance, and of self-transcendence.

The point I am making is that those scientists' narratives of their *self-identification with* their knowledge objects, as deployed by Knorr Cetina as examples of the 'new' forms of relatedness, seem to be better interpreted by such concepts, while they do not reveal any feature that may be called *social* in any more than metaphorical sense. Of course, they tell a tale of intense *relationships* of someone to something. But all relationships are not social. It is well known that in such symbolic analysis scientists or artists may sometimes lose themselves deep in their practice – in books, in music, in painting, in their lab, and so forth – and temporarily, or even permanently, *retreat from* regular social life. Moreover, it is clear that the *intrinsic interest* in some knowledge objects – for example, the strong commitment to a particular research enterprise – may well represent the cohesive force that binds together a group of professionals. But all of this has little to do with developing a form of 'sociality *with* objects' – and is also nothing new in the rather long history of human task-oriented groups. In other words, to see these as emergent forms of object-centered sociality, in which objects displace human beings as relationship partners, and as the possible template of future social forms of life on a broader scale, seems to me a fundamental misunderstanding. As a consequence, it is not surprising that in the author's account the features of the (alleged) 'new' sociality remain unspecified.

These limits do not detract from the relevance of the author's refined descriptions of interactional dynamics in synthetic situations, where technical mediation does make a difference from classic, face-to-face interaction. This might actually lead to the *differentiation* of forms of sociality, according to their degree of

mediation, purposes, and other characteristics. Nor am I downplaying the relevance of her central thesis and its connection with the macro-social frame of late modernity.[7] The link between individualization and object-mediated forms of interaction and embedding environments is quite a strong one.

My point is that there is still a distinction between *mediation* and *substitution*. In other words, *object-mediated* sociality must still be distinguished from a sociality *with objects*. While Knorr Cetina makes a strong case for the former, I am critical of the way she articulates the latter. The various kinds of technical mediation clearly modify the order of interaction – let us say, the emergent equilibrium produced by the ways people deal with each other – and the profile of these changes makes an important object of study.[8] In this sense, new forms of sociality may well dawn from synthetic environments. However, the substitution of human with non-human social partners arguably moves one step beyond, and can hardly be tapped into by examples of the professional practice of scholars or financial operators. Each of these – as well as everyone on earth – has his/her own relational ways, which are always co-determined by the tools used and the objectual environment in which one is typically embedded. The post-human turn, though, involves something deeper.

Another way of coming to the point is that, should the author want to make a stronger case for objectualization *as the emergence of new types of relationship partners*, she would have to focus attention on some other phenomena. Post-human sociality, as I define it, could be a decisive playground for the emergence of novel forms of sociality, involving their own grammar of attachments, commitment, normativity, and reciprocity. It is in the multifarious applications of social robotics, or in relations with AI in the role of companions, that the examples must be chosen, and the theoretical and practical riddles must be discussed.

Precisely from reflections on social robotics comes another interesting insight, which shifts attention from the 'nature' and 'powers' inherent in robots to what people can do with them. Such a change of perspective basically consists of the idea that robots are always embedded in social actions and meanings. Thus, the core point is not to study primarily what social machines can do in and of themselves – for example, the way they communicate and interact – or their possible effects on human subjects. These, too, must be studied thoroughly, but the main focus has to be on what humans do with robots, incorporating them in their activities.

This argument appears in those authors who, like Michaela Pfadenhauer (2014; 2015), address social robotics from the vantage point of the sociology of knowledge. From this angle, social robots – be they humanoid, zoomorphic, or other – may be conceived as 'objectivations'. In a formulation reminiscent of Schütz, Pfadenhauer argues that, as "products of action *(Erzeugnisse)*, they are *ipso facto*

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7 Indeed, the link between structural conditionings and forms of socio-cultural interaction in this specific case would make an important theme in its own right, which I must leave to further study.

8 An interesting example would be the effect that long-distance guns and war aircrafts first, and later electronic weapon systems, have had on military conflicts as forms of interaction. The realm of war and violence seems quite instructive, precisely because the physical interaction involved used to be especially intense, and the current technological revolution is deep and far-reaching.

evidence *(Zeugnisse)* of what went on in the mind of the actors who made them"
(Ibid.: 147).

Thus, instead of viewing these machines as actors, they are viewed as products
of action, whose effectiveness lies in the meanings 'sedimented' in them. The
issue is about the meanings objectified in technical artefacts and those that users
associate with them, using them as vehicles to cultural worlds of experience. More
particularly, Pfadenhauer argues that social robots are suitable to people who want
to immerse themselves in a fantasy world. Furthermore, the search for such a fan-
tasy world and the idea that robots may be desired as social companions (Pfaden-
hauer, 2015) depend on the relational fatigue associated with human interactions.
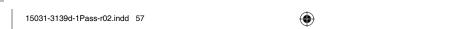As I will next show, this *démarche* comes close to my own in some respects.

To sum up, there are three insights in these authors that we may carry forward
to the rest of this chapter. First, that a deep *relational malaise* is one of the driving
forces behind the post-humanization of sociality. Second, that post-human social-
ity must be examined in terms of its implications for the forms of *reciprocity and
attachment*. Third, that these trends cannot be explained by, and in turn do not just
cause, further individualization, but also bring about *new forms of embeddedness
and social integration*.

3. Escaping the human relational matrix?

My thesis is that post-human sociality – involving non-human relational partners
like AI, social robots, and so forth – must be identified by reference to a range of
internal features of social relationships that are accepted, desired, or challenged by
human subjects. We should examine (i) what emotions are raised, (ii) what people
want to do with social partners, or what aims are pursued in the social dimension
of reality, (iii) the emergent type(s) of bond, and (iv) the symbolical meaning of
social relationships, their relevance for human identity and self-understanding.

In this perspective, let me outline a few typical characteristics of social rela-
tions between 'historical humans'. What I intend to do is *not* to present a list of
defining features of human sociality. Such an interpretation would entail a gross
overstatement, and would lead my analysis to a dead end, given the ridiculously
huge simplification of social and historical complexity it would imply. I am merely
highlighting a few distinctive properties of inter-human relations, which I claim
are taking on a special relevance in the context of the socio-cultural changes we
are discussing. Arguably, they constitute sensitive points of engagement for the
examination of what people pursue, or escape, in and through the social dimen-
sion of reality. Such points are partially different in every historical and civiliza-
tional overarching context, which always presents human subjects with specific
assets and liabilities concerning their social relations – we could say, with context-
specific relational goods and evils.[9] Various societal contexts make some aspects

9 On the concept of relational goods and relational evils, treated within the conceptual frame of rela-
   tional realism, see Donati and Archer (2015).

of sociality more or less important, problematic, desirable, or meaningful, and mould them in different structural and cultural shapes.

Having clarified this, let us briefly review the following elements:

1 *Self-limitation*. Historically known forms of human relations entail that one cannot 'choose to be all'; the recognition of one's incompleteness is one of the roots of engagement with otherness to generate some good in, and through, the relevant relationship.
2 *Impossibility to control* (or *tame*) relations. Relations may well stabilize over time, producing trust and a certain degree of behavioural consistency, but 'the other' always maintains his/her indisposability, which involves freedom and unpredictability.
3 *Uniqueness*. Social relations always incorporate a certain degree of ambivalence, but in the end, subjects tend to make up their minds about what is at stake in a given relationship – for example, friendship, business, love, power. Of course, *pure* relationships[10] may be rare, but excessive ambivalence causes relations to fail and subjects to suffer bewilderment and alienation.
4 *Relative stability of identity* within the relation. It is usually sufficiently clear 'who' the other 'is' in a given relation. Roles, meanings, and personalities find some equilibrium, be it only for the sake of relational functioning.
5 *Limits of response presence* in multiple relations. For all the virtues of multitasking, actors cannot be simultaneously present to all their relations, given the distance and the complexity involved.
6 *Temporality of relations*. Social relations have a history – by analogy, we could say they have a 'biography'. They develop and may change over time, and always have time limits – be it only in connection with the temporal limitation of human individuals.[11]
7 *Strain and boredom*. Human relationships may be boring or painful in various different ways. Indeed, relations are a major source both of joy and of pain – of resonance as well as of alienation. This results from the obvious yet very consequential fact of *imperfection*. Others, and their way to interact with us, never fully correspond to our needs or wishes. Therefore, relations based on the expectation of perfection are extremely unstable.[12]

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10 By *pure* relationship I mean one that is conceived and lived out – in the mind of the partners involved as well as in the related practices – in a way that is consistent with one unambiguous symbolical code. For example, friendship as not impaired by the search for material benefits, etc. This meaning is obviously far from the well-known notion forged by Giddens (1991; 1992).
11 The issue of digital (or virtual) immortality is very instructive. Although it concerns primarily the temporal self-understanding of human subjects and their personal ontology, the social category is clearly connected, insofar as the 'surviving' avatar is supposed to carry on the dead person's relations. This does not only apply to micro-interactions, but also to the meso and macro level. The time scale may be different (Abbott, 2016), but there is no such thing as an eternal institution – or civilization.
12 In this sense Giddens' idea of pure relationship (see note 10) now comes into the picture, and might be interpreted as a short-term, one-sided, symbolically thin quest for perfection.

Note that all of these elements may somehow become a source of the relational malaise underscored in section 2 as one vector of 'objectual' sociality. Of course, post-humanization is not the only possible reactive tendency. Human individuals, groups, and societies have always developed various ways to voice their relational discontent – and to make it structurally and culturally consequential for social change. Even the destiny of entire civilizations may eventually depend on the morphogenetic – or morphonecrotic (Al-Amoudi & Latsis, 2015) – processes induced by these challenges. In any case, contesting aspects of sociality that are no longer socially or culturally accepted redefines human sociality itself. Once the technological know-how is prepared, one form this may take is to try to do with robots or AI what cannot be accomplished with humans. Thus, when one or more elements of the previous list are called into question, *and* this challenge becomes objectified in some kind of technical device, social relations are on their way to becoming post-human.

To sum up, the emergence of post-human sociality is a fully social and cultural fact. Such a process could be traced along the following three axes of change:

1 *Levels of organization*: in principle, the 'post-humanization' of social relations entails the macro, meso, and micro dimensions, producing new forms of the division of labour, new organizational forms and practices, new types of interaction and lifestyles. The trend does not proceed in an orderly way, because gaps and unevenness are possible. Systems and social forms are often out of synch, and in the present chapter I deal primarily with the micro level, although I have noted the connection that weaves levels together. But the common thread of a post-human relational logic could unfold throughout these levels.
2 *Domains of social life*: within the same levels of system organization, different spheres of social life are involved, like family, partnership, friendship, entertainment, leisure, consumption, work, education, health, and more.
3 *Concrete practices*: people may enter in various kinds of interaction with non-human entities, to do many different things.

These axes shape the socio-cultural space of post-human social relationships. Overall, the relational constitution of society changes in these various dimensions, depending on what human subjects expect and desire from sociality. The relevant practices may cover a wide range, from choosing to replace human with non-human social partners, to deploying human enhancement techniques that allow us to broaden the scope of the possible kinds of relationships, both with other humans or with other types of entities.

Both underlying motivations and emergent effects require a robust, theory-oriented body of empirical research, that must address a wide range of issues. Can humans really develop a real social relation involving some form of solidarity with non-humans, or is their engagement just a game? Can non-human entities be regarded as relational companions in situation-specific interactions only, or could they result in a real social relationship, which requires some real and enduring

reciprocity?[13] And if this were the case, how would the whole grammar of basic attachments really change? Interaction with non-human partners might in some cases stimulate the emergence of social competencies. This is allegedly the case when humanoid robots are employed to interact with children with autism, helping them to develop social skills.[14] However, in other cases, the 'world of fantasy' produced by hybrid interactions might become indistinguishable from the real world. As a consequence, human social skills might be impaired, not relieved.[15]

Another point concerns the deep motivations behind the desirability of objectual relations. How are the relational risks we have mentioned orienting the shift to post-human sociality? Is it a reaction against the growing instability of human relationships, which engenders the preference for an 'other' that is predictable, 'trustworthy', and 'tame', while still exceeding the realm of a mere object? This would apparently resonate with the 'nature' of AI and social robots, which display some unpredictability "within the unalterable boundaries set by the designers" (Pfadenhauer, 2014: 137), whereby apparently self-initiated activation is in fact triggered by human action. Are people escaping boredom – that is, looking for more interesting, brilliant others – or threatening relations? Are they unable to endure the risk of unfaithfulness or do they just want to be in charge of a fully controllable interactional order?

Is it the search for a perfect, flawless other, which yet remains in our power to activate? Could this be the ultimate frontier of any kind of extremely refined personalized services? Or is it the idea of a totally flexible relationship, where roles can change as in a game (well beyond Simmel's notion of playful 'sociability'), and one can shed his/her limits, being fully accepted by the (fake) other? Do we want to multiply ourselves, to be simultaneously present in different relational contexts?

Of course, all these elements are not mutually exclusive. Each may surface as a component of the psycho-social structure in various contexts. In all these respects, late modern cultures are challenging the limits and blurring the boundaries of human sociality.

4. Experiments in morphing sociality

The previous considerations should have clarified the scope of the challenge posed by post-human sociality, and have sketched a conceptual framework to make sense of it.

Many sorts of social, sociable, or socially intelligent artificial devices are arising from social imagination coupled with technical know-how, and they appear

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13 Pfadenhauer (2014) phrases this ambivalence with the distinction person / *persona*. The latter occurs when simulated interactions involve would-be social partners taking on the role of the 'other' through temporary, context-specific ascription only, as opposed real persons.

14 Richardson (2018) argues that such a type of interaction may even become the model for a new kind of human-thing relationship for the wider society.

15 Sakamoto and Ono (2006) illustrate these outcomes as contingent possibilities.

to be able to do a huge range of things. They can recognize and express emotions (which does not imply that they can really *feel* emotions), recognize and react to various behavioural patterns, communicate, teach, learn, display a distinctive personality or behavioural style, and more. For example, social robots may be humanoid or zoomorphic. Non-human social partners may even lack corporeality, as in the case of software operative systems. Correspondingly, they can be *used as* friends, children, pets, teachers, co-workers, security agents, or sexual partners.[16] Insofar as these parts are played out by non-humans, the respective roles are redefined – generalized and re-specified in various ways.

This variety is potentially increasing, to the extent that technology advances and objectualization becomes extended to more social realms. It is rather common in the literature to reduce such a complexity through the distinction between *caretaker* and *companion*. The former case concerns, for example, zoomorphic pet robots or software, which a child must take care of.[17] The latter can be specified as servant or assistive – as in the previously mentioned example of humanoids to help autistic children (Richardson, 2018).[18] The case must also be contemplated where the AI could be the caretaker.

Let me present a few examples to put some empirical flesh on these conceptual bones. Each of these would deserve a case study in its own right, while here I can only provide a quick outline. My aim is just to illustrate how some ongoing applications resonate with the categories laid out in the previous sections, thereby showing that these can serve as interpretive keys of the phenomenon in question. I will not be able to develop a full-blown analysis, but I hope I can point to some correspondences and highlight a few crucial connections, indicating some relevant paths for research.

One example is that of *digital humans and avatars*. These can serve as employees, client interfaces in various types of services, where 'personalization' is required, or as devices for the multiplication of oneself. Given the nature of the case in point, examples would really require to be shown on screen instead of just being narrated. However, the main argument can be summarized in few lines.

As regards the development of client interface, one might think that the core problem is just to cut costs, replacing human employees with digital entities, which never get sick or tired and do not need a salary. The challenge of personalization consists in making these entities as similar to humans as possible. Thus,

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16 The phrase 'used as friends' clearly contains the inherent paradox. The latter role, i.e. that of sexual partner, would seem to be precluded to incorporeal AI, although science fiction has already challenged even this limit. If one wanted to get an idea of the future prospects of social hybridization, one should watch Spike Jonze's provocative film, *Her*, where many paradoxes of the divergence between layers of human ontology and of its social ontological parallel are cleverly explored.

17 The extreme case here is perhaps the Japanese *Kirobo Mini*, a palm size device which somewhat reacts to human emotions and emits sounds designed to "invoke emotional connection". Its commercial target would be the growing number of childless couples (*sic*).

18 Here it would be tempting to develop the argument in light of the Hegelian master/slave dialectic, as being consistent with the thesis of the 'tame other'. I will come back to this in a future work.

the capacity to read body language and what is an alleged 'emotional intelligence' are the cutting edge of technology. This (allegedly) takes the interaction from transactional to relational. As a manager of a leading firm in the sector maintains:

> The future of highly personalized customer engagement is a blend of digital and human support, and AVA, our first digital employee, is just that. She will understand human consciousness and interactions by reading signals such as body language and facial reactions – in turn learning more about customers to better serve them. The addition of emotional intelligence to AVA takes our customer service beyond purely transactional to relational.
>
> *Rachael Rekart, senior manager for machine assisted*
> *service engagement at Autodesk, SoulMachines*
> (www.soulmachines.com).

However, there is more to such 'personalized' services than just imitating human interaction style. The declaration just cited claims that the future of highly personalized customer engagement is "*a blend of digital and human* support". And AVA, the digital employee, will be able to *learn* more about customers "to better serve them". Therefore, the deeper point is to have a human-like, but unfailingly polite, controllable, and reliable (for both firm and customer) interaction style, enriched by the enhanced capacity to store, recall, and update all kinds of data about customers. Indeed:

> Soul Machines [brings] technology to life by creating incredibly life-like, emotionally responsive Digital Humans with personality and character that allow machines to talk to us literally face-to-face!
>   Our vision is *to humanize computing to better humanity*.
>
> www.soulmachines.com, emphasis mine

The improvement of humanity probably consists in the *blend* mentioned by Rachael Rekart, which implicitly aims at stretching the potential of interaction events beyond their current meaning.

It should also be noted that digital humans are (allegedly) endowed with "personality and character" (the difference between the two remains unexplained in the present context). This leads to another potential application of the same technology, which would be the use of avatars that take on the 'character' of a person, in order to replace him/her in certain interaction contexts. For example, one may want to be replaced in routine interactions, to be able to participate in person at more important simultaneous events elsewhere. Since the avatar could possibly *keep learning* from experience, the virtual self (or selves) might eventually become partially divergent from the original. My point here is neither to assess whether all the claims concerning 'true' character and personality are really warranted, nor to reckon how much time will be needed before technology can get there (if it ever does). The crux of the argument lies in understanding what these devices mean to people, what needs and purposes they propose to serve, how they

might influence human self-understanding and the meaning of social relations for human identity. In all these respects, wide ranging and in-depth field studies must be conducted.

A second case has to do with *social robots* operating in *educational* and *health* systems environments. Some devices developed by the University of Padova can serve as a good example of what is currently going on in various cities of advanced societies. A social robot called *Sanbot* has been deployed for some time now in certain early childhood educational facilities in this city. The potential uses are manifold, and range from teaching foreign languages to mathematics, including support to children with special needs.

Children, teachers say, see robots as friends and playmates. That is, they treat robots 'as other children'. Moreover, shy children seem to approach robots with more confidence than they do other children, thereby developing 'new relationships'.

Another robot named *Pepper* is working at the local hospital, where it is employed in the Pediatric division as 'non-pharmacological therapy', reducing anxiety in children who need particularly invasive therapies or medial examinations.

Future developments include the human-robot integration through brain-computer interface techniques, which are meant to support persons with reduced mobility or severely incapacitating pathologies.

Beyond the technical problems involved, two remarks are in order.

In the first place, research shows that adults usually insist that every 'risk' in the child-robot relationship is reduced by human mediation. Educators mediate interaction and decide what type of relationship should be established. The dialogues and movements the robot can undertake are planned by the educator, in order for the child-robot relationship to be educationally effective.

What we have here, thus, is not a technically mediated relation between human agents, but a humanly mediated relation between humans and machines. Such a relational form is experienced by adult actors (and possibly by children) as reassuring, as if all the problems could only lie in the direct, unmediated interaction between child and machine. This is not surprising, but at the same time the fact that adults *define* the *proper* type of relations children should develop (and avoid) with robots represents a very important field of research in its own right, where few things should be taken for granted – least of all that operators 'know for sure' what 'should be done', or that such a knowledge is culturally neutral. Deep questions about the forms of primary socialization arise here, and call into question the professional cultures of educators.

The other point refers to the attitude children tend to develop, treating robots 'as other children'. First of all, such a statement should be carefully interpreted. It is well known that children humanize various objects and entities while playing, which does not mean that they attribute real personhood to them in exactly the same way as they would to other people. The real scope and meaning of this 'as other children' should be explored in-depth. When it comes to robots, does anything different happen from what kids usually do with other types of 'things'?

Then, if such a humanization were to be taken seriously, a deeper issue would arise. When educators observe that robots are treated 'as other children', they

invariably take this as the comforting indication that 'all is going well', that relations are positive and not traumatic or bewildering. This is all very well, but it is puzzling that they don't seem to notice the huge relevance of their own statement. If they were really observing novel forms of social integration, in which children do not (cannot?) draw a qualitative distinction between human and non-human, something would be happening that has far-reaching implications, well beyond the encouraging impression that 'everything is OK'. Moreover, what consequences could the habit to interact with such 'powerful others' possibly have? Aren't other human beings looking terribly boring, seen from that vantage point? So, who (or 'who') shall future generations prefer as relationship partners? Will humanity still look interesting to itself?

5. Customizing the other versus accepting the risk: the ultimate test of human sociality

Let me draw some provisional conclusions. The process we have examined is probably just the tip of the iceberg of a huge transformation in the forms of social life. As with all complex social trends, its driving forces cannot be oversimplified and respond to various needs, interests, and plans. And as always, the final outcome (whatever 'final' may mean in this case) will exceed or even disappoint them all.

Therefore, it is hard to find some unifying interpretive key to the process of 'objectualization', or 'post-humanization' of social relationships. Indeed, it represents a typical case of social and cultural ambivalence. On the one hand, it is clear from our examples that many cutting-edge applications come in the shape of personalization and the improvement of the human condition. In other words, it looks like a continuation of humanism by other means. On the other hand, if we refer to the features outlined in section 3, such a deeper matrix of the post-humanization of the social could be re-read as follows. Those features represent the attempt to:

1 Make others predictable, tame, trustworthy, loyal *in a technical way*;
2 Look for bright, interesting others;
3 Look for perfection, escaping the imperfect other.

We could argue that the points (a) to (c) amount to the idea of *customizing the other*.

We have also considered the following:

4 Expanding experience through relational diffusion: from multitasking to faking identities, that is, becoming a limitless entity that masters all kinds of knowledge and experience;
5 Escaping the temporality/historicality of social relationships;
6 Making relationships reversible ('resetting' relationships).

Points (d) to (f) amount to a *rejection of limits – becoming relationally limitless*.

Taken together, these factors design the profile of a way of life in which social relations are experienced and enacted in such a way as to refuse to pay the price of commitment. This means reshaping the very structure of the social domain, with its own ways of distributing self-worth and the relevant exchange rates. The deep human self-understanding may change in the process.

Overall, late modern, 'morphogenic'[19] societies find here a test of their humanizing capacity. Their continuous process of innovation has many facets. One of them leads to a fundamental crossroads. As social relations become increasingly risky and unstable, many have wondered about how more stability might be achieved, or about the ways to cope with the situation as it is. What is proposed here is a more radical alternative. Advanced societies are producing the possibility of an *escape* from the risk of human relationships, with the paradoxical effort of making otherness controllable while also expanding the horizon of human social experience. The risk of engaging with otherness, to explore its imperfections, beauty, and dangers, may thus be avoided through the choice of constructing a flawless, customized partner for one's experience and biography. What meanings can still be created and shared in such a context is a question we cannot answer at this point. Be that as it may, it is important to remember that the choice is not between developing or rejecting technology, but between these two ways to make sense of otherness and of social bonds. The narrow path to walk is one in which it remains possible to distinguish between them.

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19 This term indicates an emergent type of society, characterized by the logic of opportunity, in which social and cultural innovations are increasingly likely to be mutually compatible. It is therefore a highly dynamic societal configuration, where variety rapidly produces more variety. Such a hypothesis, which must be understood within the conceptual frame of realist-morphogenetic social theory, has been articulated in various volumes edited by Margaret Archer. For a summary of the concept, see Archer, 2017.

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