

Risky Mixings: Unravelling Gametes' Bad Potential in Argentina

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Abstract: In both the expert and mass media cultures to which they simultaneously belong, ova and sperm have come to figure prominently as entities of potentiality, of expansion of the vital capabilities of bodies and of regeneration of their exhausted capacities. This article looks into the practices of gamete exchange in Argentina to argue, however, a different story. It contends that for all the good potentiality that gametes have come to represent, they are also entangled in webs of risk. They can be extracted too much or too often, decrease their provider's expectation of good health, or create wrongful (i.e. incestuous and/or endogamous) bodily links between individuals. Drawing on analyses of the actual use of statistical measures in the clinic; and of ways of understanding kinship that are particular to Argentina, the article suggests that the handling of gametes as risky substances may ultimately work to produce the risks that it only aims to prevent. The study brought together the literature on kinship and science studies in order to frame the problematic of kinship and risk management in technoscience.

Keywords: donor conception; gametes; numerical devices; risk; Argentina.

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I. Introduction

In both the scientific and mass media cultures in which they are simultaneously implicated, ova and sperm have come to figure prominently as sites of positive potentiality, of expansion of the vital capabilities of bodies and of regeneration of their exhausted capacities. Figuring in the narrative of modern biology as the basic units through which all forms of sexual reproduction are possible on earth, human (and nonhuman) gametes are metonymically assimilated to the idea of 'reproduction' *per se*. They have for a long time condensed notions of procreation and propagation. In the West, many societies have become accustomed to regarding

them as the ending product of a process of maturation (Sutton et al. 2003) whose union with its opposite further enables life to develop.

Since the advent of assisted reproduction technologies (ARTs) forty years ago, ova and sperm's association with positive potential has increased. They have become the locus of a series of politico-scientific interventions that are favouring their understanding as entities of potentiality (Taussig, Hoeyer and Helmreich 2013). Particularly through the cultural significance of the use of donor gametes in ARTs, gametes have come to be regarded as capable of renewing a lost or absent ability of the human body (Simpson 2013). They are seen as aiding in the body's reproduction when this is not achievable by other means, returning or reigniting a force or capacity for procreation that the body might have lost or simply never had. Thus, eggs and sperm that can be scaled up and frozen *in vitro* multiply their uses. They supplement what is missing or defective in certain bodies, both fostering new life and bringing new capacities to the lives already existent. Further, insofar as they can be stored *in vitro* for a considerable amount of time, their potentiality can be deferred in time, actually allowing for its futurity.

In fact, as Taussig, Hoeyer and Helmreich (2013) point out, the capacity to envision, foster and promote particular human futures is part and parcel of potentiality's double bearing as a concept and object of study. In their Introduction to a Current Anthropology's issue devoted to the anthropology of potentiality, the authors highlight the concept's use in biomedicine as an idiom employed to "imagine the benefits of new medical interventions" (2013, S4) and thus a key element in giving shape to the impending. These hopeful visions commonly articulated in biomedicine serve to socialise images of prosperous futures less determined by contemporary evils like disease, hunger and pollution. However, they are also strongly resonant with current anxieties in relation to food safety, biosecurity, biological weapons, armed conflict and ill health (Taussig, Hoeyer and Helmreich 2013; Vora 2013) that may derive from the sheer actualisation of such futures. According to the authors, 'potentiality' is thus a notion devised to capture the emergent, process and oriented to future character of Western societies (cfr. Gammeltoft 2013), and it refers both to promising and dystopian scenarios. In this context, gametes and the technologies that make them detachable and manageable can be thought as partaking of such contemporary biomedical fostering of the positive potential of bodily fragments. Their capacity to survive freezing and thawing; their ability to 'live' *in vitro* for long periods and to actualise their generative capacities years after having been born to life, also makes them naturally resonant with the biomedical thinking of good potential.

Increments in the capabilities of bodies and gametes that are captured by the idea of potentiality, can also be thought as inherently linked to a

wider (Western) culture oriented towards the creation of economic and social value, and where persons and things need to be permanently 'enterprised up' and transformed from their natural state (Strathern 1992b). It is a logical consequence of this that gametes, and especially ova, are now central to strategies like stem cell research and somatic cell nuclear transfer, their good potentiality for curing and improving actually being ever more explored and exploited in the creation of what Sarah Franklin (2001) termed 'the new biologies'. It is in this sense that authors like Sunder Rajan (2006) and Franklin and Lock (2003) speak of the different forms of 'biocapital' that are now being created by developing the ever-expanding potentialities of gametes, embryos and other tissues. Yet again such advances, and the treatments they make possible, have also been rendered in the advanced industrial democracies as rife with risk and dangerousness. By now, a notoriously voluminous body of work in the sociology and anthropology of medicine and health has been dedicated to account for the many ways in which recent advances in biomolecular technologies have been thought as, or directly posing, new and specific risks for, and inequalities within, the bodies of persons and populations (Fisher 2016; Simpson 2013; Cooper and Waldby 2013). As Taussig, Hoyer and Helmreich (2013) also indicate, such notions about dangerousness are intimately linked to ideas of, in this case, bad potentiality, entailing a necessary part of the anthropology that studies it.

This article focuses on this last set of associations of potentiality. It deploys the notion of 'potentiality' as a concept that helps to elucidate how gametes come to be handled, in the fertility clinic, as objects of risk. The piece draws on insights gained from a wider project that explored how nature and 'natural norms' work as normative ideals for fertility practitioners in Argentina. It intends to think through some of the ways in which ova and sperm are also implicated in a logic of risks, beyond partaking in the contemporary biomedical promotion of the good potential. To show this, I look at the medical discussion regarding how many times should a donor be allowed to donate her gametes. I explore notions of danger enacted in connection with that limit being overflowed, like the fear of endogamy, the loss of biological variation and the risks for donors' health. As part of this discussion, I consider in particular who are those who are thought to be implicated in the risks that emerge with a potential diminishing of variation. A key element of my argument is that 'those' who are the focus of the risks is a resultant of the specificity of Argentine kinship. In fact, in this setting, kin relations are thought to pre-exist their knowledge and their social elaboration: kinship connections are thought to be eminently biological. The fact of sharing genes is already the fact of being kin: people who descend from the same biological progenitors are 'brothers' independently of them knowing the fact that they are siblings.

Further, I suggest that these understandings entail that gametes potential harmfulness is directly linked to notions of morally proper and improper kinship between persons.

By doing the above, I show that for all the promising capabilities (i.e. fostering life, promoting reproduction) that gametes are deemed to have, a different set of contrasting characterisations emerge. The latter are the paradoxical result of gametes clinical circulation as entities of good potential. Either by being extracted in amounts thought to be ‘too much’ or ‘too often’; by decreasing their provider’s expectation of good health; or by mixing in ways considered to be both biologically and morally wrong, gametes become known also as carriers of riskiness. Observing how this capacity to create risks adds up to their ability to promote generation and propagation, I show that ova and sperm epitomise ARTs’ long double implication in both utopian and dystopian rhetoric, simultaneously connected with hope and moral wrong¹.

In this article, I first provide a theoretical framework followed by a contextualisation of ARTs and kinship in Argentina. I then go on to explain the methods used. The first analytic section introduces the two main types of risks that are regulated in the clinic (‘endogamy’ and ‘health’), and explore what is understood by the ‘endogamy risk’. I follow by discussing the ethnographic valence of the term ‘siblings’ in the context of fertility doctors’ discussions of the risk of ‘inbreeding’. I then examine ideas of biological variation among Argentine doctors, and how they are used to justify the potential harmful character of gametes. The fourth analytic section recaps the second type of risk (‘health’) regulated in the clinic, and considers how probabilities work in practice. I conclude by suggesting that promoting the control of the bad potential of gametes is one of the ways in which humanness is enacted.

2. Kinship and Technoscience

This section explores the work of selected feminist theorists on reproductive technologies, technoscience, and their interfaces with kinship. I aim to show how this body of work provides tools to acknowledge the different ways in which ideas about what kinship is can become normative, that is, part of projects to be enforced on particular groups and populations, mainly by the same participants.

A core concept in anthropology since the late 19th century (Carsten 2004), kinship re-emerged as a relevant category during the ‘90s and early to mid-2000s, amidst an interest in the ‘new’ reproductive technologies and what was perceived as their re-articulation of the ‘natural facts’

thought to be a central feature of Western models of family (Viveiros de Castro 2009). The reasons for the decline of kinship as an analytic category during the '70s and '80s lies in the waning of the functionalist and structuralist schools in anthropology. Its revival was linked to the works of Marilyn Strathern, Jeanette Edwards, Sarah Franklin and Charis Thompson, among others. In the following, I discuss some of these contributions together with Donna Haraway's (1997) understanding of kinship as a technology.

2.1. Inherent and Extraneous Nature

Theorising about nature as a domain of mixture and recombination, Donna Haraway (1997) states that nature (together with race, sex and kinship) represents the paradigmatic domain of the impure, a realm of cross-fertilisation and hybridisation that has always evolved, even before the collapse of science and technology into each other two hundred years ago, on the basis of contamination and mixing between species, orders, genera, etc. Beings of different orders have always co-evolved on account of inter-species assimilation and recombination, exchanging genetic information unaware of and unregulated by taxonomic systems of organisation. This is (was) nature's natural order, one whose capacity for mixing orders makes industrial recombination pale beside it. In Haraway's words: "History is erased, for other organisms as well as for humans, in the doctrine of types and intrinsic purposes, and a kind of timeless stasis in nature is piously narrated. The ancient, cobbled-together, mixed-up history of living beings, whose long tradition of genetic exchange will be the envy of industry for a long time to come, gets short shrift" (1997, 61).

The above suggests that for Haraway pre-technoscientific nature had an inherent normativity, one characterised by the underlying kinship of all natural living beings, and one where the human lacked any precedence over the nonhuman. This inherent normativity might be called non-social or 'natural' in the sense that it opposed what for Haraway may be a characteristically 'moral' (and racist) normativity, one concerned with human affairs in the form of modern political projects of classification and depuration. Haraway refers to the latter as the 'arguments about purity of natural kinds', and they entail what Rosengarten (2001, 169) has termed the "suggestion that all creatures have their rightful place". These projects, Haraway maintains, predate modern biology in the form of classificatory regimes, and paradigmatic examples of it are Linnaeus's taxonomic system of kingdoms, orders, genera, etc., and Mendeleev's periodic table.

In this sense, Haraway shares with Bruno Latour (1993) a characterisation of modernity as intolerant to impurity and infection, and sees it as consequently attempting to make distinctions where orders seem to be

confused or contaminated. This project entails a typically modern and moral form of normativity, one where the human is produced, detached and elevated as part of the categorisation of all 'natural' elements, as in Linnaeus's and Mendeleev's attempts. It is a work of depuration that distils nature as its product while producing new normative forms of natural kinship and disambiguation. By ordering creatures and elements and according them a place in an orderly nature, (kin) relations are built between some elements and entities and a purity of lineage normatively enforced, while other 'impure' connections (for example, inter-species, inter-kingdoms, inter-races, intra-family, intra-sex), are discouraged. Significantly, Haraway calls 'kinship' these normative (and moral) modern devices whose material and semiotic effect is the production of 'natural kinds': "Kinship is a technology for producing the material and semiotic effect of natural relationship, of shared kind [...] The periodic table is a potent taxonomic device for what my people understand as nature" (1997, 53-54).

Yet it can also be said that there is at least one sense in which Haraway's work can also be thought as involving a certain form of (political) normativity. In effect, Haraway's politics can be described as one which opposes critical theory projects which feature prominently a critique of technoscience as a form of domination and instrumentation of nature. If pre-technoscientific nature was capable of ever novel combinations and hybridisations, technoscience's ability to mime nature's ways of reproduction by increasingly enhancing the mixing of orders and the production of contaminated kinship needs to be promoted rather than 'critiqued'. Haraway sees in this project the possibility of countering racist ideologies based on the classification and disambiguation of entities, and problematically opposed to the mixing of the wrong kinds.

Also conceptualising kinship as mixture, the account by Sarah Franklin (2000) has points in common with Haraway's. She explores how nature is being re-conceived in the context of thinking about the new forms of genealogy that are emerging as a result of the work of biotechnologies. She examines what she alternatively calls 'technologically assisted genealogy', 'artefactual genealogy' or 'respatialisation of genealogy' as a result of a series of reductions in the understanding of nature (from nature to biology, from biology to genetics, from gene to information). Sustained by the 'information analogy', new ways of producing genealogy have materialised the 'literal and metaphorical prospect of reprogramming biology' (2000, 190). In Franklin's view, once the gene begins to be understood as "information, message, code or sequence" (2000, 190), its flexibility is also enhanced, affecting directly its reproductive capabilities. A technologically assisted type of genealogy results from mastering knowledge about how to reprogram the information contained in the gene, so that it now

fuses laterally – and not only vertically – with information coming from other species. This information reproduces itself now as a new hybrid, a mixture of codes once statically duplicated only within a given species, but now recombined not only diachronically within the same species, but also synchronically and between species. The significance of this ‘detonation’, which has made possible mice that express human genes and plants which have genes from fish, is that it has transfigured “familiar models of kinship and descent, by demonstrating that patterns of filiation and succession once considered irrevocable because they are fixed by nature can be transcended by technology” (2000, 224). Worth noticing, this conception has points in common with Eduardo Viveiros de Castro’s (2009) proposal of a ‘post-complex kinship’, one where both consanguinity (biology) and alliance (sociality) have come to be submitted to the logic of choice.

Thus, Franklin refers to a new genealogical time and space which are, respectively, faster than the conventional brachiations of familiar descent, and post-arboreal. This new ‘artefactual’ kinship shares with Haraway’s an acknowledging of the blurring of boundaries between the well-differentiated and solid families and species through which modern biology traditionally organised its understanding of living beings. Yet what characterises Franklin’s re-spatialised genealogy is the fact that it is specifically technoscientific (that is, it is different from the principle of cross-mixing and shared co-evolution of living beings that for Haraway is only *re-produced* – and not produced for the first time – in contemporary technoscience). Franklin’s technologically assisted genealogy is specifically post-Darwinian in that it implies both a decrease in time and a re-spatialisation of genealogy, while Haraway’s industrial recombination matches nature’s own capacity for mixed evolution only with difficulty. Significantly, close to Rabinow’s (1992) ‘biosociality’, Franklin’s technoscientific post-arboreal genealogy implies imprinting on nature extraneous purposes, predominantly guided by the search of commercial gain, while Haraway’s principle of transgenic border-crossing is already inherently contained in pre-scientific nature itself. In Haraway’s case then, it is the political, racist projects of modern biology which, by imposing external rules and re-categorising its elements, manufactured a new nature which allowed only certain forms of kinship. Such projects resemble what Rabinow (1992) has termed ‘socio-biology’, a set of (eugenic, philanthropist, liberal and moral) operations upon the social that constructs it using the language of biology. For Franklin, however, the projects to which pre-scientific, self-referential nature subsides are similar to those that Rabinow has identified under the rubric of ‘biosociality’, the reprogramming of nature’s own intrinsic norms on the basis of an extrinsic normativity that enabled new, lateral and fast forms of kinship, mostly geared towards the making of economic profits.

2.2. Modern English Kinship and Lay Knowledge

Focusing closely on the increasing social significance of the new assisted reproduction technologies, Marilyn Strathern (1992a; 1992b) and Jeanette Edwards (1999; 2000), among others, investigated during the 1990s the impact that the latter may have for the lived experience of kinship. Their accounts also make sense, as do Haraway's and Franklin's, of the changing ideas and ontological status of nature in the face of growing intervention into the life processes. But their chief concern is to examine forms of lay knowledge about kinship, and what knowledge might in fact have to do with kinship in England, once ARTs became more common as a way to have children.

In her analysis of kinship in late modern England (19th and 20th centuries), Marilyn Strathern (1992a) suggests a way of theorising the normative workings of kinship. According to Strathern, central to English understandings of kin relationships are the concomitant tropes of diversity and individuality. During the 19th century, the diversity of the stock was thought to ensure the true unique character of the descendants, insofar as more plurality at the outset increased the potential for novel combinations in the progeny: "Kinship delineated a developmental process that guaranteed diversity, the individuality of persons and the generation of future possibilities" (Strathern 1992a, 39). In a version of this model, the uniqueness of the English character was thought to be a resultant of the slow amalgam of races that took place in the early formation of its population: "The greater the genetic diversity, the more rugged the offspring [...]. If England formed the basis of a hybrid nation, it was a vigorous hybrid, created centuries ago by waves of conquerors each of whom added their genes and skills to the stock" (Strathern 1992a, 36).

In these accounts of English kinship, a normative ideal emerges about what 'better nature', and thus 'better kinship', are. This ideal normatively enforced frequent genetic exchange, one which, if realised, had the potential to influence culture, the character of a nation or group of people. Thus, the more mixed nature was, the more diverse the genetic pool, the better the cultural prospects of a group. According to this, nature was graded with regard to its degrees of mixture and its potential to foster novel combinations. Genetic variety was also conceived as a foundation for personal individuality, and the latter ensured the reproduction of new diversity, achieved over time and as a result of procreation. This suggests that for English kinship the uniqueness of the person, enabled through genetic exchange and mixing, also performed as a normative core. Those not sufficiently 'mixed' were deemed not sufficiently 'unique'.

Writing at the beginning of the '90s, Strathern saw that the morally praised individuality that had so far been seen as the result of mixing natures was increasingly represented in the 'public mind' as disappearing. English and European publics evinced a progressive anxiety over new means of assisting nature, or of reproducing people, perceiving them as possibilities that hampered the potential for more differentiation in nature. Thus, Strathern identified a 'postplural' nostalgia (1992b) in the paradoxical fear that more choice for artificially assisting nature eventually entailed less diversity in nature. Directly connected with a sense of reduction in human genetic diversity, the paradigm of these fears was the use of gamete donors and surrogacy to create persons who would be genetically connected to a number of unknown others. The image of the clone, which in Strathern's view is colloquially associated with eugenics and the reduction in genetic diversity, fully expresses the apprehension attached to such increases in culture that imply ultimately a loss of nature and of the very nature of Western kinship: "The present anxiety concerns interference with natural relations. Civilisation is not so much under threat; Nature very much is" (1992a, 41). This social feeling of being in a world where there is less nature than before is powerfully associated, Strathern suggests, with the notion that less nature implies less diversity, or less individuality, or less of both.

Jeanette Edwards' ethnography of narratives of conception in an English town also focuses on the importance of knowledge of biological connections for modern English kinship. Her fieldwork leads her to affirm that "knowing is central to what constitutes a person in late twentieth-century English kinship" (Edwards 2000, 243). According to her interviewees, knowledge about one's roots implies that one is connected (and, in opposition, not knowing one's origins conveys a danger of being unconnected, as in offspring from donated gametes who are denied the chance to know the identity of the donor). This suggests that 'knowing' (what a person's roots are) becomes normative, a requirement to be completed as an individual and to be connected with others, insofar as to be connected one has to know. Those who do not know are considered to be less related; knowledge of roots becomes thus a (normative) way of establishing relationships *per se*.

Yet what 'things' are known in this knowledge about connection? Relying on an English idiomatic expression, Edwards (2000) talks of being 'born and bred' as a specifically English form of knowledge about kinship and connectedness. She refers thus to forms of creating connections among people that involve both 'shared substance' (idiomatically expressed in the term 'blood') and effort and care; they include simultaneously biological ties and social bonds. In *Born and Bred* (2000), Edwards explains that the roots that connect a person to others are never exclu-

sively circumscribed to the biological aspects of substances that get transmitted in the genetic recombination of the fertilised egg, through sexual intercourse and pregnancy. They also involve the knowledge of places where one's family has lived and where one grew up; the ties created through frequent visiting of relatives, and the bonds sustained through care and love.

Having revised key concepts in the debate on kinship, knowledge and technoscience, I provide in the following section a contextualization of the development of ARTs in the Argentine context.

3. ARTs in the Argentine Context

ARTs have been used in Argentina for more than thirty years. Their beginnings were linked to an early implementation of such technologies by a group of entrepreneurial doctors who envisaged the potential demand for them, and managed to replicate them successfully after a few months of trial and error. As in many countries around the world, the local adaptation of procedures developed elsewhere implied more than the capacity to reproduce technical know-how: it required also the design of a whole new set of moral justifications and medical accounts of the need to make ARTs available to the local population. This was particularly true in the context of a declared majority of Catholics², the Vatican's banning on ARTs for its congregation, and the vast adherence of the population to pro-life discourses and their promotion of the 'unborn life', especially during the first two decades of the local existence ARTs.

As a particular case of the Catholic countries, techniques for aiding conception were implemented in Argentina slowly but steadily, targeted (almost through exclusively private provision) for the middle and high income sectors that could afford to pay its high costs. Since 1986, when the first successful birth took place, ARTs have been satisfactorily challenging the impact of economic and political crises on their demand, increasing each year the number of cycles they perform³. Despite the Vatican's position and the standing of Argentina as a country of Catholics, even the most controversial types of ART treatment, like donor conception and Pre-Implantation Genetic Diagnosis, have now been widely accepted, and ARTs are certainly an important part of the local culture, as can be deduced, for example, from its recurrent featuring in the mainstream media (Ariza 2013). Moreover, Argentina's ART field has had a dynamic performance, actively and promptly incorporating technical innovations, sending tens of its members to train in the prestigious centres of the North (especially the US), fostering local research and the professionalization of the sector.

Due to this vocation of the ART field for increasing its reach over society, Argentina has consistently been the second country in Latin America, after Brazil and before Mexico, in relation to the annual number of cycles it performs, a position which is better apprehended bearing in mind that Argentina's population is about a third of Mexico's, and a fifth of Brazil's. In 2013, Argentina performed the 22.8% of all ART treatment carried out in Latin America and recorded by the RedLara Register⁴, while Brazil contributed with the 44.1% and Mexico with the 12.9% (Zegers-Hochschild et al. 2016). This percentage, and the elevated ratio of annual cycles per individual (unique in the Latin American context), speak of the prevalence and high visibility of ARTs as the most sought-after solution in the event of infertility. Other factors, such as the relatively recent (July 2010) passing of the Egalitarian Marriage Act, which confers parental rights on same-sex couples, have also fostered local demand for ARTs.

The numbers mentioned above are even more poignant if only egg donation is considered. In effect, this type of treatment increased from 281 transferred cycles with fresh embryos in 2004 to 1136 in 2008⁵, and from 26 transferred cycles with frozen embryos in 2004 to 323 in 2008 (Mackey 2011), a 400% rise and 1200% rise respectively.

Likewise, the pregnancy rate has had an increasing tendency from 2004 until 2010, during which it grew from 35.5% to 42.2% (Mackey 2014). These results, which show the rising importance of egg donation in Argentina, have had a distinct facilitating factor, and this is the large availability of donors, which distinguishes the country from the current situation in other parts of the world⁶. Women donate a lot in Argentina and, despite the investments arranged to 'altruistize' them (Ariza 2016), for many practitioners the reasons for this are mainly economic. In this context, the analyses below discuss the emergent preoccupation of practitioners with the notable local increase of gamete (and particularly egg) donation treatment in Argentina; a concern that surfaces given the frequent practice of donating more than the stipulated amount of times to different centres, once that there is no centralised control of the number of donations by a single donor.

Finally, in spite of the relentless presence of ARTs in Argentina, they remained unregulated until June 2013. Once passed, the Human Reproduction Law failed to define a number of important issues, including the creation of a central donor register. Interestingly for the discussions that follow in this chapter, it has been the ongoing commitment of the medical corporation to supplement the lack of local regulation with self-imposed medical guidelines, many of which are adaptations of internationally accepted parameters.

3.1. Argentine Kinship

In order to understand how the development of ARTs both has an impact, and relies on, understandings of kinship that are particular to this setting, I explore in the following paragraphs two examples taken from popular culture. I use them to illustrate widespread forms of conceiving kinship that resonate with the ways in which Argentine ARTs' doctors make sense of the sharing of ancestors between people.

The boom hit *Celeste*, a 1991 Argentine soap opera whose successful performance entailed the extension of the original 154 chapters to 172⁷, had as its central plot the story of two young persons who meet by chance and fall in love. After a lot of coming and going, 'Brother Sun' and 'Sister Moon', as they agree to call themselves secretly, conceive a child shortly before Sister Moon learns that she and Brother Sun are actually biological siblings. She spends the rest of the series avoiding a relationship with Brother Sun, foreclosing a romantic relation considered morally impossible due to the pre-existent biological connectedness. She is moreover confirmed in her thinking by being misleadingly told that the child born of her union with Brother Sun has died due to congenital malformations, which she attributes to the couple being siblings. By the last chapters, both 'brother' and 'sister' are finally told the truth (which had been kept from them in order to prevent them inheriting money): that they are not actually biologically linked, to which they respond giving free course to their love.

Celeste's story is one of a number of popular culture products (including novels, movies and other soap operas) that reflect on the tension between genetic relationships and their knowledge in Argentina. In fact, in *Celeste* the whole plot is arranged according to the idea that the relation between Brother Sun and Sister Moon is already there, independently of the protagonists being aware of it or not. The riskiness of the relation emanates precisely from this fact, and it manifests both biologically (the congenital malformations due to its supposedly endogamous origin), and socially (it is morally incorrect to marry your brother). Although this relationship may be socially elaborated throughout the series (in the fluctuations between having and not having a romantic relationship), a main theme is the biological link that the characters are thought to have⁸, its potential riskiness in the face of an eventual relation, and the consequences of having or not knowledge about it: 'knowing where one comes from' allows people to act in morally proper ways (for example, rejecting a relationship), while not knowing is dangerous: it might lead people to act improperly, with dire consequences (congenital malformations).

Another relevant example can be found in the Argentine TV series *El Donante* (The Donor), broadcast during 2012. The story features a re-

cently divorced, depressed middle-aged man who has no children of his own. However, this successful engineer used to donate semen as a young student, something of which he has almost forgotten. The plot starts when one donor child, Violeta, locates him and reveals him that she is her 'daughter'. Together, the engineer Bruno and Violeta initiate the search for each of the remaining 143 persons that have been born out of Bruno's donations. In the last chapter of the series, when all the 144 children have been reunited and a 'club' formed, he is asked by his therapist (whom both know is a donor children procreated from Bruno's semen) if he is remorseful of having had donated. He answers that he is not, since 'where there was going to be nothing, there are now 144 offspring'. In this case, knowledge plays a key part in acknowledging the existence of the social link of 'paternity', insofar as were it not for such knowledge, Bruno would have ended with 'nothing'. However, it is again the fact of sharing genes which testifies to the pre-existence of paternal relationships, insofar as it is only because such biological links exist that the social paternal connection can be established. In a previous shot of the series, there is an exchange between the therapist and the donor, where the latter tells the therapist "Be calm, you will not make out with him without knowing, because I am your donor". Here, again, knowledge is put in service of acknowledging a previous link, while it serves to 'calm' the anxieties over a potential wrongful doing (as would be people making out with someone with whom they are related). Again, the question of riskiness appears as an inherent aspect of a relation thought to be already there, and knowledge allows characters to act dutifully.

I have examined these two examples as illustrations of the significance of genetic connections in Argentine culture, the way in which they are culturally rendered to be relatively autonomous from knowledge (culture), and how this autonomy is understood to be potentially dangerous. I have also stated that knowledge may be a gate to act properly. These examples allow me to highlight the extent to which kin relations based on biological substances appear to have, in this particular milieu, a sort of independent or self-evident existence, one that is already there even if it is not socially acknowledged. A person might not know that they are biologically related to someone, but the relationship is still there; the family connection has an actuality given in the sole and very fact of sharing genes. Knowledge is not, therefore, the key defining feature of kinship; rather, biology is. This, in turn, allows me to ask: how are these conceptions of kinship important for the enactment of gametes as risky substances in the Argentine clinic?

The fact that kin relations are thought to be independent from knowledge is a key element in enacting gametes' potential harmful character in the clinic, insofar as when people are procreated from gametes

from the same persons, the relation is thought to be already there, beyond the manners in which it is known. Moreover, relations that are there, but which remain unknown, are thought to be potentially harmful, because those who are already mixed should (in the opinion of doctors and fictional characters) not re-mix. My purpose in bringing in examples from popular culture has been, furthermore, to show how doctors' understandings of persons procreated from gametes from the same donors is rooted in, or at least has profound resonances with, how such links are thought about in the wider popular culture. This points to how expert and lay understandings of kinship appear not to be clearly distinguishable in Argentina.

4. Methodology

The analyses are based on 34 interviews with (and observation of the practices of) experts of the Argentine ART medical community. These included gynaecologists, biologists and biochemists, embryologists and geneticists, mental health professionals and researchers in basic science in the field of fertility. The interviews were carried out throughout two fieldwork trips to Argentina that took place in 2008 and 2009. They consisted in conversations with practitioners on their daily work, where aspects of how gamete donation treatment is provided and/or researched into in Argentina were discussed. Interviews were taped in all cases where permission was granted to do so, and a transcription of relevant extracts followed the identification of themes key for the research objectives. All interviewed practitioners signed an informed consent agreeing to be so. The research also included analysis of other types of empirical material (clinics' brochures, pieces of legislation, informed consent forms, medical and psychological guidelines, research papers, etc.) as well as of fieldwork notes from observation.

The research adopted a STS approach, and sought to acknowledge the role of practicalities (Mol 2002) in the empirical realities of the fertility clinic. In paying attention to some of the forms in which human practitioners interact with their nonhuman counterparts, the study assumed the sociotechnical quality of the fertility practices it studied. The project borrowed from Callon (1997; 2007) the idea of 'investment' and of 'performance' to describe the sociomaterial configuration of an entity. Description and analysis of the ethnographic material benefited also from related terms like Annemarie Mol's enactment (see also Law 2004) which, together with the concepts above, can be thought of as ultimately inspired by Latour and Woolgar's (1986) use of the notion of 'construction'. Such terms are of high currency among the STS literature. They are designed

to pay attention to how scientific, medical, expert practices produce objects of intervention rather than merely intervening or describing them as pre-constituted objects. They are terms that point to the way in which “reality is not independent from the actions of scientists” (Law 2004, 140), or to how both the natural and the social sciences also enact the realities that they describe (Callon 2007; Law and Urry 2004). Such an insight is crucial insofar as it allows to problematize the ‘pre-arranged-ness’ of objects, like the ‘obvious’ risk of ‘inbreeding’, showing how such ‘givens’ are never so; they are always at least partially the result of the performative capacity of science and technology. Finally, the research adhered overall to a pragmatist vision of practice whereby discursive and material deeds need to be thought alongside their success or failure (Butler 2010; Callon 2010), more specifically in addressing the efficacy of enactments in actually constituting, or not, what they purport to do.

Having provided an explanation of the methods deployed during the study, I now turn to the analyses of kinship, risk and technoscience in the Argentine fertility clinic.

5. Enacting Risky Gametes

When asked about how many times a given donor is allowed to donate their gametes, Argentine doctors are usually fast in providing a number. They might say, for example, that they or their clinics allow twenty-five pregnancies per donor, one donor per million inhabitants or six donations per donor. That is, there is always a limiting number, yet this number is different between centres and between practitioners working in the same clinic. This variation through which the limiting rule is given and reinstated is telling in itself: it speaks of the coexistence in practice of two different types of measures that aim, in fact, to regulate two different types of risks. One of these measures attains, in effect, the aim of avoiding the risk of ‘inbreeding’ or endogamy (if a donor donates ‘a lot’ then it is thought that there might be less biological variation). Yet the other number that is used is oriented to prevent a wholly different risk: the potential risks caused to the egg donor’s health. In the following paragraphs I look, first, at the endogamy risk, its relation to local conceptions of kinship and the significance of the ‘variation’ narrative for Argentine doctors. Towards the end of the article, I examine the other type of risk regulated by limiting measures (the ‘health’ risk), and consider how this number is actually combined in practice with the first.

5.1. The Endogamy Risk

To prevent the ‘risk of endogamy’, Argentine doctors have been implementing measures that limit the number of times that donors should be allowed to donate. The joint ASRM/SART “2008 Guidelines for Gamete and Embryo Donation”¹⁰ provide (for the case of sperm donation)¹¹ a measure aimed at regulating the ‘risk of endogamy’¹². This is a population-based measure. It belongs with the sort of probabilistic calculation and the logic of the wager. It works by stipulating a number of allowed donations in relation to a certain amount of population. Such a measure readily exemplifies a concern with the risk of consanguinity, as it gives a number of pregnancies or births calculated as an amount which is contrasted with a number of inhabitants in the general population. The latter are imagined by practitioners, as I suggested in the introductory paragraphs above, as producing separation between those whose mixing or re-mixing is considered harmful. I argue that the formula in which they are invoked works not only to control but also to produce the risk it aims (only) to regulate.

Examples of the ways in which measures aimed to avoid endogamy are formulated are the statements:

When you increase above one child born from the same donor per million [inhabitants], the chances that they meet and marry are increased. (Gynaecologist 4)

You have to remember that the limit is twenty-five pregnancies per donor per 700.000 people. (Endocrinologist 1)¹³

If I use twenty pregnancies for a population of a million, this means that [...] tomorrow the probability of encounter between two half-siblings¹⁴ is one in 50.000 by one in 50.000. This means... [calculates] five by five [is] twenty-five and then here you have four zeros, and here another four zeros. What is the result of that? [Surprised] Look at that, [it’s] 2.500.000.000. One in two thousand five hundred million. This means that if I impose myself this figure, the probability is very very low. So far as I increase, this will decrease and it may be that they meet, two half-siblings. (Geneticist 1)

The extracts above are part of the answers I received when enquiring about ‘phenotype matching’. This refers to the coordination of the physical appearance of gamete donors with gamete recipients, in order to increase the probabilities that donor children and their parents physically resemble each other. The clinic appears thus as a communicating space between two opposite practices: coordinating donor and recipients (through appearances) and dis-coordinating donor children from each

other (by reducing the probabilities that they ‘meet’). This connection between coordination and dis-coordination attains in fact to the double-sided character of gametes that I recounted in the Introduction: their potential as entities that generate and relate (for example through physical resemblance) people; and their ability to reverse such ‘good’ potential, that is, the possibility that gametes generate harm. In fact, I argue that the answers of the practitioners quoted above are exemplary of a form of clinical thinking that, cast in the language of probabilities, is imagined as producing a necessary (both, as I will show, moral and biological) separation between hypothetical individuals.

To understand how this separation is attempted, it is useful to consider a theoretical subpopulation of ‘donor children’ procreated through gametes coming from the same ancestors, and imagine how their ‘mixing’ might be avoided once ideas about the healthiness of biological diversity suggest this. So, if one needed to ensure diversity between such donor children, one way of doing this would be to interpose ‘other’ persons (that is, persons not procreated from the same individuals) in between ‘donor children’. This is, arguably, how the measures above are imagined by the practitioners who use it. In this form of representing the action of probabilities, the ‘million people’ or ‘inhabitants’ that come to be introduced in that hypothetical subpopulation of donor children, are imagined as producing diversity by actually separating donor children from each other, thus avoiding their possible mixing (or re-mixing, insofar as they come from the same donors).

Further, I suggest that these formulas need to be understood not only as mechanisms that control endogamy, but also as devices that stabilise the very terms (‘one child born’, ‘twenty-five pregnancies’) that they purportedly only represent. They actually identify those born or conceived in relation to a certain population as individuals that should not mix (or re-mix, given that they descend from the same ancestor). Thus, by helping to circulate, and thus configure, the very terms that they aim only to represent, the formulas make possible the fact that babies born as consequence of their use are identified as being siblings, and thus in risk of future re-mixing.

5.2. ‘Blood Brothers’

As explained above, the use of statistical formulas is a mechanism to produce separation between individuals. Yet why are separation (with its expected result) and the existence of diverse persons important at all for the Argentine doctors that I interviewed? Where do such requirements come from? Who necessitates them, and why? An answer to these questions lies in what people procreated from gametes from the same persons

are thought to be in Argentine medical practice, and in the concomitant preoccupation with a potential diminishing of diversity. On the basis of conversations about numbers, endogamy and the future of the species held with practitioners in the field, I look in the following paragraphs into how donor children are conceived by fertility doctors. I further argue that such ‘conceptions’ have strong resonances with the ways in which donor children are represented in popular culture presented above, with effects for ideas of relatedness and family connection. The analysis of these scientific and lay notions of kinship allow me to show why gametes are handled in Argentine clinical practice as if they were carriers of potential harm.

In the previous sections I have quoted the words of a geneticist. In explaining to me how he calculates the probabilistic numbers he uses in his practice, he gave away some characteristic forms of qualifying those procreated from similarly originated gametes. In effect, in linking the number of donations to the capacity of his probabilities, the geneticist argued that:

So far as [he] increase[s] [the number of children born from the same gamete donor], [...] [the probability that donor children from the same donor do not meet] will decrease and it may be that they meet, two half-siblings. (Geneticist 1)

This is, he explicitly links the fact of having a shared ancestor to that of being immersed in a relation, in this case a relation of siblinghood.

Such ways of referring to those procreated from gametes from the same ancestor are characteristic of how donor children are talked about in the Argentine clinic. For example, a gynaecologist said that:

When you increase above one child born per million from the same donor, the chances that [children from the same donor] meet and marry are increased. It might even be that... it wouldn't occur to you to date your brother¹⁵. But you may do it without knowing that he is your brother. (Gynaecologist 4)

Another one tried to convey the risks involved in endogamy by exemplifying that:

[The risk] is that in the future people [born] from the same ova start to interbreed [...]. *It would be like having a child with your brother.* (Gynaecologist 1, my emphasis)

I take these quotations as telling interview data that show how Argentine doctors think of people procreated from the same donors as holding a relationship, that is, as being already entangled in terms of kin connectiveness, independently of people being aware of so or not. In the case of

the geneticist, he gauges the strength of his probabilities against their power to avoid the encounter of two 'half-siblings'. In the case of both gynaecologists, and by referring more explicitly to the domains of both sexuality ('meet and marry') and procreation ('having a child'), they refer to the concomitant difficulties when such domains might be implicated with the fact of people being 'brothers'. I want to propose that understanding that people are related (through 'siblinghood' and 'brotherhood') in the absence of knowledge of such a relationship ('without knowing that he is your brother') is in itself a model of kinship, one that highlights the significance of the biological link, or at least makes it sufficiently important to be able to establish a relationship in its own right, independently of a social rendering of such connections between those who are implicated. Furthermore, the sheer artificial (i.e. culturally specific) character of such a model is evident, insofar as (natural 'evidences' like 'genes' and 'blood' notwithstanding) it could clearly be otherwise. That is, it could clearly be the fact that, for Argentine doctors, people who share ancestors, but who do not hold a social relationship (i.e. are mutually anonymous, are in lack of knowledge of such a relation), were not considered to be kin.

If, as has been already very well established, Western kinship models are characterised by the presupposition that biology is crucial to the definition of what kinship is (Edwards 2000; Schneider 1984; Strathern 1992a), the Argentine model might actually bring a nuance to this: biology might already be enough to establish kinship. In fact, according to the interviewees above, relations have already been established biologically, independently of them being known, with knowledge figuring here as a representative of culture. This is a model which is less mero-graphic¹⁶ than that narrated by David Schneider, Marilyn Strathern or Jeanette Edwards in their ethnographies of the Global North. For them, biogenetic ties are being submitted to the logic of choice (Schneider 1984); "kinship systems and family structures are imagined as social arrangements [...] based on [...] processes of biological reproduction" (Strathern 1992b, 3); and whereas "kinship embraces connections people trace to each other through notions of shared substance [...] at the same time it places [...] emphasis on the creation and maintenance of social relationships through intimacies of care and effort" (Edwards 2000, 27). In these models, kinship partakes both of nature and nurture, without being in fact subsumed totally in either system (that is, it maintains with both the natural and the cultural realm a partial or mero-graphic connection). Yet in the Argentine medical milieu, kinship appears as being less composed of nature and culture; less characterised by both the fact of being born as well as of being bred. In this regard, nurture/culture would seem to have a secondary character to the bio-

logical aspect; an almost superfluous standing in relation to the true defining character of kinship, that is, the biological link. Rather than merographically or partially, the nature system captures the totality of kinship.

5.3. 'Lest They Meet and Marry'

As established, above, central to the handling of reproductive donations in Argentine fertility clinics is also a concern with the physical internal variation of the species, with instating both the biological and cultural goodness of diversity, and hence with ensuring proper degrees of separation between those who are already mixed (like children from the same donor), so that they do not re-mix. The latter are shown explicitly in ideas of the badness of inter-breeding, and of potential endogamy due to procreation between descendants from the same ancestors, that flourish recurrently in the practitioners' talk regarding gamete donation in Argentina. For example, discussing the work of numbers and the need to limit how many times a donor donates, a practitioner explained in the following way what in the field is known as the 'endogamy risk' or the 'genetic risk':

G: [with more children procreated from the same donors] endogamy begins to increase, and endogamy is not good for the species. It is detrimental to the species. Endogamy perpetuates many of the traits but also those which are useless [...].

I: But [...] would you say that there are [emphatic] biological arguments against endogamy?

G: Yes, of course. The improvement of the species is achieved by bringing in new races. Not by the mixing of all those who are the same

I: Which are the worst evils? What could happen?

G: [...] The more races are interbred, the higher the possibilities that they inherit beneficial genes. Also because those specimens that begin to have detrimental traits begin to be infertile, because they stop reproducing

I: But has that happened in humans?

G: In humans as well, in humans there are endogamous groups that tend to disappear, precisely because of endogamy [...]. That's why the improvement of species implies bringing in new specimens, from other species. (Gynaecologist 4)

The extract quoted above exemplifies the high stakes placed on variation, and on variation as a prerequisite for improvement, by Argentine doctors (and modern biology more broadly). Such high stakes, I want to argue, are a key element of the enactment of reproductive donations through a logic of risks and bad potential. In this narrative, insofar as the evolution of species by means of natural selection is the result of changes

in species' make-up that enable some individuals to adapt better to their environments, biological diversity is regarded as a fundamental prerequisite to ensuring evolution (or 'improvement'), providing a constant source of potential recombination and thus of the possibility of novel adaptations. When a population is varied, individuals inherit genes from different ancestors, and this mixing is considered to be the basis on which evolution takes place in the long run, as part of the appearance of individuals with genes that enhance their adaptation. Darwin ([1859] 2008) famously coined the expression 'evolution by natural selection' to name this process.

Moreover, not only is variation enthroned as the basis for evolution in this biological narrative, but also the lack of variation is made responsible for reducing the potentialities of genetic recombination and thus for the potential sickness and extinction of a population. In this account, endogamous practices thought to derive from 'the mixing of all those who are the same' lead to the production of less variation ('Endogamy perpetuates many of the traits'), an outcome that is regarded as having detrimental effects on a population ('many of the traits but also those which are useless'), and potentially conducting to its extinction ('in humans there are endogamous groups that tend to disappear'). In such explanations, the health of a population appears as depending on ensuring disconnection between certain (already connected) individuals, thus making some forms of kinship a ground for population wellbeing, and other the reason for a population's sickness.

Explanations such as the one above were part of those provided by doctors when asked about the use of probabilistic calculation and the recurrently stated need to limit the amount of donations allowed from a single donor. What is also significant in these accounts of the need for variation is how such a need is seen as originating in the 'sameness' of those procreated through gametes coming from the same ancestor (as evidenced in the talk by Gynaecologist 4 quoted above: 'the improvement of the species is achieved [...] not by the mixing of all those who are the same'), a sameness that further qualifies, as shown in the previous section, their being regarded as siblings.

These arguments are in noticeable contrast with prevalent ideas of Argentina as a 'white nation' comprised mainly by descendants from Europeans who alighted 'from the ships' (Perelman 2016); a mythical and racist account of the nation's formation whose ideological valence lies in excluding indigenous and the non-European migration from the myth of origins. Although I do not have the space to dwell on this issue here¹⁷, it is clear that the practitioners' emphasis on 'sameness' as problematic and variation as desirable described above clashes with an account of Argentina as a country composed mainly of White people. Numerous studies

have recently started to look at racist discourses and to incorporate the conceptual framework of race into understandings of contemporary Argentine society (e.g. Adamovsky 2012; Frigerio 2010; Grimson 2006). The previous relative underdevelopment of this academic area is a clear proof of the ubiquity of ideas about the prevalence of Whiteness in Argentina. My point in bringing this up is merely to observe that narratives of sameness as carrying bad potential exist side-by-side with those that take for granted, and that to a great extent rely upon reproducing (Ariza 2015), also a certain kind of White sameness. The relatively easy coexistence of these two narratives may be attributed to them being regarded as referring to different scales of the social (the family in the first case, race and/or ethnic background in the second), therefore to a certain degree independent from each other. Thus, if biological heterogeneity appears as valuable insofar as it ensures the prosperity and 'improvement' of the lot, that heterogeneity seems to be conceived as taking place exclusively between those whom, in other way, are thought to be 'the same' (the Argentine-Europeans).

6. The Health Risk

As said above, Argentine doctors also use another measure to regulate how many times does a (female) donor donate. In effect, in the case of egg donation there is the concern to limit how much a woman donates. This limit number is not directly addressed in the ASRM/SART guidelines¹⁸, but it does appear in the talk of some practitioners. This is the risk that may be posed on the donor's health if she donates frequently, a pre-occupation specific to Argentina given the large number of times that donors tend to donate¹⁹. One practitioner said:

It is generally said that there is no relation between [taking ovulation induction drugs and] an alteration in fertility, and no relation to cancer. (Gynaecologist 2)

Yet it is clear that for some practitioners the evidence for this lack of association is either not satisfactory or not sufficient²⁰. For the gynaecologist above, for example:

Six is like a limit number, because you have to imagine that it is a polyovulation what they are doing every three months, and that is a lot for the ovary, and a lot for the body. (Gynaecologist 2)

Another practitioner also pointed out that:

All the studies carried out, they are done on the basis of donors of twenty years

ago, ten years ago. What happens tomorrow to girls donating now, it's not known. Today's donors don't donate like before. They donate more, everything is much more widespread. (Gynaecologist 1)

As these extracts show, some practitioners and the institutions they work for are indeed concerned about egg donors' health. This concern stems from the specificity of Argentina as a country where lack of state control and high monetary compensation foster repeated donation by the same donor. Moreover, this preoccupation is in line with some of the observations posed by ASRM (2006, S216), who has indicated that "[...] It is presently not known whether repetitive follicular aspirations could affect the donor's future fertility". Doubts persist to the extent that limitations on the grounds of individual health are also taken into account, and besides the need to ensure variation. Enforcing 'good practice' implies taking institutional account of the eventuality and locality of these risks, even if, as I show below, such taking this into account needs to be practically combined with the need to control endogamy.

Protecting donors' health is then another reason to limit the number of donations taken from the same egg donor. Measures of this type are usually formulated in relation to the donor rather than the population where the donor donates. They are given as a number of pregnancies or donations per donor (for example, six donations per donor, eight pregnancies per donor²¹). As in the case above, I propose to think of the use of a preventive formula not only as a way of avoiding a purported risk, but also as an uncanny form in which the risks inherent to donation are actually stabilised as a matter of concern, in fact enacting the use of donor gametes as a matter of risk and bad potential. Explanations about which measures are being used need to be thought, therefore, as part of the arrangements that perform gametes as eventual agents of bad potential, while also contributing to produce the doctors as those who are concerned about donors' health.

6.1. Which Numbers?

The 'health' risk posed to female donors shows that there are two types of measure that regulate the number of donations per donor, and hence two ways of enacting the bad potentiality of gametes. Yet how do these two types of measure/risks relate? And how are the different demands they represent coalesced in the actual limitations to donate? In fact, because for practitioners it is impossible to use the two measures separately, the measures are used together²².

In effect, the difficulty of disentangling what each measure does by itself that stems from applying two ultimately incompatible measures as al-

ternative answers to one single demand (i.e. ‘how many times should a donor donate?’), has effects in the very production of the risks at stake. And insofar as the investment in which such measures conjointly act needs to be understood as an investment that aims to performate, simultaneously, variation and health, the risks produced by risk-avoiding measures attain, precisely, the diversity of the species as composed of healthy individuals.

In effect, on the one hand the application of the norm that prevents risks to donors needs to be understood as a false number (Lampland 2010); that is, as a number whose use is inaccurate yet at the same time productive²³. This means that even if the measure that prevents risks to donors is not strictly appropriate for the use to which it is put (i.e. is not a measure devised to control endogamy), it is still productive insofar as it helps to materialise the norm of variation in a simple(r) sort of way. By stipulating that donors are to donate, for example, only six times, it helps to perform medical practices as concerned with variation, that is, with the health of the collective, without having to enter into the more complex calculations entailed in applying the proper endogamy measure (i.e. twenty-five in 800.000). Practically applied to produce variation and avoid endogamy, the health formula stabilises those procreated through it as siblings, commanding their disentangling (only six). This productivity of the prevention-of-risks-to-donors measure working as a false number does two things. First, it performs those who are regarded as siblings (‘six’) as pertaining to the same kind, and therefore in need of avoidance of a potential re-mixing. Second, the measure also produces the donor and the offspring as individual bodies whose re-union needs to be avoided²⁴.

On one hand, to use the health measure as a way of controlling endogamy is, thus, to use the measure as a false number, deploy it inaccurately yet focus instead on the other result that it can bring (i.e. helping to easily materialise the norm of variation). The prevention-of-risks-to-donors measure is, however, a false number. It is ultimately inaccurate and as such the investment in which it acts is also bound to fail in some way. In effect, as much as the six-per-donor measure helps to practically materialise the norm of variation, its inaccuracy is responsible for the production of a biological relatedness between individuals that ultimately complicates the achievement of disentangling. This means that while the measure creates the circumstance that those born from the same donors are identified as siblings and therefore as kinds who should not re-mix, it also generates biological relatedness between individuals in ways that do not come to be acknowledged, in the investment in which they happen, as forms of ‘siblinghood’. Thus, the investment is unsuccessful (or fails) in its own terms, insofar as it produces relatedness between those who

are thought to be, and performed by the very formula, as in need of disentangling.

Yet on the other hand, given that the measure that prevails in the clinic (or 'happens first') is that which prevents the risk of endogamy, it might be worth enquiring about the success of the investment that seeks to prevent damage to donors' health. This investment is not unrelated to the one that aims to perform variation, insofar as sometimes the endogamy measure is used to produce health. Then, if the measure according to which a donor is allowed to keep on donating is that of, for example, twenty-five pregnancies per 800.000, how does this investment adequately monitor the potential risks to the health of donors? The answer is that it monitors them poorly, since the application of the rule of three gives an allowed number of ten pregnancies per donor for the City of Buenos Aires²⁵. Ten pregnancies per donor is a considerably higher number than the six (or eight) pregnancies per donor allowed according to the risks to donors' measure, an increase which, in the terms of the investment, considerably rises the risks to donors' health.

The above analyses show, then, that the concrete arrangements by which numeric calculations are normatively deployed in Argentina as part of the enactment of what are taken to be the natural norms of variation and health has consequences for how bodies, individuals and populations are intervened in and constituted as a result. Specifically, it allows to see how the combined use of measures devised to do different things is paradoxically productive of the risks that the investment aims explicitly to avoid (an increase in the 'sameness' of those who constitute the species; a decrease in egg donors' health). In the examples shown above, this means that genetic variation between people is not produced according to a measure of twenty-five per 800.000 or its variants, but according to measures such as six donations per donor, eight donations per donor, etc. The failure of the investment produces relatedness in ways that are not acknowledged within the investment, thus failing to biologically disconnect those whom it otherwise constitutes as in need of disconnection. For similar reasons, the failure of these arrangements results equally in the fact that it is not healthy bodies that are produced through them, but rather bodies whose exposure to the risks deriving from repetitive ova donation has been increased (as is the case when ten donations per donor are allowed, a limit which results from applying the twenty-five in 800.000 rule for the city of Buenos Aires).

7. Conclusions: How to Become Human

The analyses above have shown the surfacing of a growing biopolitical

concern with the species and its health that is currently emerging from the use of donor gametes in Argentina. This preoccupation, which is partly the result of the frequency and repetitiveness with which donors (particularly egg donors) donate here, is also notably characteristic of the kind of alertness, ‘moral panic’ and dystopian imaginaries brought by ARTs elsewhere (see for example Franklin 1993; Simpson 2013). Such concerns can be understood as evincing what Marilyn Strathern (1992a) already pointed out long ago, that technology may strip life of individuality; that a culture made of sameness may in fact make do without (its) people.

Yet the anxiety over a disappearance of (different) persons, culturally understood in the West as a reduction of diversity, and hence, of kinship as we know it, is important also because it speaks not only of the ways in which ARTs are still denaturalising kinship, but also of how much kinship is still shaping the practices of ARTs. In effect, far from allowing an unlimited number of donations from each donor, the Argentine fertility community strives, copying or adapting legislation from around the world, to perform gamete donation according to that which is expected from proper kinship, thus enacting itself as guarantor of appropriate (detached, differentiated) kinship links. Furthermore, anxieties over ‘too much connection’, or too much kinship, are signs of the limits of a post-plural world in Marilyn Strathern’s terms: in the end, it appears that the overflow of ‘choice’ brought in by ARTs needs to be countered by a choice that limits, epitomised by the use of regulative numbers; that is, by the reduction of choice.

Apart from illuminating forms of doing ARTs in other parts of the world that have been less examined than those in the North, the analyses above illustrate as well a particular way in which kinship thinking (denoted in terms like ‘endogamy’, ‘brother’, ‘sibling’, or ‘genetic risk’) evokes nature and culture, the given and the made. Thus, on one side, practitioners’ idioms are those of biological language (‘endogamy’, ‘inbreeding’, ‘improvement’), and this is consonant with shown ideas about kinship being thought in strongly biological terms. Yet at the same time, ‘knowledge’ plays a key role in turning those biological concerns into moral ones and, ultimately, into human ones. In fact, it is clear from these set of discourses and practices that what distinguishes humans qua humans is not so much their capacity to identify moral horrors like incest, but rather their ability to worry about, and try to prevent, the possible biological risks entailed in further remixes of those who are thought to be too similar. This is a set of risks posed by technoscience. They are not inherent to nature, since the latter is conceived by Argentine doctors in line with Haraway’s understanding of nature as a domain of pure mixing, contamination and cross-fertilisation. What makes humans (doctors, patients) human is therefore their preoccupation with where to cut the network (Strathern 1996) of relatedness, where to stop connecting. In the views of

the actors of this special milieu, the inherent risk of gametes lies in their inherent capacity to incessantly re-mix; ordering and limiting the potential profusion of connection (and risk) is also about enacting what is uniquely human; that is, to bring an artificial limit to biological connection.

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¹ I thank one of the anonymous referees for pointing this out.

² According to data from 2013, 76.5% of the population identifies as Catholic, 11% as atheist or agnostic, and 9% as evangelical (Mallimacci 2013).

³ Demand for ART treatment is still and likely to keep on growing in Argentina. Between 2000 and 2014 (the last year for which data is available in the RedLara Register), the number of initiated ART cycles (a cycle being each initiated treatment) increased steadily, with the exception of 2000, 2001 and 2006, when annual numbers remained the same or decreased by about 100 cycles per year. The 2000-1 stagnation was likely linked to the 2000-2001 financial and political crisis, which affected a great number of people.

⁴ The Latin American Assisted Reproduction Register records data on ART treatment in the Latin American region since 1990. Centre participation in the Register is voluntary.

⁵ 2008 is the last year for which separated data for egg donation is available in the Argentine Register of Assisted Reproduction (RAFA).

⁶ See for example the warning tone of an article appeared in the NRGT news portal Bionews (London Bridge Fertility, Gynaecology and Genetics Centre): “Gamete Donation in the UK: Time to Think Again”, *Bionews*, April 12, 2010. Retrieved October 10, 2012 from Bionews website: http://www.bionews.org.uk/page_58241.asp?hlight=shortage+of+gametes.

⁷ *Celeste* was sold to all countries of Latin America. It was also broadcast in the US by the channel Univision, and in Spain and Italy among other European countries (“El fenómeno Celeste”, *Way Back Machine Internet Archive*, available

at <https://web.archive.org/web/20090823042752/http://www.quovadis.com.a-r/-telenovelas/celeste/fenomocelste.html>, accessed online 10 October 2017).

⁸ In fact, the names under which both protagonists agree to call themselves, 'Brother' and 'Sister', perfectly captures what they are also thought to be for much of the extent of the soap.

⁹ I examine the meanings associated with inbreeding and a potential diminishing of biological diversity further below.

¹⁰ These are the instructions most closely followed in Argentina on this regard.

¹¹ The fact that the ASRM/SART guidelines only regulate the potentiality of endogamy for the case of sperm donation further sustains my point below that the concern with egg donors' health is an emergent preoccupation specific to Argentina in view of the high frequency with which donors donate in this particular context.

¹² In Argentina, the ASRM/SART measure for sperm donation is also used for egg donation.

¹³ Measures of this type were not always reported with the same values. In fact, the endogamy measure was reported by different practitioners as being twenty-five in 800.000, twenty-five in 700.000, one in a million and twenty in a million. I do not have the space here to reflect on the significance of this fact for the overall question of how statistical, risk-avoidance measures are actually complied with in the Argentine clinic, yet I have done this elsewhere (Ariza 2012).

¹⁴ The term used in Spanish is the masculine form: 'medio-hermanos'.

¹⁵ I translate here more literally as 'brothers' (as it is said using the universal masculine form in Spanish) and not by 'siblings' since the interviewees are obviously talking to me, the interviewer, a woman, of whom they assume her heterosexuality.

¹⁶ Marilyn Strathern (1992a) defined a connection as 'merographic' when the parts that come together partake simultaneously of other 'wholes'; this is, a merographic connection is one which only engages parts partially.

¹⁷ I have reflected on the importance of fertility doctor's ideas of racial sameness for Argentine ARTs in Ariza (2015).

¹⁸ The 2008 ASRM/SART guidelines refer in point VI. H to 'Multiple oocyte donations', yet they do not tackle the issue directly, re-directing instead to the ASRM Practice Committee Opinion entitled 'Repetitive Oocyte Donation' (ASRM 2006). This latter document was, however, never mentioned by the interviewees, and it is unknown the degree to which it is actually used.

¹⁹ Egg donation has been known for a long time to imply some risks for the donors, insofar as it entails use of anaesthesia, surgical methods and the potential of multiple pregnancy and of hyperstimulation syndrome due to hormone intake. These risks are related to the donation as a single event, and they do not accrue over time (i.e. the risk of having a surgery-related complication is the same for each donation). They are different, in this regard, to risks to donors' health that derive from repeated egg donation (each time a donor donates, her risk of acquiring some sort of hormone-related cancer or having her fertility reduced may be increased).

²⁰ An absence of association with cancer is in principle supported by research done in the field, although studies looking into this have given mixed results and are ongoing. Cancer Research UK enumerates a number of Danish, Dutch, Australian and British studies that have shown there is no association between ovarian, breast and womb cancer and the intake of fertility drugs (*Does test tube baby treatment increase cancer risk?*, from Cancer Research UK website: <http://cancerhelp.cancerresearchuk.org/about-cancer/cancer-questions/does-test-tube-baby-treatment-increase-cancer-risk>, retrieved August 27, 2012). Similarly, a 2006 revision of the oocyte donation guidelines by the ASRM states that “Recently published data have not demonstrated an association between the use of ovulation-inducing agents and ovarian cancer, although definitive conclusion await further follow-up” (ASRM 2006, S216, emphasis added). A 2004 report by the NHS’s National Institute for Clinical Excellence indicates however that “Women who are offered ovulation induction therapy and ovarian cancer remains uncertain” (NICE 2004, 34). The potential reduction of the donor’s fertility is, however, a different matter, as shown in the observation by ASRM (2006).

²¹ As in the case of the endogamy measure, measures of this type characteristically differed in value from practitioner to practitioner. Examples include eight donations per donor, six donations per donor, eight pregnancies per donor.

²² According to Gynaecologist 1, they do “whatever happens first: that there are more than twenty-five born alive every 800.000, or that she donates more than six times”.

²³ For Lampland (2010) ‘false numbers’ are temporary devices that enable rationalisation, stability and fixity. For her, this means understanding false numbers as formalising practices. I follow Lampland in her overarching claim, namely that the use of a false number can have productive effects, can help to performate things.

²⁴ By enacting variation, the health measure performs ‘siblings’ (six) as those who should not mix, therefore enacting those who share genes (the donor and the offspring) as figures who (so as to ensure variation) need to be disentangled.

²⁵ According to Gynaecologist 1, this figure comes out of applying the rule of three to the City of Buenos Aires: “If in Buenos Aires there are 3.000.000 people, then the application of the rule of three implies that there can be ten [children] born alive [per donor]”.