Chapter 10

Disputing calculations in architecture: Notes for a pragmatic reframing of parametricism and architecture

Andrés Jaque

The discussion on parametricism in architecture needs to be reframed. The desire for a new technologically driven march of progress has gained an amplified voice that conceals a much richer ecosystem of heterogeneous realities. With the intention of counterbalancing that hegemony, I propose to look at parametricism, calculation, and digital technologies as constituent components of daily life. By looking at pragmatic accounts of two cases of domestic urban enactments in which calculation, parametricism, and digital technologies are playing key constructive roles, we can gain opportunities to introduce alternative perspectives that reconnect the discussion with the empirical capital that daily life accumulates.

Figure 10.1 shows the enactment composed by the entities participating at a very specific moment in the making of a particular micro-society: an extended family that is a segment of a larger social construction, the Mouride Brotherhood. Part of the extended family lives in a farmhouse in Touba, Senegal. Another part of the family works and lives distributed between two European cities: Madrid and Paris. The economy and the welfare of the micro-society are based on the possibility of keeping those family members who are female, elderly, disabled, or very young in Touba, where their living expenses can be minimized, while having the young males in wealthier cities of European countries, where they maximize their incomes by selling counterfeit products such as DVDs and fake Louis Vuitton bags. The image reconstitutes the most important entities that participated in a tiny event of great importance in 2010: the initial preparation for the future displacement of a male Touba-based teenage member of the family,

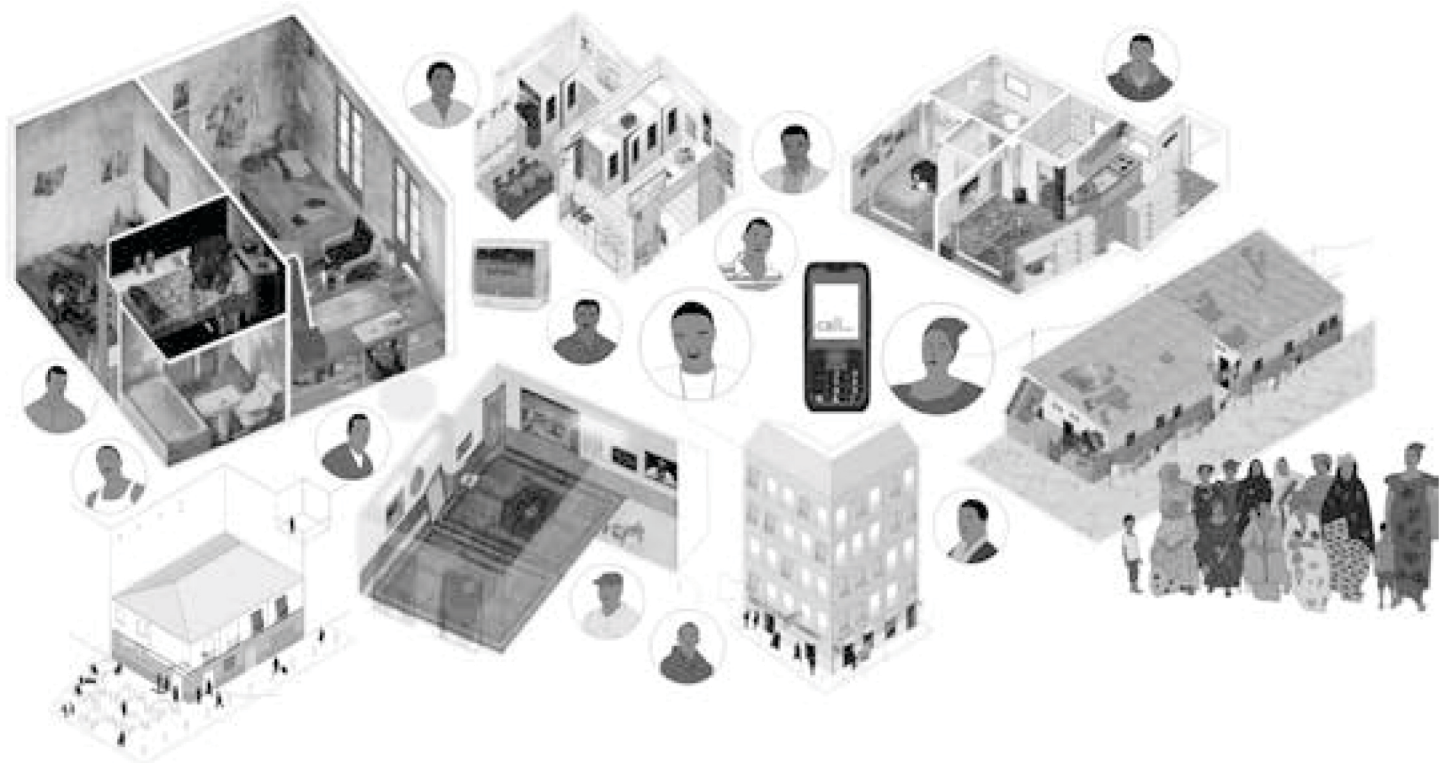

Figure 10.1 Reconstruction of the urbanism of a Mouride extended family distributed between Paris, Madrid, and Touba. Andrés Jaque/Office for Political Innovation 2012.

in advance of his reinstallation in the Lavapiés district in Madrid: a process by which he would become an active contributor to the economy of the whole and by which he would gain grown-up status within the group. As part of a five-year project that the Office for Political Innovation has developed, to systematically study more than 100 cases of *ordinary urbanisms*, we have traced the relational extensions that happened in this particular moment.[1]

Lavapiés is composed of both long established social groups and recently arrived immigrants. This combination is largely due to the effect of an extensive fragmentation in the ownership structure of the buildings in the neighborhood and the vast social transformations that the city of Madrid has experienced in recent decades. Wholesale facilities, tourist-oriented boutique hotels, refurbished apartment buildings, and a large number of deteriorating dwellings can now all be found within a short walking distance of each other. Since access by Senegalese nationals to countries like Spain and France is severely restricted, young Mouride males tend to arrive in Madrid or Paris as illegal immigrants. The subway is the place where the police most easily seize undocumented migrants. Lavapiés offers the possibility of accommodating all the activities that structure the life of the young Mouride males within easy walking distance: wholesale facilities (where ready-to-sell products such as DVDs or fake Louis Vuitton bags are available), tourist sites, and inexpensive deteriorated apartments (where illegal immigrants are likely to be accepted). Living in Lavapiés helps the Mouride males avoid the risk of police detention that the subway contains. The preparation sequence was sensitive as well to the need to solve language and orientation difficulties for the new immigrant upon arrival in Madrid or Paris. The presence of African grocery stores and Senegalese restaurants is vital to empowering the Mouride community in Madrid, for it provides an entry to a public space where the knowledge and capacities of the Senegalese individuals are recognized and performed.

The sequence started the moment that one of the young boys living in the family farm in Touba decided to emigrate to Madrid. At this point, the family matriarch at the farmhouse in Touba called one of the males living in Madrid, an older cousin of the boy. The cousin did not answer his cell phone but, instead, headed to a phone parlor where he could obtain better rates for international calls. There, he called the family matriarch to learn of the next arrival. He asked her to stress the need for the boy to walk all the way to either an African grocery store or a Senegalese restaurant in the Lavapiés district. The plan succeeded and, several months later, the young boy made his way to the African grocery in Lavapiés where he found people who put him in touch with his relative. He then took a place in a shared apartment with his cousin and four other Mouride men.

It is important to consider the nature of the urban composition in which this event developed: not a city but a fragmented transnational assemblage that can be best explained using Actor Network Theory.[2] In this urban constellation, built devices—such as the apartments, mosque, phone parlors, African grocery stores, and Senegalese restaurants in Lavapiés—are activated in the urban scene only by interacting with a number of diverse technologies including cell phones, rugs, speakers, online platforms, and money transfer services. This urbanism is not shaped by the city itself—its grids and the volumes and spaces of its buildings—but by an association of heterogeneous devices that interact to produce an ecosystem of heterogeneous entities. Fragments of this constellation can be found in shared spaces collectively constructed in the minds and books of the Mouride believers. These fragments are connected by interaction and the performativity of urban dynamics. They gain continuity when phone calls are made, money transfers are ordered, and the relatives of recent immigrants are informed of arrivals. The urbanism by which the Mouride family is enacted is not fixed but performative.

Such an urbanism challenges the ways we think politics is embodied in architecture. In recent years, this issue has compelled a number of theorists and practitioners to align themselves with one of two positions: *techno-determinism* or *techno-neutrality*. The determinists argue that the form of the city and its architectural conditions cause societies to emerge in the ways they do. The neutralists, however, believe that architecture is a neutral actor that can potentially contain *any* social form. In Figure 10.1, neither of these alternatives can be applied.[3] There is not a single architectural device within the image that could alone produce the society depicted. The apartment where the six Mouride people lived could not create on its own the urbanism of everyday life performed in its interior. A vast range of devices collectively builds this fragmented-but-interacting urbanism, although it is also true that the designs of the individual architectures are not without agency. The dimensions of the apartment and its position on the street, for example, play significant roles in this particular urbanism. One of the spaces included in the image was once a domestic unit, but at the time of our study functioned as a Mouride mosque. Conditions that catered to its evolved state made its reprogramming possible. The space was diaphanous, and its entrance did not disturb the tranquility of the main room. To become part of a Mouride urbanism, however, the apartment needed to engage "new technologies." It became part of such a dynamic urbanism by housing books and minds inscribed with shared beliefs. It was transformed by the existence of hi-fi speakers and tapestries depicting holy sites. The political agency of architectural devices is shared. The potentials and

limitations of each device interact with other entities and together construct a new form of agency.

Politics and construction are embodied not in individual technologies or architectural devices, but in the interaction of their particular potentialities.[4] When considering the intelligences that shape the interactions between different entities, the role played by calculation stands as a momentous factor, for it is through calculation that the members of the extended family are distributed into a discontinuous transnational accommodation. It is calculation of risk that demarcates the activities of the young displaced males within Lavapiés. It is calculation of cost that shapes the composition of technologies and their sequential mobilization in the telephonic communications between the family matriarch in Touba and the cousin in Madrid. In these calculations, socio-geographies are coded in parameters of cost, earnings, duration and populations; and great numbers of alternative versions of these socio-geographies can be discussed and explored. Each calculation was different. In the use of phone technologies, a significant amount of time-demanding work was invested in comparing existing telephone fees. Almost all the members of the family living in Madrid took part in these comparisons by consulting a broad variety of web sites where information on telephone fees was provided in diverse formats. Comparison of this information required it to be recomposed. Data coming from different sources needed to be translated into common parameters to become comparable. The results were then discussed in informal conversations that engaged the whole community in an intermittent conversation that helped create a collective criteria that was applied in the specific telephonic conversation that I have referred to. Even though the principal aim of the collective endeavor of calculation was to reduce the operational cost of the micro-society—something that is obviously a central part of the constitution that keeps it together—other purposes were constructed by the collective calculation process. Competition between individuals to gain authority and prestige through the discussion, or to exclude themselves from the risk it embodied, made social distinctions between the roles that the individuals would play within the group. Updates to the calculations over time provided opportunities for those in the group less adapted to technologies and the practicalities of functioning in the city to be introduced to this knowledge by the more savvy ones. Calculation was in itself a collective activity that contributed to the evolution of the group.[5]

It is important to consider as well that the members of the extended Mouride family were not the only ones making calculations. For instance, the presence of the police in the subway was the result of a spatial calculation.[6] The linearity and unidirectionality of the subway routes, their capacity to concentrate

people at peak hours, and the existence of security staff in most metro entrances made it possible for police agents to maximize their capacity to control a great amount of people while minimizing their investment in failed attempts at detention. The fees of the telephone companies, just to provide another example, are the result of complex calculations meant to maximize the exploitation of their investment in infrastructural resources. Even though the calculations that the telephone companies and police engage in are not included in the image, they are an essential part of the enactment. The design of the enactment—the way the different entities that participate in it are composed by the performance they all participate in—is a direct reaction to these other calculations and to the techno-social designs they produce.

In Figure 10.2, a single mother and her ten-year-old son live on the outskirts of the city in a rented apartment on the same block as the mother's parents, who can take care of the son while the mother works. Such a relational scheme shapes the way the mother emerges as a component of urban life. This urbanism allows her to use social media sites such as Match.com, where she develops romantic relationships, and to use her parents' apartment in Madrid's city center, where her online sexual relationships become offline sexual encounters. Even though she would have preferred to live in the city center, by living close to her parents, she reduces her need for babysitting, reduces her living expenses, and still keeps her career active and competitive. The mother made her decision after a deliberative process in which she discussed alternative scenarios and the economical schemes they activated with a number of friends and relatives. That process could be explained as a prolonged-in-time collective calculation in which each imagined scenario would be reconstructed as a combination of values associated to comparable parameters. Her decision to move to her parents' block did not facilitate the development of an active and changing sexual social life, a sexual life she could not easily accommodate in a residential location on the outskirts of the city, far from nightlife, bereft of spontaneous opportunities for her to find potential lovers. The use of digital technologies here plays a crucial role. Digital technologies produce a space of negotiation in which her daily urbanism could expand and gain multiplicity. When considered in detail, the profiling and negotiation processes leading to potential sexual encounters happening in the online space of Match.com could be described as processes of collective calculation. Profiles reconstruct humans as collections of parametrical options. Age, height, income, distance, urgency, and availability for sex or romance are parametricized as decisive information to be considered when selecting and negotiating potential partners. Digital mediation however does not provide an automatic outcome, but a frame for a tentative trial-and-error

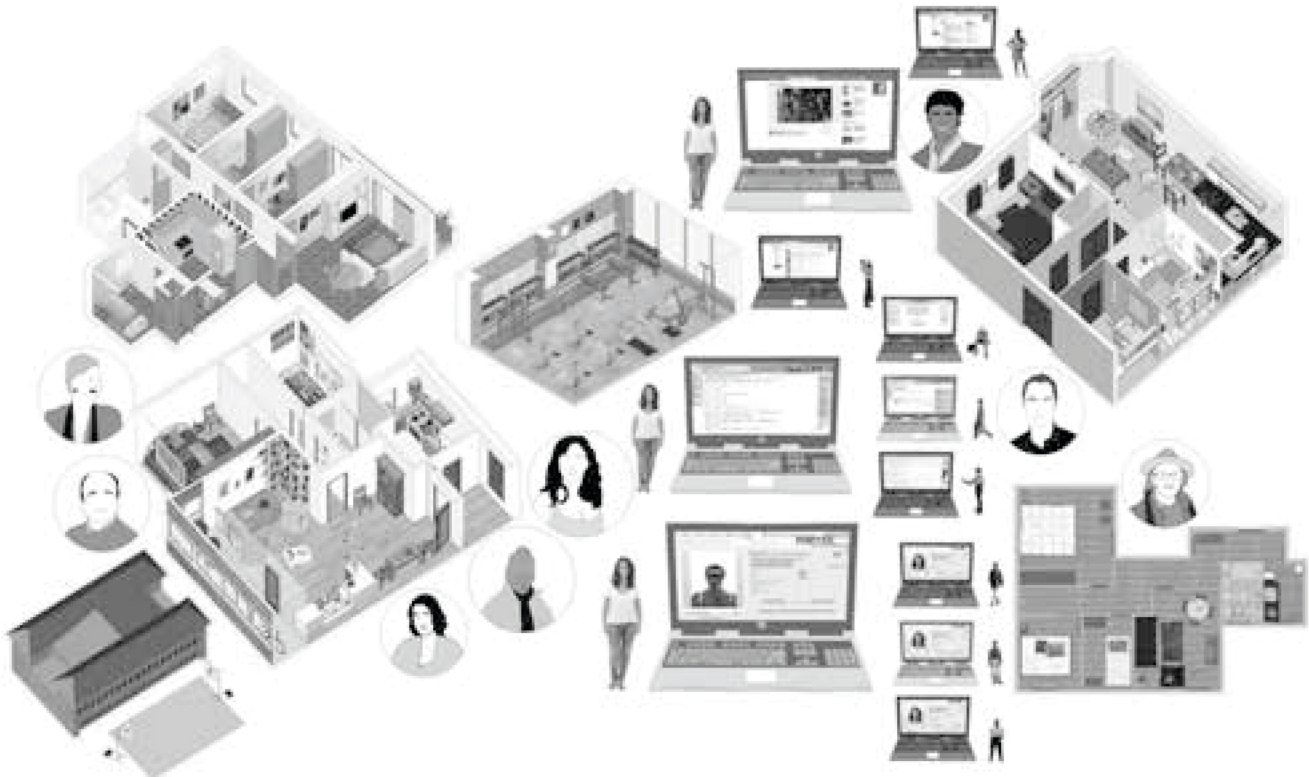

Figure 10.2 Reconstruction of the urbanism of a family group composed by a mother, her son, and a number of humans and devices distributed between London and Valdemoro. Andrés Jaque/Office for Political Innovation 2012.

dynamic, likely to accumulate conflict, politics, failure, and accident. This second case shows how, when performed in real life, calculations are interdependent. Cost reduction required the mother to engage in online calculation for the political project of engaging with others in sexual interaction. Digital technologies in this case did not make analog calculation obsolete—for example, when the mother discussed her options with friends. Both technologies were assembled in this urban enactment and they had a shared performance.

These two cases, based on accounts of the way calculations are performed in ordinary life as a constitutive part of design processes, are relevant for reframing the way notions of parametricism have been operating in architectural discourse in the last few years. They are relevant because they provide a direct opportunity to confront what parametricism is believed to be in certain architectural design circles, where it has become a sign of identity. Here, it is important to make a clear distinction between the rich and varied traditions exploring the effect and potential of digital technologies to accommodate architectural practices, and the very specific and reduced segment of them that have defined themselves as Parametricist. Both the case of the single mother and that of the Mouride group contain designed architectures, such as the mosque, apartments, telephone parlors, and family farm in Touba. These spaces are not just architectures containing the intentions of their first designers, but ones in which calculative social endeavor shapes trajectories by which they became urban enactments. These two cases are made by parametric calculation, but whereas it is most common to find arguments presenting parametricism in architecture as both a new archi-social paradigm and as a "new" modernism, in these two accounts there is no way to define a breakthrough between preexisting pre-parametric enactments and parametricized ones. The possibilities and the potential these enactments make available are based neither on the autonomy of new digital speeds and bandwidth for calculation, nor on their discontinuity with obsolete pre-digital calculation modes. These enactments are instead compositions of diverse modes of calculation, based on diverse technologies, times, and demarcations. Digital calculation, in these cases, is not an advanced version of previous modes of calculation, but one among a number of diverse technological and epistemological regimes.[7] The persistence of these diverse regimes is not a residual part of an evolution process that will lead to the extinction of nondigital technologies. The social relevance of digital technologies is produced by their interaction with resilient nondigital technologies.

Secondly, in the context of parametric design, the outcome of parametricism tends to be considered as the production of form. By form, what is meant in most cases is *fixed material volume at-a-building-like-scale*. In these

two cases, in which a complex and maintained-in-time number of parametric calculative forces participate in the making of specific urban enactments, it would be quite inaccurate to say that fixed volumetric form alone is what they *produce*. To start with, the term *produce* could much better be replaced by *mobilized*, and it is definitively a number of diverse social realities—the relationship of a mother with her son, the demarcation of people within a city environment, the way online and offline spaces negotiate continuities and discontinuities—that are enacted by the effect of the parametric calculations these two archi-societies experience.

Finally: whereas parametricism has been the argument to insistently claim the disconnection of architecture from politics, and even to be the first step toward postpolitical architectural practices, in the account of these specific cases, parametricism is not a space of convergence and does not provide social coherence. Calculation-made enactments are hosted by different and evolving social demarcations, performed in desynchronized time sequences, and cater to diverse and, in many cases, confronted interests, ideologies, sensitivities, stakes, and programs. Parametric calculation, in these cases, is not providing consensus, nor a postpolitical society, but rather an assembly of calculations and parametricisms. Politics are materially embodied in the articulation of confronting calculations. It is precisely heterogeneity that was brought into the Mouride enactment by the intense calculative endeavor that the Mouride family performs daily. Heterogeneity was needed, in the form of a multiple demarcation, as a way to adapt to the lack of welfare opportunities in a purely Touba-located scheme. The digitalization of the space for romance did not bring homogeneity to the mother's life, but actually exposed her to a broader capacity to encounter otherness, which affected the heterogeneity of her family's ecosystem. The increase of calculation capacity brings otherness and politics to the system, not homogeneity or continuity.

Notes

1. "Modes of Living," an interviews-based ethnography of contemporary domesticities developed by the Office for Political Innovation with the support of the Empresa Municipal de la Vivienda de Madrid and the European Union. The case studies mentioned in this text are all part of the "Modes of Living" project. Part of the conclusions of this research were exposed in: Jaque, Andrés, "Urban Enactments," *A+U Architecture and Urbanism*, N. 520, [JAP/ENG] 2014 (Japan).
2. Bruno Latour, "Technology is Society Made Durable," in *A Sociology of Monsters Essays on Power, Technology and Domination*, ed. J. Law, Sociology Review Monograph

38 (London: Routledge, 1991). Also Bruno Latour, *Reassembling the Social: An Introduction on Actor-Network-Theory* (Oxford: Oxford University Press, 2005).

3. A broad argument of the way that participation of material devices has been discussed in the last few years can be found in Noortje Marres's "As if Things Mattered," in *Material Participation: Technology, the Environment and Everyday Publics* (Houndmills: Palgrave Macmillan, 2012).
4. As was already exposed in the foundational work by Harold Garfinkel, *Studies in Ethnomethodology* (Englewood Cliffs, NJ: Prentice-Hall, 1967; Oxford: Polity Press, 1984).
5. The way calculation is understood in this text, as a socially situated activity, follows the way the calculability of goods was examined in Michel Callon and Fabian Muniesa's essay "Peripheral Vision. Economic Markets as Calculative Collective Devices," *Organization Studie*s Vol. 26, No. 8 (2005), pp. 1229–50.
6. During the first months of 2010, the Periodico Diagonal journalist Eduardo León carried out an extensive report on the use of the subway by Madrid's police force to detect and detain immigrants without residence permission. These police practices have prompted the reaction of a part of the Lavapiés' population, as has been repeatedly reported in the press: see, for example, Miguel Ángel Medina & F.J. Barroso, "Los vecinos de Lavapiés vuelven a encararse con la policía para evitar una detención," in *El País*, Madrid, December 7, 2011.
7. Both exposed cases (the Mouride distributed domesticity and the single mother's composition) are recent cases of complex material design of the urban of great relevance in the making of social advance. Their capacity to compete and provide an alternative to dominant powers, such as the immigration policies of the United States or the real estate market in Madrid, depends on their use of combined technologies, and it is not weakened by their disregard to some of the foundational technologies of parametricism. This makes them dissidents of some of the notions on which parametricism is grounded: "The current stage of advancement within Parametricism relates as much to the continuous advancement of the attendant computational design technologies as it is due to the designer's realization of the unique formal and organizational opportunities that are afforded. Parametricism can only exist via sophisticated parametric techniques. Finally, computationally advanced design techniques like scripting (in Mel-script or Rhino-script) and parametric modeling (with tools like GC or DP) are becoming a pervasive reality. Today it is impossible to compete within the contemporary avant-garde scene without mastering these techniques." Patrik Schumacher, "Parametricism as Style—Parametricist Manifesto," London, 2008. Presented and discussed at the Dark Side Club, 11th Architecture Biennale, Venice 2008.