Calling Rowe: After-lives of Formalism in the Digital Age

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Emmanuel Petit recently invoked the work of Colin Rowe in an article he published in the 'New Ancients' issue of *Log* in 2014. In her editorial note, Cynthia Davidson introduced Petit and the other contributing authors as united in their desire to 'shift the ground of the architectural discussion'. They would do so by thematising contemporary invocations of precedent. In this shared spirit, Petit's 'Spherical Penetrability: Literal and Phenomenal' addressed both methodological/epistemological and architectural/empirical issues. Petit drew from Rowe's formalist analyses in 'Transparency: Literal and Phenomenal', the seminal article the British theorist had co-authored with Robert Slutzky in 1963. Petit's argument is twofold. His epistemological discussion focuses on updating Rowe's method of formal analysis for the present. This epistemologically updated formalism then yields empirical results. It enables Petit to posit a novel genealogy of relevant architectural precedent for the digital age.[1] Updating Rowe therefore allows a discussion of precedent to successfully re-enter current discourses of digital architectural production. These renewed threads of continuity with the past would render the novel architectures of digital design practices intelligible and debatable.

For many digital practitioners today, this is a noble cause. To cite just one example, the main proponent of parametricism, Patrik Schumacher, recently found the conceptual and theoretical discourse of digital design practices lacking in clarity and sophistication. Novel attempts to conceptualise the forms produced by the practitioners in the digital field are therefore welcome.[2] In other words, Petit's attempt to update Rowe addresses an existing gap in digital design discourse. In his eyes, the British theorist's methods of formal analysis are apposite for the task at hand. After all, Rowe's studies were originally informed by (and often established meaningful relations with) architectural precedent.

Implications of an invocation

Rowe's work was inspired by Rudolf Wittkower, his mentor at the Warburg Institute from 1945 to 1947. Wittkower's study of eleven villas designed by the Renaissance architect Andrea Palladio within approximately fifteen years (from the early 1550s to the late 1560s) uncovered the 'single geometrical formula' that underlay their design. Purging their individual differences, the German art historian's formal analysis of the plan drawings posited that the eleven villas were variations on the same theme. Wittkower heralded this 'systematisation of the ground-plan' in the form of the nine-square grid (more specifically, a rectangle divided by two longitudinal and four transversal axes) as the distinctive characteristic of Palladio's villas. The Renaissance architect's 'grouping and re-grouping of the same pattern' in turn rested on harmonic relations between the parts and the whole. Wittkower therefore asserted that 'this demand of the right ratio… [was] at the centre of Palladio's conception of architecture'.[3] In other words, the nine-square grid was loaded with the metaphysical luggage of Renaissance humanism.

In his subsequent studies, Rowe went one step further. He applied Wittkower's analyses of Renaissance architecture to celebrated projects of modern architecture. Starting from his seminal article on 'The Mathematics of the Ideal Villa' in 1947, Rowe exposed the Palladian roots of modernism. In so doing, he acknowledged the influence of Wittkower, and especially his recognition of 'a correspondence between the perfect numbers, the proportions of the human figure and the elements of musical harmony'.[4] Notoriously describing Le Corbusier as 'the most catholic and ingenious of eclectics', Rowe uncovered the classical elements in a design movement that purported to have broken its ties with the history of architecture.[5] His analytical diagrams that compared Palladio's Villa Malcontenta and Le Corbusier's Villa Stein exemplified his formalist approach at work. The nine-square grid and its internal A-B-A-B-A division soon became an indispensable tool for this sort of analysis.[6] Rowe's studies thus demonstrated the incipient classicism of modern architecture. His analytical method showed that the modernist designers' aspirations to timelessness could only stand on the common ground of architectural classicism. The supposedly ahistorical, rational, and autonomous movement was part of a longer classical tradition. This shift in the understanding of modernism rendered the past relevant for the present again. Modernist practitioners did not design in the historical vacuum of a tabula rasa. Less ground-breaking and inventive than they claimed, their work was just the latest episode in the history of classicism. It was the youngest family member in a long genealogy of precedents.

Petit's invocation of Rowe aspired to exert a similar effect on contemporary practitioners who propagate the novelty of the digital paradigm. To support his invocation of formalism, Petit attempted to draw a subtle line of continuity. He presented some of Rowe's main insights as precursors to both the postmodern debates of the late 1970s, and the Deleuzian discussions of striated space and the fold in the early 1990s.[7] In tracing Rowe behind the postmodern discussions in architecture, Petit was not alone. Many scholars and practitioners had already located the seeds for the development of postmodern thinking both in Rowe's formalist studies and in his promotion of a contextualist collage approach to the city in the late 1970s.[8] Tracing Rowe behind the formal discussions of 'Deleuzian' folds in the 1990s was more controversial. However, Petit's argument was at least supported by the major evangelist of folding in architecture, Greg Lynn. In 1994, Lynn focused on 'The Variations of the Rowe Complex' to further promote his proposed shift to 'anexact' and 'pliant' geometries in digital design practice. In any case, if Petit's argument holds, then Rowe's formal analysis is just a step away from entering the digital era. It is up to architectural historians and theorists to provide the only jigsaw piece that would still need to fall into place. It is they who need to use their conceptual imaginations to construct corresponding threads of continuity between past and present.

However, as I will show in what follows, this is neither entirely the case, nor the end of the story. In his broad sweep, Petit was quick to trace Rowe's ideas behind the major architectural debates from high modernism to the early digital pursuits of the 1990s. In so doing, he glossed over significant developments in architectural theory over the last five decades. Rather incidentally, a similar rhetorical tactic had also been employed some years earlier by the proponents of parametricism. In the first parametricist manifesto of 2008, Zaha Hadid and Patrik Schumacher argued that 'Postmodernism and Deconstructivism were transitional episodes that ushered in this new research programme based upon the parametric paradigm'. They then heralded this programme as 'the great new style after Modernism'. Hadid and Schumacher clearly intended to establish a strong link between parametric design and modern architecture. In this framework, the multifarious implications of the

intervening postmodern critique no longer needed to be considered.[9] Petit's invocation of Rowe's early formalism had similar implications. However, if the postmodern critique was to be seriously considered, then an update of Rowe's formal analysis for the digital age would constitute only an insufficient first step.

'Spherical penetrability' is Petit's own novel concept of formal analysis to stand in for Rowe's cubist 'transparency' of 1963. [Fig. 1] Through this novel concept, Petit claims to have successfully recalibrated contemporary digital architectures within their own historical horizon of precedents. As these designs in turn become family members in another genealogy of precedents, history regains its relevance for the digital age. Just like the modernists' claims that went before them, the neo-positivist assertions of autonomy of digital design practices are therefore undermined. This is the outline of Petit's argument. However, the story of the possible digital afterlife of Rowe's formalism is more complicated than suggested by Petit. In what follows, I will revisit the richer history of the after-lives of Rowe's formalism both as an analytical/historical and generative mechanism for architectural design. This will in turn enable me to sketch the conditions of possibility for an update of his formalism in the digital age.

Residual humanism

Petit rightly notes that Rowe and Slutzky's method of formal analysis was mainly informed by the modernist practice of analytical cubism. That the mathematics underlying Rowe's formalism rest on explicitly Cartesian grounds, however, left him unperturbed. In addition, Rowe's invocation of Platonic solids echoed Pythagorean associations of harmonic relations and ideal proportions that his mentor, Wittkower, had already noted in his previous studies. Rosalind Krauss's description of grids as myths (that allowed 'a contradiction between the values of science and those of spiritualism to maintain themselves within the consciousness of modernism, or rather its unconscious, as something repressed') therefore applies to Wittkower's and Rowe's work, as well.[10] For Wittkower, this metaphysical luggage lay outside the architectural objects. It was to be found in the religious texts that described the universal harmony of Christian cosmology, for instance. It was the textual sources outside architecture that revealed the essential meaning of the deep structures of a building's form, in relation to human figuration, perfect numbers, musical harmony, the ideal relations of parts to wholes, etc. All these residual humanist features in the luggage of analytical formalism render an update of Rowe for the present more complicated than Petit suggests. Their subtle presence behind the 'mythical' function of the grid renders his project inconsistent. Digital architectural practitioners have often explicitly framed the novelty of their endeavour in posthumanist terms.[11] However, the residues of Renaissance humanism linger in the background of even the most extreme approaches to formalism by Rowe's disciples. Because the contemporary digital architects' assertions of autonomy historically developed from these roots, these residues still haunt their practices. The multiple after-lives of Rowe's formalism from the postmodern to the digital age help explicate this paradox of residual humanism behind the posthumanist rhetoric of current practitioners.

In a 1973 addendum to 'The Mathematics of the Ideal Villa', Rowe defended his formalist methodology of analysis through the grid. He praised 'the merit of appealing primarily to what is visible and of, thereby, making the minimum of pretences to erudition and the least possible number of references outside' the object of analysis. Echoing the flourishing tradition of close reading in literary studies, this in turn rendered his formalist method of analysis more accessible than other approaches.[12] At the same time, Rowe's formalism of the grid meant that the present could only converse with

the past in abstract, syntactic terms. At its core, the outlook of his discussion was therefore clearly modernist. Going a step further, Alina Payne argued that this shared 'ontological matrix' in Wittkower's and Rowe's analyses was aligned with Siegfried Giedion's modernist historiographical project. In other words, Wittkower's study also served as a subtle legitimation of Giedion's historical account of modernism as a movement that abandoned the Gothic to favour the Renaissance. Hence, Wittkower's and Rowe's work offered Giedion 'the possibility of a homogenous architectural discourse [that] rescue[d] the Renaissance … as a viable thinking ground for the further development of contemporary discourse'.[13] This alignment of shared concerns and interests with Giedion may be an additional reason behind the celebrated reception of Wittkower's and Rowe's analyses. In the final instance, the grid, its use and its appropriation in different historical epochs was not so much the concern of the original historical agents. More than anything else, it was the modern lens through which Rowe could enact his correspondences between past and present. In other words, Rowe's formal analysis was carried out from a modernist perspective, and this historically remained the case in its various versions from Wittkower to Eisenman.

Autonomy

In the words of Rosalind E. Krauss, the grid is the emblem of modernity, 'the form that is ubiquitous in the art of [the twentieth] century, while appearing nowhere, nowhere at all, in the art of the last one'.[14] It is the syntactic device through which the architecture of the past makes sense to the eye of the modern beholder. Looking for it, as the modern observers currently understand it, in the architectures of the past is therefore only anachronistic. Rowe's grid says more about the modernist outlook to the past, and less about the historical reality of this past. This is also why, although both Wittkower and Rowe were adept at highlighting contextual details and meaningful differences, their analyses do not fundamentally rest upon them. The invisible 'deep' order of the grid supplants the contextual details to connect the architectures of different ages on an ideal bridge of syntactic concerns. These remain shared beyond the only superficially irreconcilable differences in the architectures of the different ages. Krauss was therefore right to describe the grid as a form that excludes contextualist concerns, 'a paradigm or model for the antidevelopmental, the antinarrative, the antihistorical'. This is how Rowe's and Wittkower's grids could also point to the autonomy of the architectural object, despite their specific humanist luggage. The diagrammatic grids primarily served as a 'staircase to [an idealised] Universal'.[15]

Emphasising this autonomy of architectural form, Peter Eisenman, a disciple of Rowe at the University of Cambridge from 1960 to 1963, pushed his mentor's approach to its limits. In his doctoral dissertation, Eisenman set out to explore the formal basis of (any) architecture. He did so through his studies of the 'generic plan types' of eight iconic modernist projects by Frank Lloyd Wright, Alvar Aalto, Le Corbusier and Giuseppe Terragni.[16] Whereas Rowe's comparative analyses aimed to underline the ties of modern architecture to the classical historical precedent, Eisenman's approach was explicitly anti-historical. It deliberately 'supress[ed] perceptual considerations' and eschewed the iconographic and symbolic content of architecture. His formalism intended 'to consider buildings as a structure of logical discourse, and to focus attention on consistency of argument, on the manner in which spatial and volumetric propositions may interact, contradict, and qualify each other'.[17] Pushing the analytical autonomy of his predecessors' studies even further, Eisenman asserted that 'the inherent order derives from a geometric reference, from the properties of the form itself'.[18] In this context, the properties of the 'abstract entity' of the grid were crucial. 'Thought of as a continuum [the grid] provide[d] the absolute reference for

	1963 "Phenomenal Transparency"	2014 "Spherical Penetrability"
POSITION OF ANALYST	exterior to spatial diagram	interior to spatial diagram
SPATIALITY OF ANALYSIS	2.5-dimensional stratification of space	volumetric/spherical onion rings
LOGIC OF TRANSPARENCY	invariable resolution/clarity/definition throughout deep space	"bulge": gradual loss of definition from inside out
FUNDAMENTAL GEOMETRIC DISTINCTION	9-versus 4-square	centripetal versus itinerant

Fig. 1: Comparative matrix of the characteristics of Rowe's phenomenal transparency in 1963 and 2014 by Emmanuel Petit. Source: *Log* no. 31 (Spring/Summer 2014): 38.

architectural form' and 'the frame of reference for all perception'.[19] Unlike Wittkower and Rowe, in his study Eisenman employed the grid as an analytical tool not only in two, but in three dimensions. His axonometric drawings for the Casa del Fascio exemplify this approach. Slicing the building in a series of vertical planes of reference for his analysis, Eisenman contrasted the 'internal' exigencies of architectural form in their clash with the 'external' functional requirements of circulation in space.[20]

However, Eisenman did not stop at the analytical side of Rowe's formalism. In his subsequent work, he eschewed his mentor's turn to the past to explore this method as a generative mechanism of autonomous architectural form. In his House Series from 1969 to 1978, Eisenman pursued architecture as an autonomous language with its own deep syntactic rules. He deliberately attempted to design the House projects in a way that did not primarily answer to function or any other 'external' determinant of architectural form. Starting from House II (1969–1970), in the hands of Eisenman the nine-square grid served to reveal a deep syntactic structure. It enabled him to explore and explicate a series of 'internal' dynamics, the displacements, rotations, tensions, and compressions of ideal volumes, planes, and lines that gave rise to architectural form. By then, Eisenman's autonomous language of architecture had pushed Rowe's formalist approach to its unexpected extremes.[21]

In 1976, Eisenman theorised his design approach in the novel terms of a 'post-functionalist' architecture. No longer driven by the human-centric concerns of both functionalism and classicism, this approach instead centred on 'a dialectical relationship between the evolution of form itself'. For Eisenman, architectural form was generated by two internal tendencies that operated at the opposing ends of a spectrum. One tendency developed from the complex transformation of a simpler (Platonic) solid. The other originated in a simplifying decomposition of more complex and fragmentary spatial entities. These served as ready-made unspecified phrases of a language of architecture that remained 'independent of man'.[22] However, by the end of the 1970s and the rising postmodern critical discourses, it also seemed that the approach Eisenman had developed for his House Series had reached a dead end. His pursuit of a completely autonomous 'internal' language of architecture was an inconsistent project.[23] Inspired by the poststructuralist critiques of Michel Foucault and Jacques Derrida, in his later work Eisenman moved away from his formerly abstract and purified formalism. In so doing, he reconsidered the role of 'external' factors like the marks and traces of history and memory in the generation of architectural designs.[24] Eisenman's eventual rejection of Rowe's formalism also marked a wider declining interest in the British theorist's studies over the years that followed.

Although Eisenman eventually abandoned his formalist project of autonomy, contemporary proponents of parametricism now acknowledge not only the limitations, but also the merits of his work. To cite just one example, Schumacher notes that 'purely' formal experimentations like Eisenman's are necessary, as their results are not restricted in the 'internal' domain of formal exploration. As demonstrated by Eisenman's House Series, the unpredictable results of these 'internal' investigations often lead practitioners to reconsider functional 'externalities', as well. Their development is therefore significant for the discipline. They are not just 'irrational' or inconsequential 'eccentricities'.[25] This view is aligned with Eisenman's own understanding of post-functionalism, an approach that had often been portrayed as indulgent and devoid of critical social concerns. Back in the 1970s, Eisenman claimed that his design experiments produced 'defamiliarising' spatial conditions that in turn challenged or questioned societal or disciplinary norms. This was where the supposedly absent criticality of his formalist projects was to be found. As a critique of

architecture, his projects also became a critique of the society that produced it. Following a similar line of thinking, Schumacher posits that the investigation of 'eccentric' form is still relevant for the current generation of digital practitioners. He encourages them to resist the complete surrender of formal explorations to 'external references', like socio-political and economic factors.[26] In his own words, current digital practitioners seek a synthesis of the 'internal' with the 'external' in what can possibly be called an integrated formalism for the present.

Whether the synthesis the digital practitioners claim to demand is at all possible, however, is another question. It essentially means reconciling formalism with what has historically been understood as its opposite, i.e. a variant of contextualist discourse. Although in opposition, these discourses historically developed as intertwined in the post-modern age. Insofar as no 'internal' account of architecture can account for its 'external' historical success, there is no escaping a minimal form of contextualism. The development of diverse variations of formalism over the course of the twentieth century also suggests that, far from staying autonomous, formalisms are also contextual.[27] It is for the same reason that Eisenman's project arrived at a cul-de-sac. Formalisms can certainly be *a posteriori* analysed and understood in relation to the historical and cultural contexts of their production. For instance, Eisenman's was not only an extreme response to the discipline's 'internal' problems, like simplistic functionalism and the prolonged impasse of modern architecture from the 1960s onwards. As Sean Blair Keller (2005) recently argued, it was also a product of its time. It cannot be thoroughly understood outside the postwar pursuit of 'systems aesthetics' and the early attempts of computerising the design process at the University of Cambridge in the 1960s.[28] What is less clear is whether formalisms can also prove generative, i.e. useful and useable by contemporary digital practitioners to further develop their design pursuits. The historical trajectory of Rowe's own example suggests that, as generative mechanisms, the formalisms of the past have ended up with increasingly reductive results. The British theorist himself had already noted how the modernist forms of the New York Five (Peter Eisenman, Michael Graves, Charles Gwathmey, John Hejduk, and Richard Meier) were separated from their original ideological 'content' in his introductory text for their exhibition in 1972.[29]

A generative mechanism for the digital age

As already noted, Petit's is not the first attempt to update Rowe's analytical formalism for the digital age. In the early 1990s, Greg Lynn effectively attempted a 'pliant' geometric synthesis of formalism with contextualism. Within this broader framework, Lynn was the first to discuss Rowe in the novel terms of the emerging digital discourses. A former student of Eisenman's who also started his career as an assistant in his practice, Lynn worked from within the same genealogy. More specifically, his thought developed from Rowe's eventual rejection of analytic formalism in favour of the contextualist collage approach. This was synonymous with political pluralism in the British theorist's writings in the 1970s.[30] Insofar as an architectural and urban form was still identified with forms of political life and organisation, however, Rowe's 'contextualist' approach still rested on formalising.[31] In a similar fashion, Lynn's argument worked towards a formalist approach that could also address contextualist concerns. In his account, this could only be achieved when the mathematics that underpin Rowe's formalism were also updated for the digital age. Jettisoning the dated and rigid mathematics of the ideal villa, alongside their universalist allusions to timeless harmonic proportions, would enable Rowe's original questions of producing order and organisation in architectural form to regain their pertinence in the digital age.[32]

For Lynn, Wittkower's and Rowe's understanding of geometry as 'mathematically exact and therefore

definable only through identically repeatable forms' obstructed the relevance of their formalisms.[33] The history of the early digital practices of architecture that included attempts to turn Rowe's approach to a generative design mechanism corroborated Lynn's argument. To cite just one example, George Hershey and Richard Freeman's *Possible Palladian Villas* involved the development of software that used Rowe's grids as a computational formal grammar. The software worked with multiple combinations of these grammatic elements to produce guaranteed harmonic results.[34] Obviously reductive, as well as limited by the same constraints that hindered Wittkower's and Rowe's formalism of the grid, the software could only produce a finite array of possible moves within a closed and predefined field. Digital design practices that followed Lynn's lead or Stan Allen's plea for an exploration of the 'field conditions' in architecture since then, have exposed the limitations of this model even further. As Allen memorably noted in 1997, 'all grids are fields, but not all fields are grids'.[35]

Lynn's formalist project of replacing Wittkower's and Rowe's rigid and exact definitions of geometry with 'pliant, anexact' geometries can also be considered as the staple reply of digital practitioners to the critiques from the contextualist camp. Because the proposed geometries are anexact and pliant, Lynn's argument goes, they are versatile enough to accommodate all sorts of the contextual forces that shape or affect architectural form. In other words, the contextual forces are actively involved in the making of these geometries. They are integrated within the forms. This formalisation of socio-political forces thus seems to be rooted in Rowe's approach of politics in *Collage City*. However, critiques from the contextualist camp have not dissipated since then. The contextualists argue that, in the final instance, Lynn's is just a quantitative approach to their concerns whose specific qualities are irreducible to crude formalisation. In other words, formalism and contextualism cannot be addressed in the same breath. Starting in the late 1990s, this debate has hardly progressed. Both sides keep accusing the other for missing the point. An air of irreconcilability prevails.

Integrated formalism

As this article has shown, Rowe's analytical formalism historically exerted a dual effect. It was not only followed by the historical and theoretical repercussions already discussed. In the hands of practitioners, it also became a generative mechanism for architectural design. [Fig. 2] This was a conscious endeavour on the part of Rowe. As the recollections of his students attest, he was looking to produce something useful for the present. For Rowe, history was not a foreign country, but a field integrated within the discipline of design.[36] This is how his approach served both as a novel historical understanding of modernism and as a trigger for postmodern developments. If contemporary attempts to update Rowe's formalism for the digital age seem lacking, it is because their authors have only invested in one of the sides of Rowe's dual project. Petit focuses on the backward-looking analytical/historical side of reintroducing lineages of precedent in digital architectural discourses. Lynn focuses on its forward-looking generative aspect in an attempt to reconcile it with digital architecture's promises of the 'new'. In his case, a discussion of historical precedent is ruled out from the outset. A successful update of Rowe's formalism for the present would therefore need to combine both these aspects at once. However, such a theoretical endeavour can no longer be exhausted in updating Rowe. As this article has shown, this would only perpetuate an effectively modernist outlook in a postmodern age. Hence, the parametricists' pretenses to autonomy and their irreverence for historical precedent would not be undermined. The modernist features inherent in Rowe's analysis would only reinforce aspects of the parametricists'

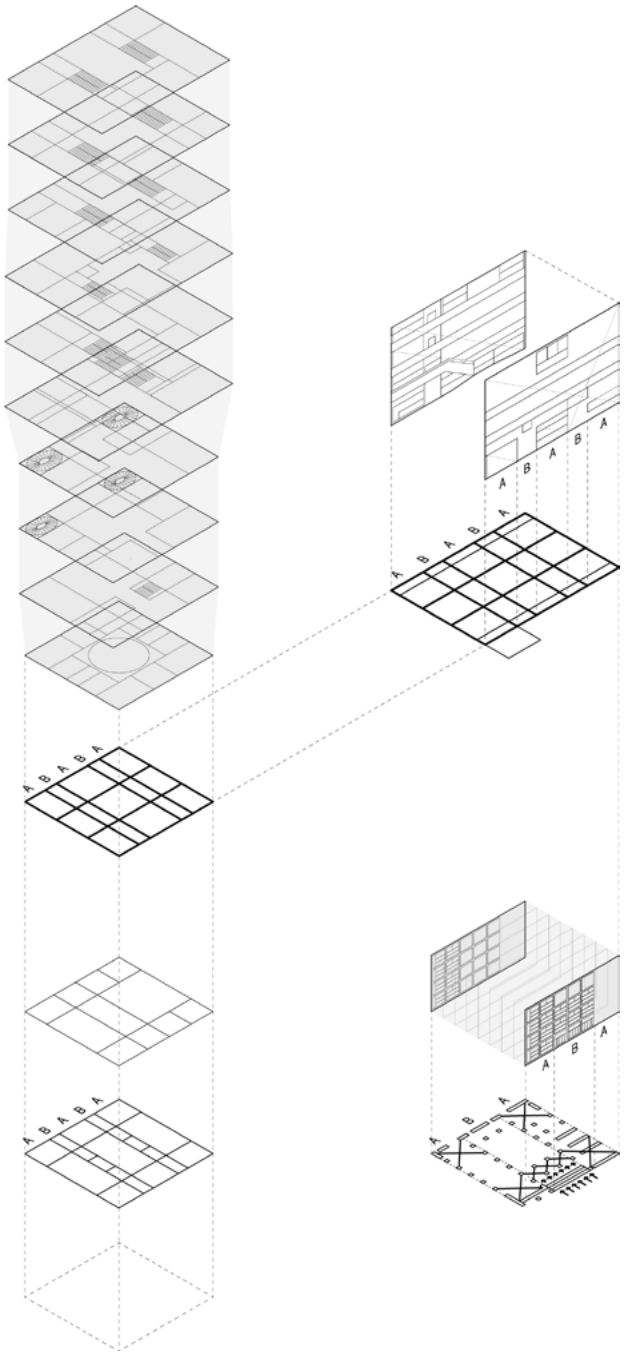

Fig. 2: Analytical and generative formalisms. (Clockwise from top) Abstracted from the eleven original Palladian villas, Wittkower's A-B-A-B-A grid informs Rowe's analysis of Le Corbusier's villa Stein, and is then developed volumetrically in Eisenman's analysis of Terragni's Casa del Fascio. In Hershey's and Freeman's software, Wittkower's grid becomes a generator of other possible Palladian villas. Illustration Concept: Stylianos Giamarelos, based on the original drawings and diagrams by Rudolf Wittkower, Colin Rowe, Peter Eisenman, and George L. Hershey & Richard Freeman. Visualisation: Johanna Just.

positivist outlook. This is why an attempt to return to Rowe's formalism as if the wider postmodern critique never took place can only prove futile.

Recent attempts to recuperate Palladio for the digital age (by Peter Eisenman and Matt Roman, and Kyle Miller) also miss this crucial point.[37] In their outlook to the past and their critique of Wittkower's idealist geometries of the grid, Eisenman and Roman are equally one-sided. Although they replace Wittkower's flattened grids with the non-Euclidean topological concepts of location and adjacency to examine Palladio's villas volumetrically, they do not also take the generative step forward. They just reproduce Eisenman's well-known Saussurian conclusions on architectural language as a system of differences that is not based on Wittkower's pre-established normative unity of harmonic proportions. Once again, as in the case of Wittkower and Rowe, Eisenman's conclusions say more about his well-known interpretive lens from the 1980s onwards than about Palladio's own original intentions. And when Kyle Miller similarly follows Lynn's observations to generate 'The Thirteenth Villa', a discussion of the possible historical/analytical relevance of formalism today is hardly addressed, let alone advanced.

The enduring debates around a possible synthesis of formalism with contextualist concerns, however, shed another light on Petit's attempt to update Rowe. The major question remains: is an updated version of Rowe's analytical method adequate for the current predicament of the architectural profession? Rather alarmingly for the contextualists, their main socio-political concerns are not only absent from Petit's attempt to update Rowe's formalism. They also persist in their absence from his recent book on postmodern architecture. In the final instance, his proposed 'retheorisation' of the postmodern years defends the problematic conception of the architect as an individual author. For Petit, architecture is a humanist epistemology loaded with the existential self-critical concerns of its auteurs. In his account of postmodern architectural practices, the architect thus re-emerges as a strong poet that develops a 'hyper-intellectual self-awareness'. In Petit's eyes, this novel figure of the postmodern architect can help reclaim individual agency in an era proliferated by the posthuman ramifications of digital technologies of design and fabrication.[38] In his book, Petit explicitly opposes the approaches and methods adopted by the contextualist 'Marxist authors' of the postmodern years, including Manfredo Tafuri, Kenneth Frampton, and Mary McLeod.[39] Taken to its furthest reaches, his work thus seems to signal a purge of socio-political concerns not only from the practice, but also from the theoretical discourse around architecture. In both this defence of humanism and the rejection of contextualist concerns, Petit's approach is therefore found to be lacking even from the standpoint of the current digital practitioners' stated concerns.

Petit's architectural discussion thus seems to be heading towards socio-political apathy. However, Rowe's work crucially 'reminds us that architecture exists only in relation with a theory of architecture'.[40] It is theory that can address these architectural concerns first. Recalling Rowe at the present moment can therefore prove fruitful. Seriously reckoning with him in the current epistemological landscape, however, entails more than what is offered by Petit. Inserting novel abstract analytical categories and updating Rowe's list of formal antecedents and precedents accordingly is not enough. What Rowe regarded as architectural theory also needs to be enriched for the present. In this, the enduring elements of the intervening postmodern critical intelligence cannot be ignored. Rowe's formalism can only be retained in the present by engaging with the legacy of these parallel theoretical developments that also originated in his time. These went far beyond an understanding of architecture

as a mere play of forms, however masterful and magnificent this might look when brought into the light.

In its many different guises, the postmodern debate that flourished in the 1980s posited itself as a wide-ranging epistemological challenge. In its light, if formalism is to survive as a significant method of analysis for the immediate present, it needs to be radically rethought. A contemporary method of formal analysis needs to address the complex exigencies of this postmodern epistemological landscape. Such a method of analysis would attempt to situate Petit's discussions of form not only within the context of historical precedents. It would also place it within the epistemological, ethical, social, economic, and political contexts of the modes of production of these novel forms and their accompanying technologies.[41] At first glance, this seems like an approach that cannot easily be reconciled with Rowe's formalism of the grid. However, resorting to the historical approaches that Petit explicitly rejected might prove more fruitful than he thought. To cite just one example, in his recent *Genealogy of Modern Architecture*, Frampton revealed how he utilised the philosophy of Hannah Arendt and Maurice Merleau-Ponty as a generator of categories for analysing built form. After approximately forty years of developing this comparative analytical method with his graduate students at Columbia University, Frampton's readings of modern architecture point towards an integrated approach to formalism. This can also serve as an alternative response to the similar synthetic demands of digital practitioners today.[42]

This general direction seems to be the way forward for any contemporary variant of formalism that intends to address the poststructuralist critiques of the intervening decades. Caroline Levine's recent work on formalism in literary studies is another significant case in point here. It is another attempt to bring together what has so far been kept 'analytically separate', i.e. formalist analysis with socio-political and historical research. Levine understands form as an ordering device that inherently organises power relations. Borrowing the concept of affordance from design theory, Levine thus sets out to expand the 'usual definition of form … to include patterns of sociopolitical experience'.[43] Intersectional analyses like these seem to constitute the bridge over which any formalism of the future needs to pass if it is to remain relevant in the current architectural predicament. However difficult the task at hand may be, the legacy of precedents like Rowe's, Petit's, and Frampton's can only encourage current architectural historians and theorists to push their intersectional analyses of these projects further forward.

Such studies have just started appearing in the field of digital architectural practices. Tal Bar recently engaged with poststructuralist philosophy to challenge the dominant narratives of novelty in the founding discourses of digital design practices. Whether these discourses focus on questions of form and style (as in the 1990s), or on the technical side of computation, mathematics and algorithms (from the mid-2000s onwards), Bar argues that the architectural production of current digital design practices is not post-humanist.[44] Contrary to the inflated claims of the theoretical evangelists, digital practitioners still work within a decisively humanist framework.[45] Although they allude to post-humanist epistemologies and methodologies, their software, as well as the mathematics and geometries that underpin it (including topology), still rest on modern, humanist and disembodied ontologies.[46] This misalignment of epistemology with ontology means that the celebrated post-humanist thinking of digital design practices is only superficial. Practitioners, historians and theorists of the digital age, whether they currently work in the geometric/algorithmic or biomimetic paradigm, are therefore unable to produce the qualitative difference they evangelise.

Contrary to their claims, their digital design practices remain universalist, exclusive, and insensitive to otherness.

It is these debates that a contemporary variant of formalism would need to address. The examples just cited exemplify a way forward. They could therefore serve as useful precedents towards an integrated formalism for the present, or a more significant after-life for Rowe's work in the digital age.

Notes

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1. See Emmanuel Petit, 'Spherical Penetrability: Literal and Phenomenal', *Log* 31 (Spring/Summer 2014): 31–39; Colin Rowe and Robert Slutzky, 'Transparency: Literal and Phenomenal', *Perspecta* 8 (1963): 45–54.
2. Patrik Schumacher, *The Autopoiesis of Architecture, vol. 1: A New Framework for Architecture* (Chichester: Wiley, 2011), 214–215.
3. Rudolf Wittkower, *Architectural Principles in the Age of Humanism* (London: The Warburg Institute, University of London, 1949), 70–73.
4. Colin Rowe, *The Mathematics of the Ideal Villa, and Other Essays* (Cambridge, MA: MIT Press, 1976), 8.
5. Rowe, *Mathematics of the Ideal Villa*, 15.
6. However, a similar analysis was not carried out in detail for the other examples suggested by Rowe. His proposed comparative reading of Schinkel's Berlin Altes Museum and Le Corbusier's Palace of the Assembly at Chandigarh remained sketchy.
7. Petit, 'Spherical Penetrability', 35.
8. Colin Rowe and Fred Koetter, *Collage City* (Cambridge, MA: MIT Press, 1979).
9. Zaha Hadid and Patrik Schumacher, 'Parametricist Manifesto', in *Out There: Architecture Beyond Building. vol. 5, Manifestos*, *11th International Architecture Exhibition La Biennale di Venezia* (Venice: Marsilio, 2008), 60–63.
10. Rosalind E. Krauss, 'Grids', in *The Originality of the Avant-Garde and Other Modernist Myths* (Cambridge, MA: MIT Press, 1985), 13.
11. To cite just one example, see Kostas Terzidis, *Algorithmic Architecture* (London: Routledge, 2006), 55.
12. Rowe, *Mathematics of the Ideal Villa*, 16.
13. Alina A. Payne, 'Rudolf Wittkower and Architectural Principles in the Age of Modernism', *Journal of the Society of Architectural Historians* 53, no. 3 (September 1994): 322–342; 340–341.
14. Krauss, 'Grids', 10.
15. Ibid., 22; 10.
16. Peter Eisenman, *The Formal Basis of Modern Archiecture* (Baden: Lars Müller Publishers, 2006), 21.
17. Eisenman, *Formal Basis*, 17.
18. Ibid., 21.
19. Ibid., 63. Eisenman's discussion of the grid ranges from pages 63–71.
20. Ibid., 292–315 for Eisenman's analysis of Terragni's Casa del Fascio.
21. For a recent reading of Eisenman's House Series in relation to the work of Colin Rowe, see Stefano Corbo, *From Formalism to Weak Form: The Architecture and Philosophy of Peter Eisenman* (Surrey: Ashgate, 2014), 27–34.
22. Peter Eisenman, 'Post-Functionalism', *Oppositions* 6 (Fall 1976).
23. Not convinced by Eisenman's 'schismatic post-modernism', Robert Stern was one of the first North American critics to express his concerns with this approach. See Robert Stern, 'The Doubles of Post-Modern', in *Robert Stern*, ed. Robert Stern and Vincent Scully (London: Academy Editions, 1981), 63–68.
24. For a concise consideration of this turn in Eisenman's work, see Thomas Patin, 'From Deep Structure

to an Architecture in Suspense: Peter Eisenman, Structuralism, and Deconstruction', *Journal of Architectural Education* 47, no. 2 (1993): 88–100.

25. Schumacher, *Autopoiesis of Architecture, vol. 1*, 268.
26. Ibid., 191.
27. Sandra Kaji-O'Grady, 'Formalism and Forms of Practice', in *The SAGE Handbook of Architectural Theory*, ed. C. Greig Crysler, Stephen Cairns, and Hilde Heynen (London: Sage, 2012), 152–164; 152–153.
28. Sean Blair Keller, 'Systems Aesthetics: Architectural Theory at the University of Cambridge, 1960–75'. (Unpublished PhD thesis, Harvard University, 2005).
29. Colin Rowe, 'Introduction', in *Five Architects: Eisenman, Graves, Gwathmey, Hejduk, Meier*, ed. Peter Eisenman et al. (New York: Wittenborn, 1972).
30. Rowe and Koetter, *Collage City*.
31. Cf. Robin Evans, *The Projective Cast: Architecture and its Three Geometries* (Cambridge, MA: MIT Press, 1995), 73–75.
32. Greg Lynn, 'New Variations on the Rowe Complex', in *Folds, Bodies & Blobs: Collected Essays* (Brussels: La Lettre Volée, 1998), 199–221; 201–202.
33. Ibid., 208.
34. George L. Hershey, and Richard Freeman, *Possible Palladian Villas, Plus a Few Instructively Impossible Ones* (Cambridge, MA: MIT Press, 1992).
35. Stan Allen, 'From Object to Field', in *The Digital Turn in Architecture, 1992–2012*, ed. Mario Carpo (Chichester: Wiley, 2013), 63–79; 71.
36. Braden R. Engel, 'Ambichronous Historiography: Colin Rowe and the Teaching of Architectural History', *Journal of Art Historiography* 14 (June 2016): 1–22.
37. Peter Eisenman and Matt Roman, *Palladio Virtuel* (New Haven: Yale University Press, 2016) and Kyle Miller, 'The Thirteenth Villa', *Journal of Architectural Education* 70, no. 1 (2016): 91–95.
38. Emmanuel Petit, *Irony; Or, the Self-Critical Opacity of Postmodern Architecture* (New Haven: Yale University Press, 2013), 24–25 and 214–215.
39. Petit, *Irony*, 18-21.
40. Bernhard Hoesli, 'Commentary', in *Transparency*, ed. Colin Rowe and Robert Slutzky (Basel: Birkhäuser Verlag, 1997), 59; cited by Emmanuel Petit, 'Rowe after Colin Rowe', in *Reckoning with Colin Rowe: Ten Architects Take Position*, ed. Emmanuel Petit (New York: Routledge, 2015), 20.
41. See, for instance, Matthew Poole and Manuel Shvartzberg (eds.), *The Politics of Parametricism: Digital Technologies in Architecture* (London: Bloomsbury Academic, 2015), and Douglas Spencer, *The Architecture of Neoliberalism: How Contemporary Architecture Became an Instrument of Control and Compliance* (London: Bloomsbury Academic, 2016).
42. Kenneth Frampton, *A Genealogy of Modern Architecture: Comparative Critical Analysis of Built Form* (Zurich: Lars Müller Publishers, 2015).
43. Caroline Levine, *Forms: Whole, Rhythm, Hierarchy, Network* (Princeton: Princeton University Press, 2015), 1–2; 6.
44. Tal Bar, 'Digital Architecture and Difference: A Theory of Ethical Transpositions towards Non-representational Embodiments in Digital Architecture.' (Unpublished PhD thesis, University College London, 2017).
45. See, for instance, Antoine Picon, *Digital Culture in Architecture: An Introduction for the Design Professions* (Basel: Birkhäuser, 2010), and Terzidis, *Algorithmic Architecture*.
46. Bar proposes Rosi Braidotti's nomadic thinking as an alternative model to these ontologies. See Rosi Braidotti, *Nomadic Subject: Embodiment and Sexual Difference in Contemporary Feminist Theory* (New York: Columbia University Press, 2011).

Biography

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