CHAPTER 6

Finance and the Critique of Infrastructural Reason

Andreas Langenohl

1 Introduction: Why Do We Talk about Financial Infrastructures?

This chapter turns a critical eye on the recent and current tendency to frame finance in terms of infrastructures. This tendency can be depicted across the transdisciplinary fields of international political economy (IPE), international relations (IR), and the social studies of finance. At the intersection of IPE and IR, the role of financial infrastructures in geopolitical reconfigurations – often referred to as "geoeconomics" (Sparke, 2007; Cowen and Smith, 2009; Scholvin and Wigell, 2018) – has supplanted earlier, political-economic takes on international hegemonies, for instance, the dollar hegemony, unequal terms of trade, austerity programs, or governing through debt (Bernards and Campbell-Verduyn, 2019). Nowadays, scholars rather tend to address the significance for changes in international hegemonies of information, payment, and trading infrastructures (Krarup, 2019; de Goede and Westermeier, 2022; Brandl and Dieterich, 2023), including the recent interest in blockchain technologies in general and cryptocurrencies in particular (DuPont and Maurer, 2015; Campbell-Verduyn, 2018; Caliskan, 2020). Undoubtedly, this trend, as it takes up "new materialist" perspectives on the IPE and the role of finance in it, addresses an important research lacuna, as the technological, cognitive, or other basic structures, processes, and facilities that enable the circulation (and the storing) of financial value are not politically neutral (de Goede, 2021). Yet at the same time, the notion of infrastructure conveys some assumptions and connotations that might turn out to be problematic for a critical assessment of the current role of finance in worldwide, yet differentiated, developments in which global inequalities become locally entangled (see the contributions in Gutiérrez Rodríguez and Reddock, 2021).

This chapter aims at raising a sense of reflectiveness regarding the use of infrastructural reason in the analysis of finance – a point that is increasingly gaining the attention of research into infrastructures more broadly, and also, in some instances, with a view to finance. It encompasses four sections and a conclusion that each address different,

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if interconnected, problematizations of financial infrastructural reason. First, infrastructures will be problematized as a modernist social imaginary that reproduces functionalist reasoning about society, thereby systematically effacing asymmetries and exclusions enabled by infrastructures. Second, infrastructural thinking is tightly coupled to conceptions of sovereignty and governability of populations, territories, and resources, thus inviting security thinking. Third and related, infrastructural reason in finance reproduces a globalist view on the IPE together with a realist imaginary of IR, modeled after a zero-sum game. Fourth, infrastructural reason in finance sidelines important political-economic critiques of the global financial economy, effectively putting the imagery of the relationship between production base and financial economy from its feet to its head. In conclusion, when using infrastructural reason to diagnose the present condition of the financial economy, it seems worthwhile to view infrastructures not so much as fungible, smoothly operating, only in exceptional cases failing systems, but rather as leaky networks through which shocks, disruptions, and exclusions are disseminated.

2 The Western Modernist Imaginary of Fully Functional Infrastructures

The notion of infrastructure emerged in the context of nation-state consolidation in Europe under the thorough impact of industrialization in the nineteenth century. To the ambition of sovereign political rule over the state's territory was added the ambition of engineering economic, social, and cultural processes as demanded by the industrial mode of production (Gellner, 1983). The emergence of the notion of "infrastructure," first documented in 1875, was historically contextualized by the rise of industrial modernity and the generalization of grand-scale technologies to a central cultural imaginary in modern Western societies (van Laak, 2004, p. 53; Richter, 2018, pp. 14–16). Just as industrial plants must ideally be operating 24/7 and without failures in order to achieve the planned output, so infrastructures – transportation networks for people, goods and materials, telecommunications, energy, water provision and sewage, and so on – are expected to operate universally and flawlessly (Star, 1999; van Laak, 2001; see, for a critique, Langenohl, 2020).

However, the fungibility assumption regarding infrastructures was flawed and biased from the start (Anand, Appel, and Gupta, 2018). European colonization was the historical process that ushered in a, if mostly denied in Europe, totally different notion of infrastructure: namely, what one could call incomplete or partial infrastructures. Thus, while historian Dirk van Laak (2004, p. 62) argues that grand-scale technological infrastructures "were pushed into colonized countries like 'Trojan horses' to spell the gospel of modernity," one must add that the expansion of the modernist infrastructural imaginary rather rarely was meant to create on-par relationships between colonized and colonizing societies. For instance, transportation infrastructures in the colonized territories were mostly devised to enable the transportation of raw materials from the hinterlands to the ports to be shipped to Europe, or else to carry troops to fight colonial "wars" (i.e., mass slaughters of the indigenous populations). South Africa is the country where the colonial legacy of colonial infrastructures, not only in the area of transportation, can be most blatantly seen up until the present day. Township residents have not remotely the same infrastructural services at their disposal as suburban or inner-city residents (von Schnitzler, 2016). Hence, the historical legacies and "sedimentations" (de Goede and Westermeier, 2022) of colonial – that is, partial and incomplete – infrastructuration might outweigh its modernist imaginary surplus of functionality and perfection.

With respect to financial infrastructures, their (post)colonial entanglements can be analyzed from two distinct directions. First, it has been argued that the relationship between imperial colonialism and modern finance, including its infrastructural aspects, has been one of co-constitution and cross-enablement. As summarized by Marieke de

Goede (2021), this pertains, for instance, to the role of financial transfer infrastructures in enabling the economic extraction of colonies and the organization of the transatlantic slave trade, as well as, conversely, to the political and military guarantees extended by the colonial empires for finance to expand into new markets and business models. Early on, colonial companies epitomized this nexus of financial and colonial expansion, acting in the name of the colonial state, showing that "the history of trading, financial markets and imperial violence have gone hand-in-hand" (de Goede, 2021, p. 356).

Yet, second, it can be argued that the coloniality of modern financial infrastructures lies also in their partiality and strategic incompleteness. One of the main origins of the modern financial economy and of modern capitalism was the insurance business since the thirteenth century (Lobo-Guerrero, 2011, pp. 13–33). In early imperial colonialism, the extension of high-risk loans to colonial ventures was a precondition for early colonial extraction-based trade to take place. While in Europe the system of extending and ensuring loans was based on existing and multiple fungible financial infrastructures of networks among banks and ruling dynasties, in the colonies it merely crystallized in the scattered presence of trading companies' posts, whose function was solely to enable the insurance of sea transport. In the wake of that initial phase, imperial colonialism never managed, nor was it interested in, extending the density of European financial infrastructures to the colonies. The German colonies, with Germany being an imperial latecomer, testify that financial infrastructures were at no point planned to be extended to them. Banks shied away from getting structurally too much involved in the financing of imperial state ventures and the infrastructural support of economic extraction. The overall "logic" of (not only) German colonialism ought to be explained not so much by capital interests but by a competition for geopolitical influence among European nation-states (von Trotha, 2004, p. 58) – a competition in which the extension of an infrastructural financial capitalism to the colonies played hardly any role. Financial infrastructures remained concentrated in the Atlantic North, enabling a more or less random exploitation by settlers and investors privileged through the system of colonial administration, rather than forming a structural component of the colonial administration:

> *It was neither capital exports nor the amount of profits achieved in the colonies that led to imperialism locally forging the modern universe of capitalism. Of much greater importance was the ambition of European settlers and investors to squeeze out as much as possible, on the spot and at the time, from the wealth of a given territory and from the labor force of colonially ruled human beings. (Gerstenberger, 2017, p. 216, translation A. L.)*

In the case of the German colonies, even the buildup of an effective system of taxation – under conditions of colonialism usually serving to pressure the population into accepting miserably salaried labor – was for decades left to commercial companies, themselves highly reluctant to build up any sort of infrastructure (Bade, 1984, pp. 4–7), and nowhere came near to state capacity in Europe. In these colonial ventures, the point was precisely not to create a flat political ontology, as in modernist infrastructural reason, but to infrastructurally create points of entry into domains to be colonized by noninfrastructural means, namely by – often occasional and random, but always violent – extraction of resources and labor.

This conspicuous asymmetry, selectivity, or even outright denial regarding the extension of (not only) financial infrastructures from the Atlantic North to the (post)colonies is still felt today. Didac Queralt (2022) argues that the sophistication of the system of global finance in the long nineteenth century, while bringing about unprecedented and ever after hardly achieved depth and integration of capital markets for the North, was an obstacle for the building up of effective domestic financial infrastructures (crucially including taxation) in Southern countries and colonies, as political leaders found it more comfortable to rely on international lending instead of building up an

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expensive tax administration that would have restrained their power. The international, but selective, expansion of the infrastructural reach of infrastructural finance thus turned out to be an obstacle in the way of devising and constructing effective domestic taxation infrastructures in many former colonies. A similar argument pertains to the level of making everyday payments within a postcolonial international division of labor, where remittances keep being expensive due to payment infrastructural selectivities (Rella, 2019). As Brandl and Dieterich (2023) argue, the selectivities and asymmetries built into international financial payments systems survive even institutional and technological innovations, as long as there is no political institution in place that will guarantee access to those marginalized along the terms of social structure and IPE.

In infrastructural reason, instrumental rationality trumps value rationality – including the tendency of instrumental rationality, as highlighted by Max Weber, to preclude any normative consideration regarding its ends. Hence, the functions that infrastructures perform and enable do not always manifest in terms of societal integration, cohesion, or coevalness. Rather, infrastructures may perform the function of enabling and reinforcing inaccessibility, exclusion, and marginalization. The imaginary of infrastructures as fully functional and universal effaces their, oftentimes systematic, partiality (Langenohl, 2020; see also Muellerleile, this volume).

3 Governance, Governability, Sovereignty, Hegemony

Infrastructures are devised to make a given territory governable and to standardize the parameters of its governability. In nineteenth-century Belgium, the dense network of inexpensive commuter trains that connected the big industrial centers with the countryside was seen as flattening the divide between urban and rural spaces of political-economic governance (Vandervelde, 2022 [1903]). This notion of using infrastructures to create a flat political ontology returns in the ambition of many European nation-states, and currently the European Union (EU), to harmonize living conditions and the population's access to services (Folkers, 2017). At the same time, as the current discussion in Europe on energy infrastructures and energy provision in the face of Russia's war against Ukraine shows, as well as more generally within a recent sensitivity that the EU might be in dire need to create a "geo-economic" network of international allies that would help to "build more resilient connections with the world" (Ursula von der Leyen, as quoted in Forough, 2022), the idiom of living conditions and services can easily morph into one of (in this case, European) security. Infrastructures are held to be effective not only with respect to increasing connectivity, but also in regard to demarcating zones of security, safety, and sovereign governance. Thus, the notion of infrastructure was historically not only bound up with industrialization and an imaginary of grand technicality in isolation (see Section 2). Rather, this imaginary displayed elective affinities with an understanding of modern political sovereignty as depending both on industrial and military "mobilization," as Ernst Jünger opined, and for which infrastructures were seen as a precondition (Richter, 2018, pp. 23–24; cf. Folkers, 2017).

This invites a new turn within the research literature on the nexus of security and finance logics. This literature investigates political and epistemological overlaps between concerns about financial stability and the guaranteeing of financial value on the one hand, and the safeguarding of political security, stability, and ultimately sovereignty on the other hand (de Goede, 2010; Boy, Morris, and Santos, 2017). With respect to financial infrastructures, it has classically pointed to the role of banks and payment services in the fight against terrorism and financial practices associated with it, like terrorist financing through "suspicious" transactions and money laundering, and to the ways financial institutions have been cooperating with political authorities in these respects (Amicelle, 2017; de Goede, 2018). In contrast to this literature, present concerns regarding the role of financial infrastructures in the safeguarding of political security and stability enlarge their vision to IR and geopolitics *grosso modo*. This tendency is reflected in the recent interest in "geoeconomic" approaches to the role of the financial economy in the shaping of geopolitical hegemonies and in their challenging. While the notion of "geoeconomics" was once used to describe a new stage of IR post-1991, where political-economic relationships (as opposed to military power) would play the central role in shaping international hegemonies (Luttwak, 1990; Scholvin and Wigell, 2018), current research looks in a more detailed way into the genuine role of financial infrastructures (most prominently, the SWIFT (Society for Worldwide Interbank Financial Telecommunication) network) to secure international hegemony through infrastructural power (Dörry, Robinson, and Derudder, 2018; Farrell and Newman, 2019; de Goede and Westermeier, 2022). In line with these general shifts, it is currently pointed out that Russia's war in Ukraine and the Western governments' financial sanctions against Russian institutions and individuals have accelerated a change of perceptions among political and financial elites worldwide that financial infrastructures – in particular, international payment infrastructures – must be secured against the consequences of such sanctions. This lesson regarding looming financial sanctions (economic sanctions were termed "economic weapons" early on, see Mulder, 2022) is currently being adopted not only by the Russian and the Chinese governments (Ahari et al., 2022; Nölke, 2023) but, notably, also by the EU and the European Central Bank (Swartz and Westermeier, 2023; Westermeier, 2024), where central bank digital currencies (CBDCs) are discussed as protective shields against potential future exclusions from existing international payment systems.

In light of these developments, financial infrastructures cannot just be analyzed as enabling flows and financial services, as might seem natural given the *locus classicus* of finance as a "flow world" (Knorr Cetina, 2007). They must as well be theorized as enacting effective delinkages and blockages (a point that was made early on with respect to the financial economy's "structural holes," see Castells, 1996), as they are, conversely, debated regarding their preparedness for withstanding and deflecting such attacks. Taking the European infrastructural policies in the areas of energy and finance together, we see how infrastructural reason references the dual nature of the classical Western notion of political sovereignty. Infrastructures are supposed to be able to create security and a monopoly of legitimate violence in a given territory, which crucially includes effective barriers to outside forces regarding infrastructural power, and at the same time to be able to wield international force against other, noncooperating or adversarial polities.

4 Infrastructures, Market Thinking, and Fragmentation

To describe global finance in terms of infrastructures carries the misunderstanding that infrastructures can be truly global. The metaphor of the "flow world" of global financial markets, which Karin Knorr Cetina (2007) devised in order to account for the seemingly ceaseless and uninterrupted flows of financial items and values across all the world's time zones, seems to align easily with an infrastructural view on finance. Is it not information and communication technologies – nowadays often subsumed under the empty signifier of digitalization – that make this global world of flows possible in the first place? And were financial shocks and breakdowns in the past not associated with infrastructural bottlenecks, inhibiting those flows, as occurred on Black Friday 1987 when crucial financial markets got out of sync because of information jams (Muellerleile, 2018)?

Yet, a more cautious look reveals that those flows depend on highly localized hubs, both in technological and social terms, as described and theorized early on by Saskia Sassen (1991). Financial pricing, for instance, is first and foremost a networked but localized calculative procedure, depending on hubs of calculative power and software, and not depending on the physical moving around of any *financial* items that would justify the financial flow metaphor (Langenohl, 2023). In addition to these doubts regarding the imaginary of finance as being always about movement and flux, the seeming globality of financial markets has been denounced as "globalism" (Beck, 2002, pp. 39–40), that is, as a particular viewpoint of Western (financial, political) elites on planetary processes that favor the ontologies and interests of those elites while paying no attention to the – in turn, often equally quite "localized," namely locally devastating – effects of "global" markets. Seen from this angle, the *infra-* in infrastructures, which is usually held to denote an irreducible basis for social, economic, or other processes (Larkin, 2013), effaces the factual subordination of another, "deeper" ontological level effected by these infrastructures – like when habitats become bulldozed for the sake of a new highway. This ontological layer, a *sub-infra-*, of "global" financial infrastructures escapes infrastructural reason, which can only always ask "what for," never "at what cost."

Recently, researchers are becoming aware of the nonglobality of financial infrastructures (Brandl and Dieterich, 2023). Within a general analysis of a shifting geoeconomic configuration through payments institutions and procedures (for instance, alternatives to SWIFT but also the development of non-US-based transaction systems based on CBDCs, see earlier in this chapter), it is expected that the end of US-dominated global financial infrastructures will soon move into sight (de Goede and Westermeier, 2022; Nölke, 2023). In particular, various governments and central banks are engaged in devising CBDCs in a bid to challenge the hegemony of the dollar as a global currency (Swartz and Westermeier, 2023). Cryptocurrencies and crypto exchanges openly challenge, in turn, what they perceive as the hegemony of a politicized financial economy (Golumbia, 2015; Rella, 2019; Beaumier and Kalomeni, 2022). Thus, understandably, analyses that diagnose a coming fragmentation of the global financial economy and of a competition among different currencies and payment systems abound.

These diagnoses betray the imaginary of "global" financial infrastructures, while at the same time confirming the saliency of the genealogy of the notion of infrastructures in nation-states' dual attempt at achieving internal integration and power positions within the international system. Seen from this angle, precisely as the notion of infrastructure is rooted in the nineteenth century, which was the century of European nation-states engaging in a "scramble" for colonies and through that in an international competition for hegemony, it lends itself very well, maybe too well, for diagnosing the present situation. However, it is questionable whether infrastructural reason will help us transcending, and critiquing, the idea, hegemonic in turn, of the inescapability of international zero-sum games.

In the heyday of the globalization literature in the 1990s and 2000s, finance was often seen as heralding a world in which nation-state borders and capacities were quickly eroding, giving view to a "global" world. This literature was obviously oblivious of Karl Polanyi's (1944) historical reconstruction, according to which the first financial globalization at the turn of the twentieth century effectively came along with an ever stronger demarcation of political-economic protectionism (most notably, trade tariffs) and ensuing international confrontation, and ushered in an IPE in which only financial circulation, of all economic circulation, remained by and large "global." So, "global" finance was never the vanguard of postnationalism, but rather accompanied national zero-sum scrambles in the IPE. While according to Polanyi's (1944) argument at the end of the long nineteenth century this was the scramble for finding selling markets, since the 1990s, and according to the contemporary literature, it was the scramble for attracting foreign direct investment (Castells, 1996).

Analyzing the 2020s political-economic situation in terms of financial infrastructural fragmentation might thus induce some helpful analytical realism regarding the (in)capacities of finance to act as a force of global political-economic integration. But, this lesson could have been learned much earlier through suggestions in world systems theory, unequal exchange, dependency theory, to name only some of the most prominent strands of critical IPE. Moreover, through anchoring the diagnosis in the materiality of financial infrastructures (payment systems, most often) and thus putting a particular emphasis on the techno-socio-political substrate of financial transactions, the infrastructural fragmentation approach runs the risk of naturalizing a transactional logic of finance, thus effacing the increasing role of (not-exchanged, not-transacted) financial assets in the social-structural polarization of the political economy (Adkins, Cooper, and Konings, 2020).

5 Infrastructural versus Political-Economic Reason

Since the 1980s, a political-economic critique of finance and financialization has gained ground in response to the rollout of neoliberal policies, in particular regarding the deregulation of the financial economy, which came along with a weakening of state institutions, a shift toward austerity politics in case of state budget problems, and an insistence on property at the expense of top to bottom redistribution (Krippner, 2005; Blyth, 2015; Piketty, 2020). This critique has been sidelined by infrastructural reason, which sees financial infrastructures – especially infrastructures enabling trading and thus pricing of financial assets and risks – as the base for the entire economy (Muellerleile, 2018). This is reflected in the fact that financial infrastructures belong to the most securitized infrastructures, and virtually everywhere count among so-called critical infrastructures that require especial protection by the state (Langenohl, 2020). It also surfaces in recent warnings regarding cybercriminal assaults on stock exchanges, which highlight imminent dangers to the calculative technical infrastructure that is supposed to guarantee a smooth operation of transactions (Langenohl, 2023). If trading and pricing are regarded as the base of the economy, it is these that need protection under all circumstances. A consequence of this infrastructural optics on financial processes may be seen in the ways that the British and the US government – and, with some delay, the EU as well – shifted their perception of the global financial crisis from that of an out-of-control speculative dynamism to that of a crisis of liquidity in financial markets (Langley, 2015). This undermined earlier positions calling for a stricter regulation of financial markets, and notably a reduction in opaque trading practices (FCIC, 2011; Bieling, 2014).

At stake is thus the question if and how issues of social inequality caused and exacerbated by the financial economy can be thought of in terms of infrastructures. Earlier in this chapter, I discussed the problems regarding access to infrastructural financial services as a matter of concern pointing in this direction. These considerations sit well with current suggestions, articulated with a view to Europe and especially to Britain, to rethink social inequality in terms of the weakening of state-funded infrastructural services, from housing to transportation to public health (Foundational Economy Collective, 2018). In terms of finance, one might think here of demands to solve the problem of the underbankedness of certain population segments, or of easing access to loans and credit for poor people. Yet upon closer inspection, it is questionable whether (legitimate) calls for a broader public service can be applied to financial infrastructures. An uncritically affirmative answer would sideline the question whether an "inclusion" of more population segments into more financial services is unconditionally desirable – especially as financial agency is becoming increasingly connected with surveillance technologies (Amicelle, 2017; de Goede, 2018). Such broader and deeper inclusion into finance might just be the flip side of what has been critically discussed as the "financialization of daily life" (Martin, 2002, p. i; see also Langley, 2008), as it might be another instance of securitization of the everyday.

Again, a look toward South Africa helps further elucidating the problem. In his monograph on *Credit and Debt in an Unequal Society*, Jürgen Schraten (2020) demonstrates the consequences, especially for poor people, to get access to small short-term loans. These are aggressively advertised, mostly by commercial banks and nonbanks, whose prohibitive yet mostly intransparent conditions, in the absence of a law regulating private insolvencies, drive loan-takers into unacceptable spirals of indebtedness. To my mind, there are only gradual differences between these practices and other financial practices in many societies the world over, from commercial (mostly Western) banks shifting the currency exchange risks to private borrowers in Eastern Europe, to the use of microcredit loans in India and Pakistan, whose "security" is based often on self-exploitation of the loan-takers, as collateral for global financial investments – to say nothing about the causes for the latest financial crisis in private mortgages whose risks were not made transparent either to the customers or to the regulation agencies (Langenohl, 2021; see also Roitman, this volume). So, the scandalization of absent access to financial services is no proper substitute for a political-economic critique, displaced as it may seem through the eyes of infrastructural reason.

6 Conclusion: Disruption as Paradigm of Infrastructural Reason

In this chapter, I highlighted pitfalls of infrastructural reason so prominent in today's IPE, IR, and social studies of finance. For critical and engaged social science, a pressing issue to address is how to turn the notion of infrastructure into one that articulates effective critiques of problematic developments that abound in finance, as well as of the imaginary of competition for global hegemony that the notion of infrastructure historically carries.

It is perhaps no exaggeration to say that infrastructural reason in contemporary finance is as much about financial disruption as it claims to be (or has so until recently, at least) about financial integration. The advent of blockchain technologies and decentralized finance was more or less openly announced as a libertarian disruption of traditional finance (Golumbia, 2015). The example of international lending to Southern states and colonies in the nineteenth century, referred to earlier in the chapter (Queralt, 2022), effectively channeled international money flows into a decapacitation of state-building in former colonies. The most recent global financial crisis was effected by a mushrooming of transactions in derivative instruments whose sheer numbers and complexity undermined regulatory capacities (FCIC, 2011). And the current politicization of international payment infrastructures, resulting in uses of infrastructural sanctions as "economic weapons" (Mulder, 2022), was metaphorized as financial services' "atomic bomb." These examples of financial infrastructural irritation cast into doubt any attempt to align infrastructural reason with the smooth engineering of flows and financial integration. Instead, they call for another paradigm: that of infrastructural disruption, shock, and disintegration.

In such a context, an ambitious discursive endeavor will be to disentangle the notion of infrastructure from the modernist assumption of full functionality and full service coverage (see, for related suggestions, the chapters by Pinzur and Coombs, this volume). Sociologist Philipp Staab (2023), who has investigatedof the life conduct of staff working in "critical sectors" during the corona pandemic in Germany – care workers, doctors, police staff, and so on – argues that we might be witnessing a turn toward a "society of adaptation" (*Anpassung*). In such a society, life projects and subjectivities will be based on the understanding that infrastructural services are crucial not because of their functionality and perfection, but because of what they achieve amidst overall chaotic conditions. Because infrastructures cannot be but vulnerable given the sheer size and amount of contemporary macro-risks and threats – Staab mentions climate change, wars, pandemics, to which we might easily add disruptions in the international financial system currently underway – their resilience, partial operability, and adaptive capacities to a sudden worsening of circumstances lends them much more significance than any dream of perfection. At the present turn, it is as difficult as it is important to imagine "adaptive" financial infrastructures that would attain their political, economic, and societal meaning and significance from their ability to cope with their imperfections – that is, from the minimal possible service core they would still be able to deliver in case of outright havoc.

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