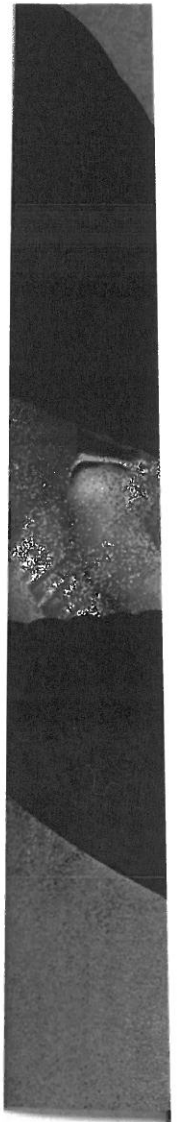

Subtraction
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CONSIDER BUILDING REMOVAL

Whatever the pleasures and prodigious efforts associated with erecting architecture, the art of causing it to disappear can be equally compelling or satisfying.

The subtraction of buildings is as important as the making of buildings, and most buildings trigger a subtraction of some sort. As marketers, financial experts, planners, and politicians develop buildings, they also detonate buildings and landscapes. Financial industries surround seemingly static and durable structures—from small houses to massive sports stadiums or four-thousand-room casinos—with a volatile balloon of inflating and deflating value. Development encourages migrations into and away from cities, causing rapid growth and rapid decline. Buildings themselves even cause destruction not only because they replace previous buildings, but also because they can, by their often toxic presence, destroy their surroundings.

In the wake of recent crises, catastrophes, and population shifts, as buildings radiate negativity, a significant portion of the heavy machinery used to construct buildings is now busy taking them apart. Ruin and decay has its own pornography. Demolition has its own TV shows.

Disassembly and teardown are now popular art forms. The newest approaches to building removal even appear to retract skyscrapers into the ground. Finally, it is easy to see, with half-closed eyes, an accelerated time lapse within which large swaths of building and landscape seem to be simultaneously cultivated and harvested or built and unbuilt—an economy where subtraction is the other half of building.

While a subtraction economy already exists, it is still perceived as something that does not exist—as something negative and therefore unknowable or to be avoided. Even when subtraction is planned, it is often treated as the disposal of an accidental or unintended consequence—a failure of planning's already fragile utopias. Subtraction is erasure rather than exchange—hiding an error rather than managing an ecology. Subtraction generally signals loss while accumulation or accretion generally signals growth. And when building is the only proper, sanctioned event, there is no platform in place for constructively handling the deletions that reasonably or unreasonably accompany building.

Architects and urbanists are connoisseurs of object form expressed with shape, outline, and geometry, and the design of object form usually results in the addition of building. But a subtraction economy that removes building must also

deploy active forms. Subtraction is not simply absence, but a moment in a set of exchanges and advances, aggressions and attritions that are part of most active organizations. Active forms are multipliers, switches, remote controls, or governors—time-released protocols that generate or manage these exchanges with a stream of objects and spaces. They are capable of orchestrating the ebbs and flows—the appearance and disappearance—of buildings.

A subtraction economy might even significantly alter the longstanding cultural habit of regarding buildings as financial instruments with the flexibility of currency. The financial industry has elaborate schemes for manipulating the virtual values attached to buildings despite the fact that buildings are often too durable to respond as if they were money. But an alternative subtraction portfolio materializes risks and rewards with tangible spatial variables that can be traded and banked on in a parallel market. These negotiations, designed as spatial levers, can stabilize, compete with, or even overwhelm financial markets to expand, contract, or erase development.

Building subtraction, as a major industry and a design protocol, is a lucrative emergent global enterprise, a source of employment, and a political instrument. A subtraction protocol

might be appropriate in many parts of the world where sprawling overdevelopment has attracted distended or failed markets, where development would be wise to retreat from exhausted land or floodplains, or where special preserves, like rainforests, are valued for attributes that development disrupts. Such a protocol may also offer somewhat less violent tools of acquisition and more safeguards against disenfranchisement in the margins of informal settlement.

With its own aesthetic pleasures and an expanded repertoire of form making, subtraction also offers a redoubled territory for design. Before the 1960s, there were no historic preservation programs in universities. Soon, training in building and preserving might expand to include managing the subtraction or contraction of development—a practice that arguably even has a significant, if unacknowledged, tradition in the disciplines of architecture and urbanism. Architects—trained to make the building machine lurch forward—may know something about how to put it into reverse.

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Active Form: STREAM

STREAM, as proposed, is a GPS-enabled Internet and smartphone marketplace for the materials of building teardown. It is a cross between online markets like Amazon or eBay and the gift-economy Internet forums where items are posted for free pickup. Both forms have entirely changed the audience and venue for trading new and used goods. During the recent financial crisis, many of the components of homes and workplaces were traded in these markets—fixtures, appliances, equipment, interior finishes, remaindered tools, and materials from floorboards to roof shingles. Waiting for an organization like the EPA to establish life-cycle calculators for the value of these discarded materials is too slow. A mobile app would determine value with real-time bidding, and it would allow smaller companies to trawl about and harvest larger volumes of materials from small lots. Those discarding material would have a chance to quickly dispose of their items while also avoiding the tipping fees of a waste contractor. Allied industries related to the various recovered materials such as concrete, gypsum, wood, steel, asphalt, aluminum, and copper might then build their industries around viable volumes and myriad reuse scenarios. The more valuable metals, like the copper used

in plumbing, have long had a market as the "gold teeth" of building. But concrete production has increasingly become a medium for recycled material from glass to asphalt shingles. Reused wood is now also part of a biofuel market. While there is a great deal of automation in the material management industry, STREAM even offers employment opportunities ranging from simple unskilled jobs to environmental scientists to entrepreneurs of all kinds. 74

SUBTRACTION CAN BE A GLOBAL PROTOCOL

Subtraction, as an ecology of removal and addition, tutors, above all, an understanding of the instrumentality of interplay and interdependence. Whatever the pleasures of erasing McMansions, imagine a similar game played not in the overbuilt suburbs of the affluent but rather in other parts of the world with deadlocked property dilemmas. Spatial interdependencies and offsets offer a new practice in global compacts and coalitions.

A portfolio of interdependent spatial variables might be used to retreat from environmentally sensitive regions. When global economists devised a market approach to rainforest preservation they invested new ways of trading on their value to arrest development or demonstrate the potential profitability of negative development. REDD+ (Reduced Emissions from Deforestation and Degradation) abstracts territory as if it were a carbon stock valued for its ability to enhance the forest and reduce emissions. Simply put, REDD+ trades intact forest for emissions credits. Still, it is fraught with questions about how to establish or track the values, and its abstraction invites many ways to game the system, not the least of which is simply the use of carbon

credits by developed countries to sanction increased pollution through emissions.

Promoters of forest preservation find themselves wishing there was a market for all of the other values in the forest—biodiversity or indigenous culture—that might be at risk if the market only trades in carbon credits. With a currency in market shares, REDD+ must avoid the pitfalls of, for instance, the suburban house and its mortgage in the global financial market. The suburban house, an object in space, valued for many intangibles and yet the subject of feverish and convoluted trading, was reduced to a cipher when that trading was exhausted, with no auxiliary valuation or means to recuperation. Similarly when the expensive and cumbersome technical apparatus of the carbon market is exploited and chiseled, what values of the spatial antecedent—the forest itself—will remain? Moreover, despite the best efforts of all economic experts, it often seems that deforestation continues with abandon.

In addition to an economic and carbon portfolio, landscapes can also have a spatial portfolio. Spatial variables might be at once more straightforward and—as they are inclusive of more circumstance—more complex.

Before it was discontinued in August 2013, Ecuador's Yasuní-ITT initiative provided a glimpse

of how such a protocol could work. Underneath the Yasuní-ITT concession located in the larger Yasuní preserve lie 20 percent of Ecuador's oil reserves. The government began selling certificates that essentially paid to keep oil in the ground beneath this especially rich and sensitive area. Like REDD+ the initiative yielded a net value to undeveloped land, but it also created an alternative market with remote players that also traded in values related to biodiversity and indigenous culture.

Again, not unlike the software for Savannah, a subtraction playbook in the Amazon can create interdependencies between fincas, roads, and preserved forest. If an undeveloped finca adds value to a nearby ecotourism site, both portfolios profit from cooperation. Similarly a rerouted road, school, or forest preserve can create a mutually beneficial network of shareholding. A pharmaceutical company hundreds of miles away can be partner to some of these plays, since biodiverse areas offer the most promise for new drugs. Global NGOs and IGOs monitoring climate change can also invest in the portfolio. In every case, the owner of local land draws some income rather than foregoing the profits from development for a global benefit that is not immediately apparent. Global subtraction protocols such as these have the capacity to not

only add development, but also shrink or concentrate it.

A spatial portfolio might also be used to generate stability in the informal settlements found in most global cities. Those populations most at risk from the violent subtractions of disenfranchisement would ironically benefit from a subtraction protocol that generates stabilizing interdependence and finds new values in failure. Peruvian economist Hernando de Soto argues that inhabitants of informal settlements should be
76 given deeds to their property. Others, like David Harvey, argue that a deed only makes it easier for capital to acquire those properties and banish the owner to another unsanctioned urban or
77 exurban space. Yet what if the inhabitant of a lot in an informal settlement is granted not just a deed but also a portfolio of shares—shares in successful properties as well as green spaces and infrastructures of the city? Does this make it harder to disenfranchise with the typically blunt and violent tools of property acquisition? If both recognized and informal sites are part of an interdependent network, are they less vulnerable to legal and cultural denial? Locally, a portfolio could provide incentives for improvements as well as municipal mechanisms for acquiring infrastructure space. A portfolio allows each owner to have a stake in the city and a chance for entrepreneurial

activity that must still be cooperative to be successful. The inevitable deletions might then be accompanied by improvements for all the players.

SUBTRACTION CAN BE GROWTH

Subtraction economies can be both destructive and productive. The reductive dreams of utopia are often the first subtraction—monism masquerading as betterment. The least spectacular deletions, without dynamite or bombs, like those associated with disenfranchisement, may even be the most violent. However gentle the tone of the rhetoric, the desire to purify or eliminate contradictions or threats to the prevailing power usually generates the least productive forms of subtraction. Yet while some forms of subtraction deliver aggressive, debilitating attrition, others gradually recondition and strengthen urban relationships. Some subtraction economies are not the disposal of failure and error or the eradication of contradiction but rather deliberate tools for managing building exchanges. They do not erase information, but rather release a flood of information, association, and interplay.

For architects, subtraction offers an expanded artistic repertoire of form making as well as a new territory for spatial enterprise and ingenuity. Like the cultivation of crops or the use of one microorganism to counteract another, subtraction may use both active forms and object

forms to change not only the shape, but also the constitution or organization of space. If every building is both an addition and a subtraction, every act of unbuilding is also both a subtraction and an addition.

The subtraction economy almost exists. The creative trick lies in designing its political disposition—the spin that gives the idea enough traction and scale to interrupt free-market doom loops or other political stalemates. Subtraction is a heavy industry, a source of employment, a material resource, a global environmental protocol, and an alternative market that escapes the dominance of the financial industry. An interplay of spatial variables demonstrates that subtraction can be growth.

1 The first historic preservation program was started at Columbia University in 1964.

2 Stephen Graham notes that the term "urbicide" was "coined, more or less simultaneously in the early nineties, by Marshall Berman and a group of Bosnian architects: 'urbicide,' or the deliberate wrecking or killing of the city." Stephen Graham, "Lessons in Urbicide," *New Left Review* **19 (January/February 2003): 1–2. Graham cites Marshall Berman, "Falling Towers: City Life after Urbicide" in** *Geography and Identity: Exploring and Living Geopolitics of Identity*, **ed. Dennis Crow (Washington, DC: Maisonneuve Press, 1996), 172–96; and Martin Coward, "Community as Heterogeneous Ensemble: Mostar and Multiculturalism,"** *Alternatives* **27, no. 1 (January 2002): 29–66.**

3 Thomas A. P. van Leeuwen, "Architects, Demolish! The Dual Nature of Creation and Destruction," in *Shrinking Cities*, **vol. 1,** *International Research*, **ed. Philipp Oswalt (Ostfildern: Hatje Cantz, 2005), 712.**

4 Ibid., 716–17.

5 Rem Koolhaas, "Urban Operations," *Columbia Documents of Architecture and Theory* **3 (1993): 25–57.**

6 Marshall Berman, *All That Is Solid Melts into Air: The Experience of Modernity* **(London: Verso, 1982).**

7 Richard Plunz, *A History of Housing in New York City: Dwelling Type and Social Change in the American Metropolis* **(New York: Columbia University Press, 1990), 265–72. Plunz in particular discusses Bunshaft's Sedgwick Houses of 1950. Sociologist Zygmunt Bauman quotes Loïc Wacquant's term "prisonization" in his description of these secure environments—what he calls a "dumping ground for human waste." Zygmunt Bauman,** *Wasted Lives: Modernity and Its Outcasts* **(Cambridge: Polity, 2004), 84–85.**

8 One contemporary study in Philadelphia demonstrated, for instance, that property value within a radius of 150 feet around a single abandoned house dropped by 7,600 dollars, and within a radius of 300 feet by 6,800 dollars. "Blight-Free Philadelphia: A Public-Private Strategy to Create and Enhance Neighborhood Value,"