PENTECOST — A MODEL OF COMMUNICATION FOR 21ST CENTURY ARCHITECTURE JORGE OROZCO

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Books, articles, interviews; journals, magazines, newsletters; competitions, projects, buildings; floor plans, models and maps. Online communities cover the world of architecture. The members of these communities uninterruptedly talk to each other from all around the world, in different languages, and from many positions. Regardless of quantities, the applications that engender them make communication easy, so that within the whole, all members are found in places for understanding and comfort: They share common languages and interests. Without these intermediaries, a community exists in the noise, with no third party between them, no assurance that what is received is what is sent, plus or minus themselves. This prominent performance is possible due to the developers' novel instrumentality and understanding of what an online community is and what it circulates: information.

This article argues for models of communication having the capacity to deal with today's world of architecture, all of it, personally and vividly. It addresses the role of the intermediary in an online community by exploring the scenarios that open up if we 'get rid' of it and source and symbolize for ourselves the data that a community circulates. On these grounds, we see in the day of Pentecost a promising model of communication that reduces the third party to a 'grain of sand', as it is a model without intermediaries and with the capacity to celebrate and embrace what a community that is interested in architecture circulates, whatever it is, further suggesting new imaginings to the philosophy of architecture.

ON MODELS OF COMMUNICATION: HERMES, LEIBNIZ, SHANNON, THE HOLY GHOST, FACEBOOK AND THE PARASITES

Can a network without the constraints of mediation be constructed where objects can be in relation to one another without a third interpreter? Philosopher Michel Serres presents the model of Pentecost as a possible answer.

In his book *The Parasite*, Serres¹ presents a philosophy for a natural economy based on parasitic relations between all things of the world, regardless of established ontologies or categories—i.e. regardless of being objects that 'belong' to science, religion, history, society. With a Pentecostal model of communication, Serres reduces the third—the parasite, the interpreter, the mediator—to a minimum, and presents the new abilities that 'liberated' parties gain.

To discuss the capacities of such a model of communication, Serres places this latter next to another two models—those of Leibniz and Hermes—that sequentially replaced each other, touching on their abilities and limits.

1 See Michel Serres, *The Parasite*, trans. L. R. Schehr (Baltimore: The Johns Hopkins University Press, 1982 [1980]).

FIG 1
Monads and The
World. Gilles
Deleuze, 1993

A model of communication introduced by Leibniz explains the nature of the substance present in all the things of the universe—the monads. A monad is “a simple substance which enters into compounds, ‘simple’ meaning without parts.”² They have no extension or shape and are indivisible. These atomic elements aggregate into things; they interconnect, crisscross; they talk to each other, so every monad expresses all the others and mirrors the universe. But even in this ‘all connected’ condition, every element relates to the rest through a unique intermediary, so that “the influence of one monad over another is merely ideal: It can have its effect only through the intervention of God.”³

An image of this model’s network is centred. Talks go from the plural towards the singular, from local to global, and God is in the centre. It renders, for Leibniz, a perfect assemblage where sources and destination are predetermined and the noise between them is at its minimum.

FIG 2
Entropy in the case
of two possibilities
with probabilities
 p and $1-p$. Claude
Shannon, 1948.

2 See Lloyd Strickland, *Leibniz’s Monadology* (Edinburgh: Edinburgh University Press, 2014 [1714]), 14.

3 Ibid., 24.

Leibniz's model of communication resonates with Claude Shannon's,⁴ for whom a talk happens only when the noise that may have been added to the message at the moment of transmission is reduced to zero; when a channel between a monad and God is pure. His goal was to calculate the correct sequence, the optimum, between source and destination. The problem was formulated as the exact reproduction of a message sent from one point at another point, given an established source, code and medium. For Shannon, the source encodes and sends a message; the destination receives and decodes it. The limits of Leibniz's model lie in the ability to talk on behalf of, or distanced from, a unique intermediary. Politics is at the limits of this model, and Hermes is at the beginning of politics.

FIG 3
Sebastiano Ricci,
*Mercury, Herse and
Aglauros*, 1720–1734,
oil on canvas,
88.5 × 58.8 cm,
Manchester
Art Gallery, UK

Another model of communication can be attributed to Hermes. Hermes, son of Zeus, was more than a messenger between gods and humans, because he acted on his father's behalf. In the *Iliad*,⁵ when Hector's dead body is not given the proper rites, the gods urge Hermes to steal the body from its captor, Achilles. This, however, was not Zeus's way. Instead, he sends Hermes to guide Priam to Achilles in order to do politics on Hector's body. Hermes is the intermediary between two protagonists, between two distanced centres capable of influencing the behaviour of the rest.

- 4 Claude Shannon, 'A Mathematical Theory of Communication', *Bell Systems Technical Journal*, 27 (1948), 623–656.
- 5 See Homer, *The Iliad*, trans. Robert Fagles, Penguin Classics (New York: Penguin Books, 1991). (Vol. 20), 588–614.

Hermes is at any crossroads and exchange. He holds the unique position between two parties: “He produces, alone, a relation among an incongruous mixture of subjects and practices and an incongruous set of objects and merchandise,”⁶ rendering a many-one-many network, where the received message is what is sent, plus or minus Hermes.

Such a model resonates with the applications that today engender communities online, like Facebook. Facebook designs the way in which users talk to each other online, giving them little to no say about how they want to act—the ‘home’ button points to a space to talk about anything, the ‘your-face’ button points to a space to talk about you; ‘here’ are some friendly people to talk to. From two billion active users, each one lives in a comfortable and familiar space, where the unpleasant goes away with one click. The applications that engender these communities carry the messages, listening, recording, operating and creating new values from them.⁷ The limits of this model lie in its ability to listen to and operate upon what the community is saying—Hermes performs as long as there are messages to pass on.

But what happens if a speaker is heard as is? Can the many be connected to the many, without an intermediate?

FIG 4
El Greco, *Pentecost*,
c. 1596, oil on canvas,
275 × 127 cm,
Museo del Prado,
Madrid, Spain

6 See Serres, *The Parasite*, 42.

7 Instagram is a good example, it was bought by Facebook in 2012 for approximately 1 billion USD [en.wikipedia.org/wiki/Instagram (accessed 23.8.2017)] when the company was thirteen computer scientists (See Jaron Lanier, *Who Owns the Future?* (London: Penguin Books, 2014)).

On the day of Pentecost,⁸ the apostles and company gathered to celebrate God, their common exchanger. They did not share a common tongue, as they came from many lands. Fire came, and a sudden sound filled the whole room ‘as of a rushing mighty wind’, and they began to speak in other tongues and were able to communicate without a translator. It was fire, something outside themselves, that brought this new ability.

The relations between the people gathered that day were many—many, without a third in between. The image of such a network is de-centered, with neither crossroads nor interceptors, neither many gods nor one God: A challenging self-regulation.

If we look for a contemporary scenario where any speaker speaks in his own language and every hearer understands in his own, regardless of the language and location, we can say that Google Translate is a prominent example as it translates between over a hundred natural languages instantly. This ability is implemented in a number of online applications, like the mobile app that takes a photo of a restaurant’s menu, recognizes its characters and language, and translates the food items to a desired language. Or in applications like Skype that offer real-time voice and text translation on phone calls. Even when these applications present new capacities to communicate, however, the abilities that we argue for go beyond an explicit understanding of what happened on the day of Pentecost, beyond linguistic translations. We are arguing for the ability to recognize, locally and without mediation, the sound from the noise—the rare from the norm, order from disorder, negentropy from entropy, information from data—that may be circulating in an online community.

FIG 5
The Economist,
cover, May 2017.

8 As told in the Holy Bible’s book of Acts.

Interestingly enough, online communities show us ways to put together applications like those we argue follow Hermes. MOOC (Massive Open Online Courses) like Udacity, offer courses to learn programming languages, to specialize in libraries used by prominent developers, and to be proficient in the cutting-edge instrumentality—i.e. machine intelligence—used by ‘world-changing’ companies. The only requirement: access to a computer and an Internet connection.

The focus of these MOOCs is to promote the development of applications able to engender big communities that can be the intermediary for big circulations—whatever they may be about—as these are the primal source of new economic and political values.⁹

Our interest is to explore, within the same scenario and from an architect’s position, a hypothetical turn from Hermes-like to Pentecost-like models of communication online, as such a turn promises to embrace the abundance of information circulating in communities personally and as a whole, opening up spaces that were not available before, and bringing new capacities and imaginations to the philosophy of architecture.

The question is, what would this model look like from the position of an architect?

ON 20TH CENTURY ARCHITECTURE:

EISENMAN, TSCHUMI, LIBESKIND AND LYNCH

In architecture, we can think of a Pentecostal model of communication when we have the ability to talk about architecture without an interpreter and beyond an authoritative articulation. In today’s global condition, where all theories, projects, manifestos, images, regulations, software, interviews, floor plans, profiles, tutorials, competitions, doors, windows, elements, lectures and documentaries are available online, such a model of communication aims to engender architectural talks by celebrating the abundance of information that online communities emit, receive, store and process.¹⁰

Our contemporaries have already formulated similar questions. Peter Eisenman, for example, sees in ‘text’ a strategy to liberate a building from an authoritative ‘reading’, i.e. from a correct relationship between the building and what it signifies.¹¹ Something like: We don’t

9 Facebook has 2 billion monthly active users [en.wikipedia.org/wiki/Facebook (accessed 23.8)] and their data is claimed to be used significantly for political purposes, as seen in “Ich habe nur gezeigt, dass es die Bombe gibt. —Der Psychologe Michal Kosinski hat eine Methode entwickelt, um Menschen anhand ihres Verhaltens auf Facebook minutiös zu analysieren. Und verhalf so Donald Trump mit zum Sieg.” [www.dasmagazin.ch/2016/12/03/ich-habe-nur-gezeigt-dass-es-die-bombe-gibt (accessed 23.8.2017)].

10 See Michel Serres, ‘Information and Thinking’, Society for European Philosophy and Forum for European Philosophy Annual Conference, *Philosophy After Nature*, Utrecht, September 3, 2014.

11 See Peter Eisenmann, ‘Architecture as Second Language—The Texts of Between’, in P. Eisenmann, *Eisenmann Inside Out*, (New Haven: Yale University Press, 2004 [1998]).

see the same thing when we look at the same building, and it is fine. Celebrating the information that a building emits.

Eisenman finds the multivalency of text—the impossibility of a single unique reading—liberating, even when, for him, an architecture of texts is ‘unnatural’ due to architecture’s temporal and spatial specificity and presence. By dislocating architecture with texts of ‘between’—between the building’s origin and its authorial value, and the ‘thick’ object—Eisenman aims to free a building from its specificity.

FIG 6
Dorothy Vallens
played by Isabella
Rossellini in the film
Blue Velvet, dir. by
David Lynch (1986).

To do so, he looks at what happens in films, where these dislocations are natural. “Film is the *sine qua non* of a dislocated place and time because it always has at least two times and two places: the actual time and place of watching, and the narrative time and place.”¹² As an example, he analyses David Lynch’s *Blue Velvet* from the late 1980s which narrates a story from the early 1950s, but includes strong elements from the late 1950s and 1960s. Showing that the linear temporal structure of the film is dislocated, and suggesting that the consistency of the film, the mastership of the narrative, is beyond a specific time and space—beyond its ‘thickness’.

Eisenman recognizes the violence that this presents to a building—to all its former articulations—because if he celebrates the ability of a building to speak about anything, its origins appear without control, its foundations are set in motion, truth multiplies, doubt is introduced, authorship is questioned, and centralities vanish. In other words, the old values introduced by an authority, the well-established stabilities, stop working.

¹² Ibid., 228.

His solution is to formalize the abundance of information that a building may emit through a production process, introducing machinelike diagrams as generative devices,¹³ which make material, specific and taxonomic the building's dislocations. Furthermore, these diagrams claim to be the architect's device to unveil the building's interiority by placing, layer by layer, an accessible history of a 'thick' object.

This position is actually shared by other contemporaries. Bernard Tschumi introduces drawings that propose to transcribe an architectural representation of reality, with the explicit purpose of transcribing things normally removed from conventional architectural representation, as a way to access the object's origin.¹⁴ Daniel Libeskind, similarly, talks about machines that propose a fundamental recollection and retrieval of architecture, which, once they are in motion, can facilitate interpretation of architecture's history, program or poetics.¹⁵

In these terms, a Pentecostal model of communication aims to keep a building's abundance of information 'alive'—to talk instead of to define, as opposed to Eisenman and Co.—and to find new stabilities with neither an authority nor a taxonomy but from the circulation of information.

FIG 7
Diagram of Church
of the year 2000.
Peter Eisenman,
1996.

FIG 8
Transcribing real-
ity to architecture.
Bernard Tschumi,
1981.

FIG 9
One of the three
machines from
Three Lessons in
Architecture—The
machines instal-
lation. Studio
Libeskind, 1985.

13 See Peter Eisenmann, *Diagram Diaries* (New York: Universe Publishing, 1999).

14 See Bernard Tschumi, *The Manhattan Transcripts* (London: Academy Editions, 1994 [1981]).

15 See Daniel Libeskind, 'Three Lessons in Architecture: The Machines', 1985, accessible at: www.libeskind.com/work/cranbrook-machines (accessed 23.8.2017).

Elsewhere, I have presented three applications that celebrate models of communication without intermediaries.¹⁶ They address different online communities—e.g. Tumblr, Wikimedia Commons, Wikia, World-architects—and give the users new abilities to deal with the information they circulate, decoupled from those given by the engendering application.

One of these applications sources text from different online communities and creates an objective and scalable space for two different living concepts to talk to one another. One is the voice of today's Swiss architecture and the other of a person, Eliot Alderson—a character from the TV series *Mr. Robot*.

Swiss-architects.com is a community that celebrates architecture built in Switzerland today. Over 600 Swiss offices are profiled there with a selection of their projects. They offer descriptive texts, philosophy, awards, numbers, images and, occasionally, floor plans. Around these, profiles of manufacturers, lists of jobs, agenda and news. If an office has a building site in Switzerland today, its profile is most probably featured in this community. Swiss-architects is part of the world-architects network, curated and membership-based.¹⁷

FIG 10
A sourced quote in
German translated
to English by Yandex
Translate API.

“Die einfache Sache ist schwer. Das
Projekt ist dann gelungen, wenn alle
Anstrengungen nicht mehr spürbar sind
und sich Leichtigkeit einstellt.”

– zech architektur

#translate #graph

7 months ago

“The simple thing is difficult. The project
is then managed, if all your efforts are
noticeable and lightness sets in.”

– zech architektur via translate.yandex.com

#translate #graph

7 months ago

¹⁶ See Jorge Orozco, *Indexical Architecture. Prominent Positions, Applications and the Web*, doctoral dissertation, ETH Zurich, Switzerland, 2017.

¹⁷ See www.world-architects.com/en/pages/about (accessed 15.07.2017)

Wikia.com¹⁸ and magicalquote.com are two communities that celebrate TV series and their characters. On Wikia, each TV series has its own subdomain and, even when they are organized differently, most have a reserved place for their characters and episodes. Characters are extensively characterized by their background, significance, physical appearance, personality and even some external references. The community is open and adopts the Wikipedia model, in which members can create and edit entries following predefined directions and standards. Magicalquote.com, on the other hand, is a blog that collects quotes from movies, series, books and authors. Since 2013, it has put together a database representative of the popular tastes. If the show has an Emmy associated with it, its characters are most likely featured there. The blog is openly accessible but the creation or editing of entries is limited to the community members.

In a first movement, this application sources from the communities' servers (a) the profiles and projects of every architectural office featured on *swiss-architects.com*—i.e. all text and images—and (b) all that is written about Elliot Alderson on Wikia¹⁹ and Magicalquote.²⁰

To source a community is necessarily to profile it and to put together a custom web bot, which requests and parses documents programmatically. It typically starts with a seed address, requests the document at that address, stores locally the response and looks for the hyperlinks in it—the text or image that links to another document with one click. This simple process is performed iteratively.

FIG 11
Bar chart showing
the number of
unique words for 431
offices.

¹⁸ Wikia, Inc. describes itself as the largest entertainment fan site in the world with more than 385,000 fan communities and a global audience of over 175 million monthly uniques. See www.wikia.com/about (accessed 15.07.2017)

¹⁹ www.mrrobot.wikia.com/wiki/Elliot_Alderson (accessed 15.07.2017)

²⁰ www.magicalquote.com/character/elliott/ (accessed 15.07.2017)

The corpus of architects comprises 640 profiles, each one talking about itself and its projects. Some offices have a lot to say, as much as 10,000 unique words, and others not more than a couple sentences. Furthermore, not all the text is in English, so this application translates them from German using Yandex Translate API.²¹ On Elliot, the corpus is over 3,000 unique words, a combination of his quotes and what other people write about him.

Text is what constitutes the corpora. It is the ground of comparison for the two different concepts to talk. How do we know now what they are both talking about?

The application has the combined vocabulary of the Swiss offices and Elliot. What follows is to model both for similarities and differences to emerge. The starting point is to know which office says what by a bag-of-words (BoW) model.²² Imagine a matrix where the rows are the offices and the columns the words in the vocabulary—3,344 words by 431 offices—and is filled with ones and zeros, very scattered. The next step is to transform this model into a term frequency-inverse document frequency (tf-idf) model, so that, instead of ones and zeros, the matrix is of numbers between 0 and 1 that reflect how important a word in a document is.

One ability gained at this point is that the user can construct an idea of what the offices may be talking about—whether rooms, land, or the stars—with a vocabulary that is completely defined by them, not by the application or the user. What the application can do with it next is fantastic: Just by multiplying and adding, it can construct topics²³ (in this example, 200) to which each office can be directly related. Each topic is a little bit of this word plus a little bit of that word, minus the other word. For example, topic number 7 is constructed by 0.265 of the word ‘school’, plus 0.254 of the word ‘competition’ plus 0.210 of ‘price’ and so on.

Let us imagine the matrix again. It used to be of 3,344 dimensions (columns) by 431 observations (rows), with a lot of zeros and very few numbers from 0 to 1. Now the matrix is 200 dimensions (where each dimension is one topic) by 431 observations (where each observation is one office). The matrix is full of numbers from -1 to 1 now, because each office talks about each topic, but in different quantities.

The similarities and differences between offices are in this matrix. But we cannot see them, of course, amidst the 86,200 numbers: We need the application to do it for us.

21 See www.tech.yandex.com/translate/ (accessed 15.07.2017)

22 See Wikipedia’s entry on this model at en.wikipedia.org/wiki/Bag-of-words_model (accessed 26.09.2018)

23 See Wikipedia’s entry on Latent Semantic Analysis at en.wikipedia.org/wiki/Latent_semantic_analysis (accessed 26.09.2018)

FIG 12
Vocabularies of
swiss-architects and
Elliot, respectively.

FIG 13
Learned topics of
swiss-architects and
Elliot, respectively.

FIG 14
Scatter plot of three
different models:
BoW, tf-idf and top-
ics. Each one show-
ing the 431 offices.

FIGURE 15
Detail showing
the same office:
'schwarz-schwarz',
in three different
neighbourhoods.

In a third movement, the application learns to find patterns in the matrix, reducing 200 dimensions to two, while keeping its topological distances. This process is called non-linear dimensionality reduction and is

implemented with the python library scikit-learn.²⁴ It is repeated with the other two models already put together—BOW and tf-idf. Figure N shows the three different models of the same speech, offices talking to each other and positioning themselves on a plane according to their topics of conversation. The closer they are, the more they converse. Now that a common plane is constructed, we can see where Elliot places himself.

FIG 16
Elliot Alderson
and his four closest
neighbouring offices.

Finally, this application constructs a common plane for offices to talk to each other. They all relate to the same vocabulary but use it differently, so their talks are not the same. It now looks at Elliot's talk and compares it with that of the Swiss offices. Once Elliot is on the plane, distances to offices can be measured. It turns out that Elliot is not an alien. Figure P shows four close offices to him. They talk about society, the needs of people, and the city as a political concept. And if we know Elliot, we could say that it is not that strange, as he is a hacker who actively tries to break down the system through its digital infrastructure. At the same time, though, we cannot be sure, since there is no definition of Elliot to evaluate the offices against, suggesting that the evaluation of their talk at the level of sympathy.

Both corpora can always accommodate more text, changing their positions on the plane of comparison. The offices and Eliot are thought of as animated concepts, which are kept alive and can continue to talk about architecture.

ON 21ST CENTURY ARCHITECTURE: THE ARCHITECT

On the day of Pentecost, after the astonishment of those present by their new abilities, the future of the Church was discussed. "What shall we do?" they asked, and arguments started to be articulated, reasons were constructed, answers were found, and decisions were taken by those present, not by fire. This distinction of abilities resonates with our

24 See scikit-learn.org (accessed 12.12.2017)

application. Our application listens and reads, like the fire; us, we talk and write, like the community members. We address the world of architecture online with personal and vivid applications, in its vastness, diversity, and speed. And it is us who ask questions, construct arguments, address concepts or make decisions on architecture, not the application. What does not resonate, though, is that on the day of Pentecost the fire was given, as it came to them as a surprise and performed 'as is', no questions asked. It was natural. Our application, on the other hand, is constructed and discussed. Do we like what it is doing, do we sympathize with the results? These answers stay open and change, making our application a political object. The promise that a Pentecostal-like model of communication presents to the architect is to step out into the world of paradoxes from a rich and stable position, and talk and write, as the rest is with the machines.