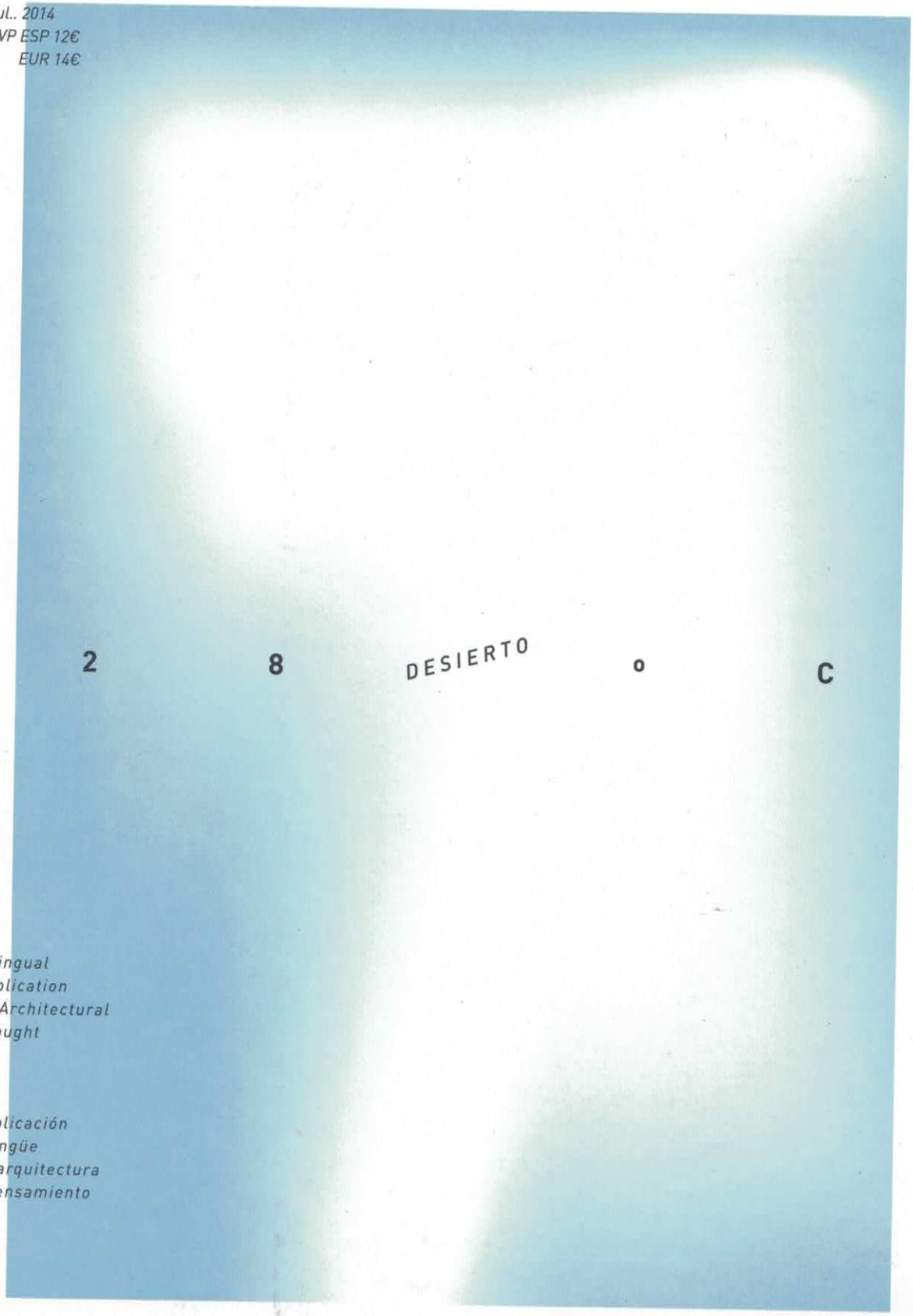
28º CELSIUS
ISSUE #3
Jul.. 2014
PVP ESP 12€
EUR 14€



28 DESIERTO ºC

Bilingual
Publication
on Architectural
Thought

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Publicación
bilingüe
de arquitectura
y pensamiento

Julio 2014
July 2014

DESIERTO

ISSUE #3

28°CELSIUS

PUBLICACIÓN DE ARQUITECTURA Y PENSAMIENTO

PUBLICATION ON ARCHITECTURAL THOUGHT

ÍNDICE

SEIS

SIETE

OCHO

NUEVE

The temperature of the invisible and the desacralization of the air.

28° Celsius is the temperature at which protection becomes superfluous. It is also the temperature at which swimming pools are acclimatised. Within the limits of this hygrothermal comfort zone, we do not require the intervention of our body's thermoregulatory mechanisms nor that of any external artificial thermal controls in order to feel pleasantly comfortable while carrying out a sedentary activity without clothing. 28° Celsius is thus the temperature at which clothing can disappear, just as architecture could.

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Δ ENG

ENG

Patrick Keller studied architecture at the Swiss Institute of Technology in Lausanne (EPFL). He is also a teacher in Media & Interaction Design at the University of Art & Design, Lausanne (ECAL), where he leads joint research projects between architects, interaction designers and scientists related to the mediated nature of contemporary space and environment.Keller is a founding member of fabric|ch an office for architecture, interaction & research. Combining experimentation and production, fabric|ch formulates new architectural proposals and pro-duces singular livable spaces that mingle territories, programs, atmospheres and technologies.
Through their prospective works, the architects and scientists of fabric|ch have investigated the field of contemporary spaces, from network related environments to the interfacing of dimensions. Fabric|ch's current works deal with the mediation of our relation to location and distance, with climate and energy, with mobility and globalization in a perspective of spatial 'creolization'.

ESP

Patrick Keller estudió arquitectura en el Escuela Politécnica Federal de Lausana (EPFL) y es profesor de Diseño de Medios Audiovisuales e Interacción en la Universidad de Arte y Diseño de Lausana (ECAL), donde lidera un proyecto de investigación en colaboración con arquitectos, diseñadores de interiores y científicos sobre el carácter mediado del espacio y medio ambiente contemporáneos. Es miembro fundador de fabric|ch, un estudio de arquitectura, interacción e investigación que combinando experimentación y producción formula nuevas propuestas arquitectónicas y produce espacios habitables singulares que mezclan territorios, programas, atmósferas y tecnologías.
A través de sus trabajos prospectivos, los arquitectos y científicos de fabric|ch han investigado el campo del espacio contemporáneo, desde entornos en red hasta la interacción de dimensiones. El trabajo actual de fabric|ch trata sobre la mediación de nuestra relación con la localización y la distancia, con el clima y la energía, con la movilidad y la globalización desde una perspectiva de 'creolización' espacial.

INHABITING DETERRITORIALIZATION

Patrick Keller

As a result of a three months residency conducted by fabric | ch at the Tsinghua University in Beijing and publicly launched in late 2013 on the occasion of the 3rd Lisbon Architecture Triennale, Deterritorialized Living *is an artificial troposphere that reverses our causal relationship to the natural rhythms of day and night, air, seasons, time. It is a 'man-made' environment where the atmosphere is the effect, continuously shaped by the global network activity produced by humans, connected devices and robots.*

Following the devised conditional rules, this milieu develops strange behaviors: daylight is always 'on' but at variable strengths, nighttime never occurs, air composition regularly reaches 'physiological enhancement' levels of high altitude, it is composed of a unique single day that goes back and forth and that ideally last forever. There are no months and no years.

Deterritorialized Living *is delivered in the form of open data feeds which define this 'geo-engineered' yet livable environment, computed by the deterritorialized.org server.*

These algorithmically designed data feeds are designed to be used independently or combined to drive experimental devices, interfaces, software and in particular speculative inhabitable environments of different kinds. [fig. 1-2]

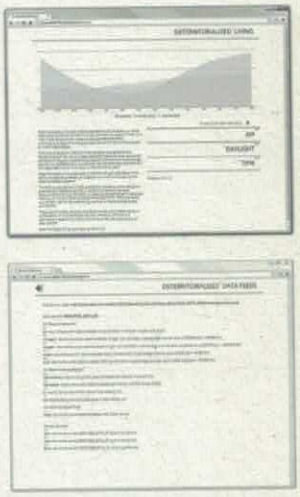
DETERRITORIALIZED LIVING
[AIR, DAYLIGHT, TIME]

Since the apparition of electric lighting in the late 19th century, air conditioning, increasing mobility of persons and goods, the sometimes use of bio-chemicals but more importantly, since the public spread of the Internet in the mid '90s, we have witnessed the emergence of an almost 'geo-engineered' and continuous milieu that triggers an experience of delocalization / detemporalization.

The later development of ubiquitous wireless communication, peer to peer exchanges, social networks and algorithmic or mediated environments of all sorts has even increased this feeling. This milieu has been amplified to the point that we could now speak of an 'ambient *deterritorialization*' that is always around, always 'on'.

A continuous day seems now to exist through continents, in between places, in between time zones: a 'networked' day that neither really starts nor truly stops, but goes back and forth. It is experienced continuously by more and more people around the globe, becoming paradoxically contextual.

#1 - #2*



*The images from #1 to #6 are screenshots from the website's project *Deterritorialized Living*, which may just help to get an idea of how the interface looks like. In order to view the data correctly visit the site *www.deterritorialized.org*

Commenting and developing this contemporary situation, the project *Deterritorialized Living* is an attempt to materialize this emerging 'geo-engineered' environment in the form of a data generated, livable atmosphere (troposphere) composed of artificial air, daylight and time. It is literally a 'man-made' atmosphere in the sense that it depends on the intensity of the permanent flows of humans and robots activities over the networks. When the information and data becomes available for public use, we plan to include other life related flows to calculate and refine this climate (air traffic, transportation of goods and people, overall energy consumption, etc.)

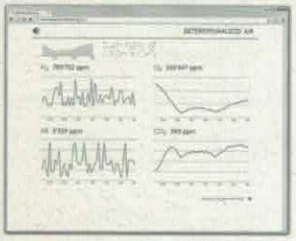
Conceived by fabric | ch, the server *http://www.deterritorialized.org* hosts this inhabitable 'computed atmosphere' which is delivered in the form of algorithmically 'architectured' data feeds based on the interpretation of real data (global hits per second). It is composed of a set of open web services and libraries that were developed in the context of a residency on the Tsinghua University campus in Beijing between spring and summer of 2013 (at the Tsinghua Art & Sciences Media Laboratory).[1]

[1] Tsinghua Art & Science Media Laboratory, *http://tasml.org*, Dir. Zhang Ga.

[AIR]

Deterritorialized Air is composed of the four main elements we breathe: Nitrogen (N_2 ppm), Oxygen (O_2 ppm), Argon (Ar ppm) and Carbon dioxide (CO_2 ppm). These feeds can be requested individually or in group. [fig. 3-4]

#3 - #4



In its formerly natural composition in the troposphere and for approximately 10,000 years, the composition of air was almost completelystable. Only the quantity of oxygen we breathed would vary depending on the altitude (due to pressure: 100% at sea level down to 47.5% at 5500m, which is considered to be the limit of permanent livable settlements), triggering physiological enhancements in the production of red blood cells that transport oxygen. Since the industrial revolution and mainly due to human activities, CO_2 levels also varied considerably. It is higher nearby big cities, major transport routes and industrial facilities but mainly and due to human activities, it increased from approximately 280 ppm just before the industrial revolution, to an average of 380 ppm in the first decade of the 21st century, and is projected to reach 550 ppm by 2050 (middle projection). In high concentration, CO_2 can cause headaches, nauseas and more rapid breathing.

The server computes the data feeds of *Deterritorialized Air* based on these values and using the following rules: Nitrogen and Argon barely vary (micro-variations). O_2 levels very depending directly on the overall network activity, moderated by the actual locations of the multiple sources of these activities (note: a lower level of population in the 'actual locations' triggers a decrease in the *deterritorialized* level of O_2, which then corresponds to a potential higher, less inhabitable altitude). CO_2 levels also vary depending on the overall activity, moderated by the actual locations of these activities (more CO_2 emissions in actual locations implies a positive feedback and an increase in the *deterritorialized* level of CO_2).

#5

[DAYLIGHT]

Deterritorialized Daylight is composed of Visible Light (lm), Infrared (watt) and Ultraviolet (watt). Each feed can be requested individually. [fig. 5]

Our historical causal relation to natural cycles of day and night, for several physiological, emotional and potential activity reasons, was that humans were mostly active when there was light, their specific occupations being by extension indexable to different intensities in lighting. During nighttime, humans were rather asleep and inactive.

Deterritorialized Daylight tries to reverse this historical relation: the global human and robot activities on the networks will be what trigger the intensity of the artificial daylight. Therefore, and as this activity is permanent on the networks, but at different intensities, the artificial daylight is always 'on', varying between different values (dusk, dawn, sunny day, cloudy day, etc.). Nighttime never occurs.

The server computes the data feeds of *Deterritorialized Daylight* based on the observed average values for a sunny day in direct sun (120,000 lm), for a cloudy day (12,000 lm) and for twilight (800 lm) and using the following rules: visible light is directly dependent on the intensity of the activity on the networks. Yet, during a 'sunny day', full intensity is not related to the maximum activity on the networks (as less people are active when the sun is too hot). Infrared and ultraviolet follow directly the intensity of the visible light, moderated by a kind of 'haziness' which is computed from networks latency.

(TIME)

Deterritorialized Time is composed of a standard digital clock in Hours (HH), Minutes (MM) and Seconds (SS). The feed can be accessed in block. [fig. 6]

#6

The length of a *deterritorialized* day lasts at its maximum for 12 hours and 04 minutes, from 07:02 to 19:06, to which must be added 30 minutes for dusk as well as 30 minutes for dawn to reach a full daylight length of 13 hours and 04 minutes. It is the average length of a day at the equator in a random city of reference.

The server computes the data feed of *Deterritorialized Time* based on the above average day length and using the following rules: there is only one day in our 'geo-engineered atmosphere' that cannot start nor end, due to the main algorithmic rules that shape the project and its behavior. There are therefore no months and no years. The time constantly varies and goes back and forth between its limit points (dusk, dawn), between morning, noon and afternoon, depending of the intensity of activity and the 'weight' of each 'slice' (Americas, Europe-Africa, Asia-Oceania). A clock keeps the tracks of these movements; a real time duration of approximately 36 hours is needed to collect all the network activities from around the globe. Therefore, these 36 hours are always mapped onto 13 hours and 04 minutes.

DETERRITORIALIZED DAYLIGHT AS AN ARCHITECTURAL DEVICE

Following its creation for Close, Closer, the 3rd Lisbon Architecture Triennale[2], fabric | ch had the opportunity to exhibit *Deterritorialized Living* for the first time in November 2013 during The Acces(s) Festival in Pau[3], at the *Maison de l'Architecture.*

[2] The 3rd Lisbon Architecture Triennale (Close, Closer), took place between September and December 2013. It was curated by Beatrice Galilee with Dani Admiss, Jose Esparza Chong Cui, Maria Pestana and Liam Young. On this occasion and along with the public launch of Deterritorialized Living, fabric|ch opened a call in direct relation with the artificial troposphere. *http://www.close-closer.com/en*

[3] The Festival Acces(s) in Pau, Soleils numériques , was curated by Ewenn Chardronnet. *http://festival.acces-s.org/*

The project was displayed along with videos of former projects by fabric|ch (*RealRoom(s), Perpetual (Tropical) Sunshine, Satellite Daylight 46°28'N, Fenêtre arctique* and *I-Weather* as *Deep Space Public Lighting* were exhibited), but more specifically, the occasion was taken to complete an electromagnetic sample of *Deterritorialized Daylight*, a simple spatial device based on its feed of data. It was envisioned as a 'proof of concept' demonstrating that the data feed of light could indeed become visible and 'material', but also an occasion to further experiment inhabiting its luminous pattern with basic functions. In this specific case and within the given blind space, fabric|ch suggested that the regular exhibition and conference programs would start to adapt and follow the evolving artificial lighting conditions, not the contrary. [fig. 7]

This simple spatialization took the appearance of two strong controllable projectors and two light reflectors. These were the only sources of light in the blind exhibition space, accompanied by five screens that displayed the different data feeds and the interactive version of *Deterritorialized Daylight* (a controllable version over the history of the last 13 hours). Two small but intense 'suns', an 'eclipse' and a 'waning moon' seemed to appear in the space at the same time.

The variable intensity of the light in the space defined a pattern of illumination within the exhibition environment where the display tables took place, in an apparent random manner, yet following this pattern accordingly to their own reflection potential and their exhibition program.

LIVING DETERRITORIALIZED?

Exhibition after exhibition, the research plan is to continue developing physical samples of the data feeds, materializing the 'geo-engineered troposphere' and exploring ways to inhabit it, tapping therefore into functions.

It is a project with a broader goal linked to many former and future projects by fabric|ch, as the question of how to inhabit such strange architectured (or 'deviced') atmospheres remains open[4]. The Swiss-based collective started therefore to look into functional explorations of this 'geo-engineered' climate[5], into architectural environments that would locate themselves within, or just use this *deterritorialized* atmosphere (conditioning).

For this purpose, a new project was recently initiated in their office between architects and scientists, code name Algorithmic Atomized Functioning. It is thought to become a highly configurable generative platform, almost an artificial intelligence based on the learnings gained through the many experimental projects that have been done over the years. A program that will 'sense' its environment, both physical, biological, physiological and digital (or more prosaically, be fed data coming from a number of heterogeneous sensors and data inputs) and functionally respond to it. Obviously, the idea behind this project is to retroactively scrutinize former projects that brought up the question, but also to clearly tackle the 'smart space' or 'smart city' question, from a different approach.

As the temporary name of the project states, it should help fabric|ch to illustrate and systematically explore new ways of functioning within such (contemporary) environments, in a generative way, allowing therefore for

[4] This question of exploring ways to inhabit architectured or 'creolized' atmospheres already emerged in the work of fabric|ch with projects such like I-Weather, in collaboration with architect Philippe Rahm, 2001 and 2009; RealRoom(s), 2005; Perpetual (Tropical) Sunshine, 2006; Satellite Daylight, 2007; Tower of Atmospheric Relations, 2008; or more recently Gradientizer, 2012.

[5] An inspiring project to reach this goal was the one developed by the architect Philippe Rahm in the initial context of a research project led by myself at the University of Art & Design, Lausanne (ECAL), back in 2007: Form and Function Follow Climate. *http://sketchblog.ecal.ch/variable_environment/archives/2006/12/philippe_rahms.html.* The project developed later into an exhibition at the Canadian Center for Architecture for which fabric|ch led the software and display development.

many variations based on conditions and time. The functions will be atomized to their smallest parts (variable grains) so to allow the reorganization and the discovering of new aggregations.

We started to test it using the feeds coming from *Deterritorialized Living*, with a simple configuration (three visible *Deterritorialized Daylight* sources and two *Deterritorialized Air* generators —CO_2—) and with the idea to discover how we would live within this artificial troposphere. [fig. 8]

... And the designed program, still in its infancy, responded with a loosely structured 'house' that has no stairs[6], as it is a stair in itself. Non-hierarchical, yet vertically organized around a cooking area (best suited functional elements for the very bright luminous conditions and good air quality that were delivered by the data feeds at the time the program ran), the 'house' logically deploys very few sleeping areas but many small working spaces around this vertical axis.

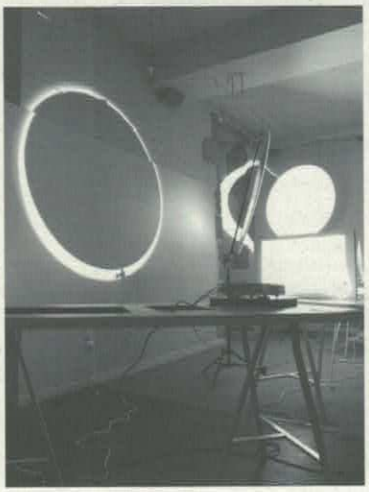
Sounds promising.

> *The artificial troposphere is freely available to architects, artists, designers, scientists and makers of all kinds in the form of different 'services':* Deterritorialized Air (N_2, O_2, CO_2, Ar), Deterritorialized Daylight *(visible light Intensity,* IR, UV*) and* Deterritorialized Time (HH:MM:SS)[7]. *Additional feeds and refined rules will be added over time to mature this generated atmosphere.*
>
> *Following the link 'Access to the open data feeds', people can retrieve the material to drive experimental devices, interfaces, software and speculative livable environments.* ◊

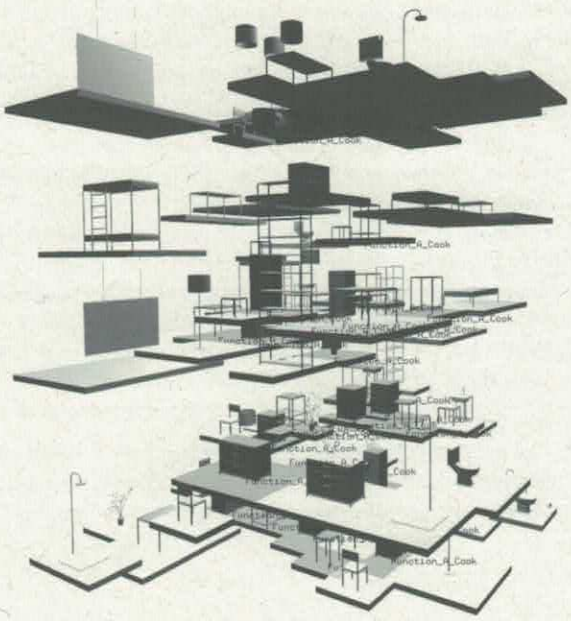
[6] We must observe that due to the initial design statement to work only with 'atomized' functional elements and look for their conditional reorganization, the 'house' traces interesting formal parallels with the recent work of architect Sou Fujimoto. In particular House NA, 2011.

[7] Deterritorialized Living open data feeds can be found and freely used on the web server of the project: *http://www.deterritorialized.org*

#7
Deterritorialized Daylight
Exhibition during 'Soleil numeriques' at the Festival Acces(s). Curated by Ewen Chardronnet
Pau, France
2013



#8
Fabric | ch
Deterritorialized Living
Exploited axonometric view



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