The syntactic logic of street vending and market activity: 
A case of Jakarta

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I. Perception of the environment, movements and the organisation of functions

One of the main premises in space syntax is to think the network of streets as effective device to organise movements, which then influentially affect the pattern of urban function. As said in Hillier (1996), the spatial configuration of urban grid creates topological inequalities as particular location attracts more movements than other. The pattern of natural movement –ultimately the urban pattern itself– is then impacted on land-use patterns by attracting movement-seeking uses (e.g. retail) to location with high natural movement and sending non-movement seeking uses (e.g. residence) to low natural movement locations.

Read (2001; 2003) proposes that when analysed the city is constructed by nesting layers of different scales movements, which, again, seems correlated to the distribution of functions. In the case of Jakarta, for example, we presented earlier a spatial model consisting of two layers ‘supergrid’ spaces that appear to correspond well with the movement pattern and dispersal of public-economic activities in the city. Hence, the first layer of supergrid network, which conveys city-scale movement, seems to function as the ‘front space’ and it is the space where most of major functions serving at city-scale or even at national-scale are being found, such as companies’ headquarters, major shopping malls, etc. On the other hand, smaller functions appear to be more oriented to the neighbourhood or local scale networks, around the so-called second layers of supergrid (Read, 2003; Budiarto 2003). Street vending and market are examples of economic functions occurring at that the lower scale network.

This paper explores the possibility that the distribution process of activities is related to the process by which our perception of the environment is constructed, as much as the pattern of movement and our action are. Taking that the process is generic among different users, social behaviour is, by definition, constructed in aggregate; through collective and routinised practice. Particular pattern of activity hence emerges and is crystallised in function. Gibson (1979), one of

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the most influential scholars on the subject, argues that perception emerges as product of intertangled exchange of information and interaction between the environment and the organism – the actor. Taking Gibson’s theory of visual perception and affordance as the basis, we try to consider how the city (the environment), users (the organism, whose set of actions is product of the environment yet he is actively involved in the transformation of his environment) and functions, which in the first instance emerge as products but in later analysis appear more and more as active agents.

II. Extending Gibson’s theory of affordance

According to Gibson (1979), the environment transmits continuously a stimulus array of visual and spatial information, e.g. shape, shadows, colours, spatial layout, including values and meaning, by which organism (actor) grabs insight and determines his action at the moment, rather than through mental mediation and representation of the surroundings. The environment is then active substance continuously feeds us with information about affordances; what it potentially can afford. Gibson (1979) defines that, “...affordances of the environment are what it offers the animal, what it provides or furnishes, either for good or ill...”. Certain actor (animal) is said to utilize or occupy a certain set affordances, known as niche, in the environment. Gibson proposes furthermore that the environment contains the nesting of information that specifies affordances – although he uses never explicitly the term ‘nested-affordances’ (Mc Greene & Ho, 2000).

Gibson (1979) argues that perception emerges from active intertangled exchange of information between the environment and organism - or the user of space; and that perception is exclusively designed for action. Extending Gibson's theory of visual perception and affordance, we try to seek if there is relationship between city (the environment), the user, who actively partake the transformation process of the environment as much as the environment determines his set of actions, and urban functions, which in the first instance emerge as products but in later analysis appear more and more as active agents. As case study, the location of market and street vending in Jakarta will be considered.

Movement is directly related to the construction of perception since the changing position of the body and the surface or object means changing optical stimuli to the eyes. For example the ambient of light changes and the surface or object appears in different levels of details as the body gets closer or farther from it. In return, the direction into which we shall proceed is much
determined as well by the availability of affordance information the environment. It is thus the unintermittent exchange of information between the environment and us—as actor—that drives the course of movement and our actions toward the environment.

This paper proposes that the grain of information is composed of both visual and less-visual information nested in different layers, which help us to determine bodily movement and the use of space. It is the nested information of affordances that enables us to make estimation about distance and to navigate in cities, which based mostly on approximation whether the street in front of us leads to a more connected or segregated space. ‘Being in the city’ means that our movement and actions, e.g. ascribing use or function to certain place, are largely determined upon the affordance information in the materials of the city. We perceive, for example, that certain space potentially allows particular activity to be carried out while constraints other; or so to speak certain space affords collective, semi-collective or private use.

III. Nested-affordances of the city, users and function

Activity occurs in fact as a sort of aggregate perception and action of different users, which is possible when the environment, the materials of the city, creates positive affordances and transmits this information. While we start from thinking human as the actor who actively involved in perception of the environment, it turns out that activity occurs in fact from a sort of collective perception of users. This is only possible when the environment itself, in this case the materials of the city, creates productive condition and communicates it to us. Following the line of arguments in Space Syntax, the syntactic logic of space is the simplest means of communication by which the materials of the city provide directives to our movement.

I opt then to transpose the term ‘actor’ to ‘activity’ or ‘function’ instead of exclusively to animal organism as Gibson did, e.g. human-actor. By ‘function’ I mean not the object or thing but the process through which a particular collective behaviour and action of different users become actualised and constituted in specific location, in which the specific set of affordances for that particular behaviour or action, a niche, is provided. For example, the market as ‘function’ is not about the construction or collection of shops and stalls but it is about the specific condition that created in certain place where the movement pattern of buyers and sellers crosses each other, as well as other affordances (specific to that activity) are becoming located in that specific spot of place, namely where the movement pattern of buyers and sellers crosses each other, as well as other affordances (specific to that activity) become concentrated in that specific spot of space. Then, movement in itself is, not less than physical objects, a form of affordance; it affords function to emerge and to some extent critical to its existence. The speed of movement on the street as well as modality have, however, influence over the exchange of information and quality of communication in city. Low speed movements, for example, allows different type of communication and exchange of information of commerce compared to high speed movements, which thus implies the presence and possible variety of experiences of different time-space structures in the same spot of space.

Each function needs certain set of affordances, which involves again external and internal representation. What belongs then to internal and external representation for affordance of
function? Let us consider a simple example, a marketplace. The availability of critical number of particular group of people (potential users) concentrated and served at certain location, for example is one of internal representation needed by function in order to emerge and to keep exist; just as human body will cease to exist at the moment that bodily organs are tearing apart). Other example of internal representation is the existence of system (or institution) facilitating and regulating economic exchange among the users, similar to the fact that our bodily organs need certain function of coordination, as said before, needs a certain number of sellers and buyers as threshold. The obvious example of external representation is the availability of space where that certain set of affordances is available, or to be specific, the availability of location that reinforces high probabilistic interface between sellers and different groups of buyers, from the locals and the strangers in order to enable continuous contacts and sustainability of the activity over time (e.g. similar to the function of air to respiratory organs). Another example of external representation is good connection to main trading routes and transport systems to afford logistical supports.

To carry this idea further, I start with the following two propositions. Firstly, the set of affordances needed by a particular activity is generic and goes across socio-cultural and geographical boundaries. A traditional marketplace, for example, needs similar set of affordances (as partly described above) either it is situated in European, Arab or Asian city. Secondly, once emerged the activity is capable to be self-sustaining to some extent and generates (or transform) a set of affordances which either further proliferate or inhibit other activities. For example, a marketplace collects a mass of people and generates regular movements of people coming to and from that single space, hence as effect it generates positive affordance to functions demanding high probability of contacts to wider public, for example to activities that involve social gatherings, and it emits negative affordance to those demanding less. Following the example, it is necessary to mention that the negative affordance is not automatically the negation of the positive one (e.g. some activities do intentionally avoid contacts), but it occurs as effect of the positive affordance (e.g. some activities cannot afford for being situated in particular location due to the limited availability of space).

IV. Street vending and the nested layering of urban networks in Jakarta
In Jakarta, beyond the site for commercial exchange, the function of market extends to social exchange, which involves mental and social dimensions. Its sustenance lies in the expression of social contacts, besides economic motives. Market and street vending activity are concentrated, in most cases, around the so-called city-scale movement networks (see map on the poster). Our concern here is to explore why that particular location can potentially afford the activity: what the place offers to which activity and users? Using examples from the axis Thamrin-Sudirman and surrounding area of Tanah Abang (see poster), I try to explore the possibility that there is a relationship between the layering of urban network in Jakarta as described in previous study, the type of movements and the dispersal of vending activities. An assumption is taken: different types of movement as imposed by the layering structure of urban network create different set of affordances for different vending related activities. A series of pictures taken while moving along the axis and around the district will be presented to show the changes gradient of information and activities as an example of effect-to-effect relationship.
As we move down from metropolitan to city to local scale, our observation shows that the affordance information (with regards to particular scale in the network) and the activities around that particular networks are highly correlated. In the metropolitan scale, for example, the network-connection allows seamless connection to regional scale, extensive use of highways, high-speed transport systems and cars, while access by other modalities and public transport are limited. The network thus constraints (negative affordance) non-motorised movements, limited access/ restriction for e.g.certain modalities of transport, crossing-over the street is only possible at limited places and big plots of lands/ buildings deter interaction to surrounding areas. This set of affordances produces a specific set of space-use, in the sense of street vending, as follows. As the spaces are allocated for metropolitan functions, streetside activity is minimal. Due to daily traffic jam, in average commuters, spend between 4 to 6 hours/day in car. For vendors, this opens up business opportunities for on-street selling (ranging from low-priced merchandises to refreshment products to snacks and drinks), street artisans and beggars. Rent-a-kid become quite 'handy' as in peak-hour the axis is restricted for car carrying less than three passengers.

The above correlation seems apparent also in the lower scale of network, namely as we move from the city to the local scale. Here, most parts of this subsidiary network of streets are well connected to both the metropolitan and local scale. Besides cars, different modalities of movement are found, ranges from different speeds. Around Tanah Abang, into which we zoomed in, streets are crammed with stalls, which lower down the speed and allow intensive contacts, visual and less visual, between moving-user and the surroundings. The space is the appropriated
for different uses that in the case we presented before. Here we find that small enterpreneurs are taking the opportunity to transform streetsides into an economically productive site, replacing on-street selling as in the previous case. One street behind, trading-related-activities decrease gradually being replaced by food-stalls, which offer place to rest besides inexpensive meals. Farther down into the local scale, the concentration of public activities is again downsized and replaced by more domestic-tinted activities.

V. Ending notes
Seeing 'function' or 'activity' as actor in the city, besides human-actor, should enable us in further analysis to shift attention from considering functions or activities in isolation and to start considering the active interaction among them and their ecologies of presence in the city. In this perspective, the city is active ground offering different sets of affordances composed by different materials, including those of 'static' and 'dynamic', such as flows of people, goods, information and capitals. In the case of Jakarta, it seems that the information about what space can afford changes as one moves from the metropolitan-scale urban network -or the first layer of supergrid- to the city-scale to the local or neighbourhood-scale.

This different appropriation of space is, in the first instance, related to the mechanism of information exchange between users and the city; that become intensified in different levels as we shift between networks. As far as movement is concerned, it seems that the affordance information changes in the possibility for access (from public to private, for example, or by changes of speed and / or modalities of movement. The logic of market location and street...
vending concentration lies not in the affordance of the location itself, but related to the affordances that the network provides in that location, which means that movement matters. Taking centrally connected location -to both metropolitan and local scale movements, means to be favored as there is continuous presence of people. This suggests that a strong natural interface is likely to take place between the local residents and the strangers in the marketplace where products and services are offered. That will, in return, reinforce an even stronger probabilistic interface involving an exchange relationship between the sellers and the two different groups of buyers, the strangers and the locals. It seems then that the choosing of market location has to do with creating productive condition for the public or social life, which is not directly related directly to selling activities, but helps to sustain its commercial function. This is, in my view, firstly indebted to the flows of people movement to, from and around that place.

**Bibliography**


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