The Notion of Scale and Charles S. Peirce´s Categories

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In a 1990 work entitled *"Le Processus interprétatif"* (The Interpretative Process) and subtitled *"Introduction à la semiotique de C. S. Peirce"* (Introduction to C. S. Peirce's Semiotics) which I consider to be eminently pedagogical and of a welcome clarity with respect to its treatment of Peirce's semiotics – of which we cannot say that it is an easy theory –, the author Nicole Everaert-Desmet devoted a few pages to architecturology.[1] Using the concepts for signs that are characteristic of Peircean semiotics, the author examined, inter alia, the concepts of «architecturological scales» which I had identified at a time when I was carrying out an empirical study of polisemy in the term *scale.*[2]

Nicole Everaert-Desmet maintains that architecturology – which according to her is too influenced by a Saussurean binarism – should find the means to move on to a more Peircean vision and, consequently, triadic view of the sign. It is the author's view that such a change would help to advance the interpretation given by architecturology on the facts concerning architecture.

In that chapter (practically a conluding one) the author closes as follows:

In conclusion, Philippe Boudon's definition of the concept of space – as a means for the utilisation of references in conception or perception – seems to us quite relevant not because it would be specific to architecture but because it introduces us to the general dynamics of an unlimited semiosis. According to Philippe Boudon an architecture takes on meaning through the space of reference with which it is put in relation; namely, the scale. The meaning of a sign, Peirce tells us, is the sign in which it can be translated, it is the interpretant.

After having considered that the examples examined by the author were actually more related to *perception* than to *conception,* which architecturology has deliberately ascribed to itself as object of research, I became caught up in the game and began, in turn, to re-examine architectural facts – but focusing instead on *the facts of conception* – in the light of Peircean semiotics. I would like to try and give you an account of this work in progress, as the time allotted will permit. Because if we were to take the number of *architecturological scales* – term that I shall explain shortly – which amount to twenty and multiply it by the number of Peircean signs, i. e. ten, we would end up with two hundred

cases to be studied. So, on this occasion, I cannot cover such ground in an exhaustive manner although I have already done so elsewhere and although it is precisely its exhaustivity that makes it of interest to me. I shall select a few illustrations only.

In parallel to the above work, the connection to be established appeared sufficiently meaningful to incite me to delve into the question of a Peircean approach not only to the architecturological scales themselves – and I shall come to that – but also to the unfolding of their constituent operations – i. e. *reference, segmentation, dimensioning* – as well as to *the facts of measurement*.[3]

One last word to conclude these introductory remarks: all the matters discussed here concern the *space of conception* of architecture that I distinguish from architectural or built space. Though both give rise to semiotic processes, I shall be dealing only with the first of these spaces from the viewpoint of architecturology.[4] It is one thing for architecture to be an object of meaning pertaining to reception once it has been conceived and realized; but meaning is also at play in the process of conception and it refers back to those operations through which the architect thinks out architectural space.

I am aware that I must now get to the crux of the matter by taking a few concrete examples. Here, I have chosen to approach the issue through one case, the one dealing with the *neighbouring scale*.[5]

The case of the neighbouring scale

Nicole Everaert-Desmet writes about the *neighbouring scale* and clarifies the notion in a simple manner for those who are not familiar with it. I quote: "Let there be a building X (= R, real space) we create an image of this X (= O, represented space) through a reference to the neighbouring buildings Y (= space of reference)"

In Peircean terms X, here, is *representamen*, image of X is OBJECT and Y – it is taken for granted – is *interpretant*.

Of course, I fully agree with this analysis through which we understand for example, how the neighbouring buildings of the CNIT in Paris have changed either the *scale* – as the architect would put it – or if you wish, the image, as Everaert-Desmet says.[6]

For me, I saw the building actually *get smaller*!

With respect to the phenomenon of *perception* we can surmise that the architect who designs a building takes per-

ception into account in the course of *conception* and that he represents the perception to himself by anticipating the process (the degree of accuracy or inaccuracy matters little since that is not what is at stake here).

It is nonetheless true that the neighbouring scale, if implicated in the *conception*, and with or without anticipation of the perception, is not a lone actor, exceptions included. For there is a complex articulation being woven between this scale and other scales as I would like to try to show with respect to the Nordic Bank of Helsinki by the architect Alvar Aalto.

The case of the Nordic bank of Helsinki

This very classical case is apparently simple: a major choice was made by the architect in terms of conception. He decided to connect the height of this building with the height of the two neighbours by descending from the higher to the lower level through a kind of broken pattern which – let it be said in passing – is characteristic of Aalto's aesthetics (we are familiar with the recurrence of those kinds of broken patterns in his work).

This example presents itself as a obvious case of neighbouring scale, a scale from which other architectures that one might have in mind, differ. The latter came on the scene without particular consideration for the context and were referred to by architects as an "architecture du Plouf" ("Splash Architecture").

But can we say that in such a case "we have an image of the building in relation to its neighbours"? Possibly yes, as is the case for any building situated between its neighbours. The fact remains that what is taking place here, through the strict alignment of two heights is of a different order, of the order of conception. Every building is perceived in relation to the presence of its neighbours. But in this case something more is taking place. Namely, a voluntarily meaningful operation through which the building's designer makes a decision on heights. Here we move from consideration of the architectural space to consideration of the space of conception.

The problem for me here is not to make a value judgement on a contextual or non-contextual architecture as a form of critical assessment. Nor is it a question of undertaking a semiotic analysis of meanings as they relate to each other. Such an analysis – while totally valid – would place itself within the architectural space as we perceive it, whereas

the intention of architecturology is, as I have said, to bring about a displacement in the space of conception.

In this space of conception, a number of operations will take place giving rise, at the end of a given process, to a constructable architectural object which at this stage, by definition, *does not yet exist*. And it is necessary to recognize that here the architect undertakes complex "operations", the complexity of which requires that we stop and reflect on them a bit.

To begin with, the architect is going to articulate numerous scales: *a scale of model* (in Alvar Aalto's production the broken pattern is practically a model); *an economic scale*, where the occupiable space will depend on the acceptance or not of the architect's proposed broken pattern by the client; possibly, a functional scale, which deals with the commensurate reduction in floor area as compared with those floors that are full sized. I might recall that a scale is defined as the relevance of the measurement; the preceding three are examples of it.

It is out of the question to account here for the entire process of conception since it would entail carrying out a study of a given or several designers. My preceding remarks should be convincing enough for one to realize that the neighbouring scale cannot be reduced to a simple and single decision operation for a stair-step form, to give it a name.

In addition to the articulation of a multiplicity of scales, the idea of which commands attention, it is necessary to say also that the term "neighbouring scale" is complex in itself because it refers to a number of things.

Firstly, there is *reference* to the street, which implies a scale decision (to take another example of such a "reference", the *Arche de la Défense* "refers itself", intentionally or not, to the historic axis to the east of the arch, from the west of Paris on the very same axis).
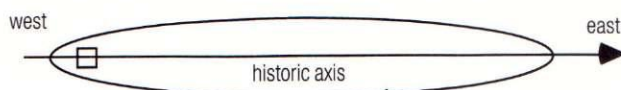

Also at stake, we have a *segmentation* of the architectural object into different parts, either vertical (at least two)or horizontal (at least two). Two take an example – another Alvar Aalto building –, the MIT dormitories in Cambridge

(USA) involve such a segmentation between one side oriented towards the Charles River and one side oriented towards the MIT campus.
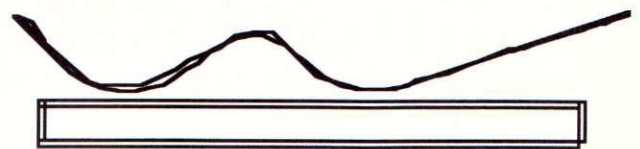
Lastly, to speak of a neighbouring scale corresponds to observing an operation of *dimensioning*: the building is well measured on both sides by its neighbours. Three diagrams allow us to distinguish these three aspects of neighbouring scale thus described.
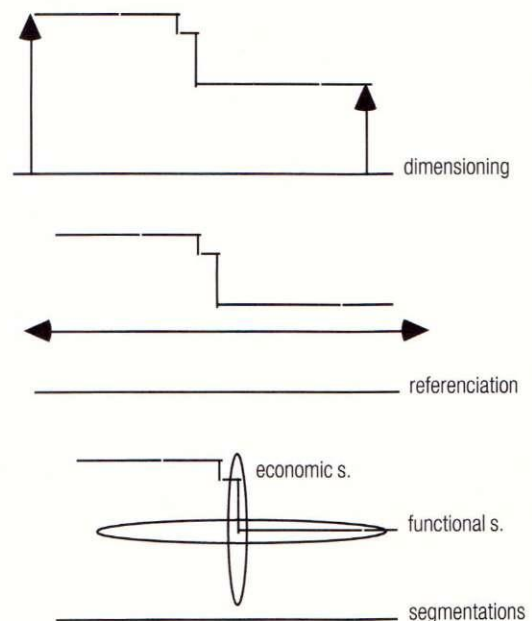
This brief analysis shows that we encounter here the major architectural concepts of *reference, segmentation, and dimensioning* as a means by which to specify more precisely the particular situation under which a given scale may be present. Our case corresponds to the neighbouring scale. The above operations have been described elsewhere.[7]

And it is precisely at this stage that the Peircean categories for signs can intervene in a timely manner.

Architecturological triad and Peirce´s categories

Leaving the example of the building we have just examined, we can consider that, generally speaking, the word "scale", as used in everyday language, may be applied to any of the above operations.

I can speak of a necessary or unnecessary policy for a single currency "on a European scale". Thus, I apply my remark to Europe, *I refer it* to Europe. But taking Europe into consideration I may include the ten, twelve, seven, or twenty-five member units... and thereby *segment* the object down into another given scale. I can also consider the *dimensions* of a given phenomenon such as unemployment or the quantity of mad cows in the European territory. In such a case we have a quantitative operation at play, a measurement operation, a taking of *dimensions...* We see how the use of the word "scale" applies to three distinct types of operations. Let us now transfer the word scale to an area with a more restricted utilisation and let us come back to the field of architecture and of its conception. We find operations such as scale adjustment or giving scale, which refer themselves respectively to problems of *segmentation* and *referenciation:* "adjust to X" (in the case of the Aalto building we examined scaling it to the neighbourhood) means referring the conception of the building to its neighbours, whereas "to give it scale" means in this case to dimension the building according to the height of its neighbours. In fact, the reference could have been completely different and might have corresponded to a common colour or to the repetition of an identical pattern, or even to a given material, etc. in order for the operation to take place... Things can be clarified formally if we say that to scale-adjust pre-supposes *referring* x to y, *segmenting* from x attributes which are related to attributes in y, and, lastly, *specifying* these attributes -reference, segmentation, dimensioning, with respect to the terminology that we have proposed, to deal with measurement questions as regards architectural conception (Unfortunately I cannot be more explicit on that here).

To come now to Peirce and set a relation between the Peircean categories and the three architecturological concepts through which we have presented the three constituent operations of scale, i. e. *reference, segmentation, dimensioning.*

The Peircean categories offer the enormous advantage of enabling us to envisage three quite distinct meanings for *neighbouring scale,* if we limit ourselves at first to this scale only, it is broken down into the following constituent operations:

- *referring to the neighbours* belongs to the order of *firstness.* For it is possible for me to have the intention to make reference without having yet decided on how to do so. As an example of that possibility I could refer to the neighbour through a common colour. The reference belongs to the possible and therefore fits in well as such with Peircean firstness;
- *segmenting the building* in two parts belongs to the order of *thirdness* – here we have an obvious thought operation;
- *dimensioning* the height of the building in relation to that of the neighbouring buildings belongs, lastly, to the order of *secondness*, or, as Peirce would put it, the relation of a first to a second. We are dealing with the actual. We find ourselves in the existing, in secondness.

I found the possible coincidence between the Peircean triad and what we could call the architecturological triad – *reference, segmentation, dimensioning* – to be illuminating enough to justify my undertaking a systematic examination of the possibility of establishing a correspondence between the twenty architecturological scales and the ten Peircean categories for signs (as opposed to the Peircean triad, since we know that, with the triad things get even more complex). I cannot give you a full account here, but I could provide you with a list of the results as they affect the neighbouring scale.

"Neighbouring Scale" and C. S. Peirce´s categories for signs

1.1.1 *Rhematic iconic qualisign*

A feeling of homogeneity for the general skyline of a row of houses in a street, a village, a city; a generally integrated project with respect to its neighbourhood – a feeling of harmony between a building and its surroundings; a "contextual" impression.

2.1.1 *Rhematic iconic sinsign*

A reuse of the form, of the colour(s) of neigbouring building(s).

2.2.1 *Rhematic indexial sinsign*

A reuse of a ridge height or of a string-course or of any

other attribute arising from the contiguity, without interpretation.

2.2.2 *Dicent indexical sinsign*
A string-course/ridge line at the same height as the adjacent building , with the whole being interpreted as an entity – The building becoming a sign for the surroundings with which it is related.

3.1.1 *Rhematic iconic legisign*
A "type" of houses proceeding from an environment - An identifiable "zone" through a vague feeling.

3.2.1 *Rhematic indexial legisign*
A compulsory building height in relation to the corresponding height of its neighbours - an outline, a design linking the heights and horizontals of a building to those of its neighbours.

3.2.2 *Dicent indexial legisign*
A part or an aspect of a building indicating a relation with a neighbouring building – a building outline intended to give an identity to an entity such as a street, a square, etc.

3.3.1 *Rhematic symbolic legisign*
A word indicating a relation of proximity, "outline", "skyline","context"…

3.3.2 *Dicent symbolic legisign*
The formulation of an outline rule, an *idem* word relating to a particular case.

3.3.3 *Argumental symbolic legisign*
A) Abduction – Building height interpreted as emanating from an intention relative to the surrounding area (The Nordic Bank interpreted as emanating from a deliberate intention by Aalto);
B) Induction – Formulation of a building outline rule (The Nordic Bank as proceeding from a self-imposed rule by Aalto);
C) Deduction – Design decision arising from an imposed neighbourhood rule or self-imposed by the designer (Management of the consequences of the Nordic Bank's general plan: cascade-effect relations with the economic scale, the functional scale, the scale of model).

"Scale" and Peircean triad

I shall come now to the architecturological concept of *scale* from the point of view of its most general definition. I have defined the concept of architecturological scale as relevance of measurement. Here again it is possible to undertake a Peircean reading of the three major charcteristics of scale. Subsequently, we will be able to clarify considerably what is at stake in this notion by noting in the respective corners of a triangle the three words indicating what is diversely implied in the polysemic use of the term.

The three words involved are grandness, measurement, and relevance. Allow me to explain.

The first term, grandness, is referred to in Merleau Ponty's expression "*grandness before the measurement*".[8] He devotes a dense and challenging page to the notion and that effort leads me to consider that the relation sometimes established between phenomenology and phaneroscopy though subject to our taking some precautions, could explain why it is the phenomenologist who provides us with the expression of that which refers us back to firstness. In fact, another phenomonologist before his time – and here, I am referring to Kant had eloquently pointed out the difference between what he called aesthetic and mathematical measure. We can say that Saint Peter's in Rome "is grand", *before* we measure it or discover its measurements.

Grandness *before* the measurement, this "before" is a perfect expression of grandness. The measurement comes in only secondly, once it has, in of itself, put a first and a second in relation to each other; something measured and an instrument of measurement.

The measurement then belongs to the order of secondness. Let us note that it is a pure fact. This does not imply the idea of relevance; here I do mean idea; in other words, it means that we move on to thirdness. Whether the number of windows of a building is or is not equal to the number of cigarettes that I have in my pocket, it (the number) remains a fact independent of our knowing whether it is shrewd or not, relevant or not to measure the number of windows utilising the individual units inside my pack of cigarettes. Relevance appears then as the third characteristic which interprets the measurement, or, *thinks it out*,we might add. To measure a table in fractions of light-years or in microns is not relevant at all. Asking a joiner to make a table whose length is expressed in centimeters is probably relevant; however, if the joiner happens to be more of a carpenter and works with an axe or, instead happens to be a cabinet maker who works meticulously with a chisel, I might decide to vary the relevance of the measurement through which my order will pass, being more precise in one case, less precise in the other.

Thus with respect to measurements it is quite enlightening to distinguish three levels: that which belongs to *firstness*, in which case we could speak of *aesthetic measurement* – grandness; that which belongs to *secondness*, in which case we would speak of a *quantitative measurement*,that is the measurement in its most actual meaning as it relates one instrument of measurement to a measured object; and lastly, that which belongs to *thirdness*, in which case we would speak ot the *relevance of the measurement*, namely, all that which is commonly referred to under the term scale; that is, a just,an adequate measurement, a measurement that is thought out and intelligent.

To conclude, according to the present hypothesis, the words "grandness", "measurement", "relevance" can be noted respectively in the three corners of a triangle to represent individually the three Peircean categories of firstness, secondness, and thirdness.In my view we thus clarify substantially the inherent complexity present in an otherwise rather imprecise use of the term scale.[9]

relevance

grandness   mesu   measurement

thirdness

firstness   secoi   secondness
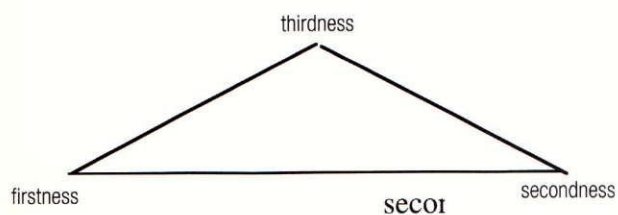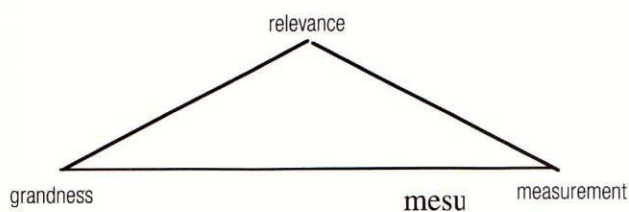
Grandness is the grandness perceived in the firstness, the measurement is the concrete and actual act of measuring and, lastly, the relevance of the measurement corresponds to the meaningfulness of the measurement as intellectually conceived. I imagined this triadic distinction before inves-

tigating the possibility of applying it through the Peircean categories; I believe that the correspondence established with the categories confirms that the distinctions introduced among these notions will clarify the complexity of phenomena at play in scale, both within the limited field of architecture as well as beyond architecture as such.

To conclude, I shall come back to Nicole Everaert-Desmedt, what she writes and which seems very important to me. She states that the interpretant is not the space of reference but rather the scale, i. e. the modality according to which a space of reference is utilized in conception.

When she states, as I have already quoted, that "in conclusion, Philippe Boudon's definition of the concept of scale – as a means for the utilisation of references in conception or perception – seems to us quite relevant not because it would be specific to architecture but because it introduces us to the general dynamics of an unlimited semiosis", Nicole Everaert-Desmedt pinpoints the pragmatic side of architecturology according to which scale *operates*[10] in the same manner as the Peircean sign *operates*.

I believe that distinguishing the space of reference from scale, which is the relevant operation rendering the space of reference active in conception, brings us closer to the possible understanding of meaning within the space of conception, from the perspective of what the signs *effectuate* as opposed to what they are. And, this is why I intend to pursue work on the closer association between architecturology and Peircean semiotics. What I have referred to as the space of conception, to distinguish it from architectural space, which is the finished product of work in architecture, belongs indeed to the realm of the pragmatic since it corresponds to the space where architecture *is done*.

Barcelona June 1996 Philippe Boudon

Notes

1. N. Everaert-Desmedt, *Le procesus interprétatif, introduction à la sémiotique de C. S. Peirce*, Liège, Mardaga, 1990.
2. Cf. P. Boudon, *Introduction à l'architecturologie,* Paris, Dunod, 1992.
3. As a prerequisite to becoming research director, Philippe Deshayes attempted a particularly interesting systematization of what had originally constituted an empirical inventory of such facts.
4. It goes without saying that we are not denying that architecture may convey sense in its constructed state, or in its designed state, in the finished buildings; moreover, it is such a state that serves as a starting point for a potential semiosis. It is perception precisely, or, more generally, reception that enters , inter alia, into play here: one might even dare advance that without per-ception there is no meaning. Nevertheless, the basic architecturo-logical idea that the building is the representation-of-a-project-that-has-preceded-it and without which it would not exist leadsinevitably to allowing meaning, or at least a portion of it, to beconstructed in conception – even if it is normal for meaning to beestablished still *a posteriori* in an endless semiosis once the buildinghas been built. The pragmatic side of Peircean semiotics allows it to shift the facts of meaning of built architectural space towards what I have called the space of conception. Thus, regardless of whatever meaning may find place in the finished building – a task that I shall leave for others to discuss – it is true also that meaning lodges itself in the work of conception itself and that it is worthy of our study.
5. P. Boudon, P. Deshayes, F. Pousin, F. Schatz, *Enseigner la conception architecturale, cours d'architecturologie*, Paris, Ed. de la Villette, 1994.
6. Which comes down to the same since there can be no image without scale.
7. P. Boudon et al, op. cit.
8. Merleau-Ponty, "Le visible et l'invisible".
9. Cf. *De l'architecture à l'epistémologie, la question de l'échelle*, Paris, PUF, Nouvelle Encyclopedie Diderot, 1991. Under the direction of P. Boudon.
10. Here we have a patent example of the pragmatic aspect of architecturology in the sense of Peirce's pragmatism: the sign operates.

"The hammering machine", Manne Lodmark.