# Mental "structures" in the Berlin school of Gestalt Psychology: can sensation be described as "structural"?

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**Abstract.** It is not exaggerated to affirm that the modern notion of structure arises in Koffka's *Growth of the Mind* and in his following article, "Perception : An introduction to the Gestalt-theorie" (1922). The importance of the notion of structure as Koffka uses it lies in the fact that it is designed to replace the old empiricist notion of "sensation" as a real and separable element of the phenomenal field, corresponding to a definite stimulus. But, yielding to many suggestions by Köhler, Koffka does not only understand the interdependency of sensations in a structure as a causal one: in fact, he decidedly understands it as a logical one. Thus he defines structures as "very elementary reactions, which phenomenally are not composed of constituent elements, their members being what they are by virtue of their 'member-character,' their place in the whole; their essential nature being derived from the whole whose members they are" ("Perception", p.543). I mean to show that the parts in such structures can only be what it is classical to name "relational attributes" or "relational predicates". In other words, structures are now internal relations between their terms, and more precisely still "directly constitutive internal relations", not internal relations reducing to the existence of their terms as were the internal relations against which Russell struggled, but relations to which their terms reduce. But the real importance of this notion of structure is that it rests and is built upon a truly impressive amount of empirical data. Nevertheless, I want to show that Koffka's conception of sensation is fundamentally impossible to conceive, and that the belief that it is empirically grounded rests mainly on a confusion between abstraction of a sense-datum and real separation of the stimuli underlying such a datum. As a consequence, phenomenal structures, if they exist, can only be external to their terms, as they are in Köhler's view, in spite of many ambiguities in his formulations. However, I will end by showing that, correctly understood, the notion of structure can still be of great help in phenomenology and psychology since it provides a naturalistic means to understand how a non-intentional "meaning" can be passively present at a sensory level.

**Keywords:** Structure ; Internal relations ; Sensation ; Gestalt psychology ; Phenomenology

## Introduction

My main aim in this paper is to object to any kind of "structural" theory concerning sensation, meaning by this any theory which claims that one cannot attribute a relation to a sensorial content without intrinsically altering it. In philosophical terms, such a theory would refuse to acknowledge a distinction between "knowledge by acquaintance" and "knowledge about": it would argue that all so-called "knowledge by

acquaintance" is only knowledge so far as it is knowledge of the *relations* of a sensorial content, and that this content itself is ultimately reducible to those relations. Thus, a "structural theory of sensation" is essentially emphasizing the primacy of relations over sensations. Such was the neo-Hegelian approach to sensation at the end of the Nineteenth Century, whose most famous representatives were T.H. Green and F.H. Bradley. As William James put it in his *Principles of Psychology* ([1],[2]), quoting T.H. Green:

> "The only reals for the neo-Hegelian writers appear to be *relations*, relations without terms, or whose terms are speciously such and really consist in knots, or gnarls relations finer still *in infinitum*. 'Exclude from what we have considered real all qualities constituted by relation, we find that none are left' 'Abstract the many relations from the one thing and there is nothing … Without relations it would not exist at all.' [T. H. Green, *Prolegomena to Ethics*, §§ 20, 28.] 'The single feeling is nothing real.' 'On the recognition of relations as constituting the *nature of* ideas, rests the possibility of any tenable theory of their reality.' [*Introduction to Hume*, §§ 146, 188.]" ([2], p. 10).

Thus, it is T.H. Green who first developed most clearly a "structural theory" concerning sensation. Bradley's point of view is more complex (as was particularly well shown by Peter Hylton [3]), since he also tried to reduce all external relations to internal relations, but then wanted to prove the unreality of internal relations themselves: for what he really tried to demonstrate was the unreality of *all* kinds of relations. Following the path of Russell and William James most notoriously, I shall then reject Bradley's first move, and defend externals relations against their reduction to internal ones; but then I shall nonetheless take over the arguments Bradley uses in his second move, against certain kinds of internal relations.

However, it is less known, and more directly interesting to us here, that the Berlin school of Gestalt psychology, when it first introduced the notion of "structure" in its contemporary meaning in psychology and philosophy, was itself mainly concerned with developing such a structural theory of sensation, in the neo-Hegelian sense just used. But it seems nevertheless that Gestalt psychologists never had any kind of *a priori* bias or leaning towards neo-Hegelian thinking when developing this notion of "structure" as it is still used today, and on the contrary always showed public disdain for what they called "romantic" theories of nature[1]. Even this disdain itself was only formulated as an answer to psychologists who precisely read Gestalt psychology as a new kind of neo-Hegelianism. Hence, there is no reason to think that this disdain was simulated, and more reason to think that Gestalt psychologists only discovered the possibility of tracing their theories back to neo-Hegelianism when reading the commentaries of others. Indeed, it is mainly Kurt Koffka who, among Berlin Gestalt psychologists, clearly developed a structural theory of sensations in *Die Grundlagen der psychischen Entwicklung* (1921, translated as [7] in 1924, first edition), and in his following article in English, "Perception : An introduction to the Gestalt-theorie" (1922, [8]), but this structural theory almost entirely disappeared in his late master work, *Principles of Gestalt Psychology* (1935, [9]), which largely explains why this aspect of Gestalt psychology seems to be widely ignored today, even though it remains as one of the central reasons for the influence of this school, especially among philosophers such

[1] See Köhler [4], pp. 153 f. ([5], p. 30), and especially his detailed answer to G.E. Müller on this question in [6] ([5], pp. 379 f.).

as Merleau-Ponty, Cassirer and Scheler. Now, as far as I know, Koffka never clearly explained why he had to abandon his initial theory, but the fact that it finally appeared to him linked with neo-Hegelianism may very well be one of the reasons for this disappearance. Nevertheless, I want to show that there are other reasons which go much deeper than this one. But what I wanted first to emphasize is that, not being interested at all in neo-Hegelian thought, the only reason why Gestalttheory ended up formulating a new kind of structural theory of sensation is that such a theory seems at first glance to rest on *facts*. This is what makes it so difficult to untangle the intellectual situation surrounding such structural theories even today: for a great number of psychological facts seem to support them, even though, as I intend to show, those theories will prove to be logically impossible to conceive. In this paper, I want to focus on this theoretical and logical impossibility of the notion of "structure" as Koffka first introduced it, and as it is still used today when precisely employed. But, as it seems to me that the real importance of this notion is that it rests and is built upon a truly impressive amount of empirical data, I need to begin with a paradigmatic example that will reveal its *prima facie* legitimacy.

## 1. Empirical data in favor of a "structural theory of sensation"

For this purpose, I will quickly present the phenomenon known since Jaensch as the phenomenon of "colour-transformation", a phenomenon that Koffka lays great stress on since he uses it to interpret the chromatic constancy phenomena as well[2]. Koffka thus shows that all colours appear and are qualitatively determined upon a general "chromatic level" which may correspond to any objective colour stimulus but always appears as a neutral white, while the phenomenal colour of the other stimuli (which generally appear as "figures" upon this "ground") depends upon their difference or "gradient" from the "level" stimuli. As a matter of fact, these level stimuli generally correspond approximately to the center of the chromatic scale of the present stimuli, and it is the *relation* of the surrounding stimuli to this chromatic center that determines the phenomenal colour those stimuli will appear with. Most of the time, the chromatic center is the chromatic value of the general *lighting*, so that the colour of this lighting will tend to phenomenally disappear, while the phenomenal colour of all stimuli will depend on their objective difference from the lighting stimuli. This explains why the figures we actually see always tend to appear with the same colour they "truly" have, even when seen under coloured lightings: inasmuch as the lighting covers both figure and ground, the "gradient" between them remains constant, whatever the objective colour of the lighting may be. But the "colour-transformation" phenomenon is most striking when the light on the figure is isolated, while the lighting on the ground is slowly changed. For, this time, the objective difference between the stimuli corresponding to figure and ground is accordingly modified, and the result is that the ground remains phenomenally constant while the colour of the figure changes under our eyes. For instance, if a "white" figure seen under neutral light is isolated from its "white" ground seen under a yellow light, the eye gets a neutral stimulus upon a "yellow" level, but the objective difference between figure and level will then seem to be "translated" so that what will actually appear is a "blue" figure upon a white "normal" ground. Thus, this phenomenon is extremely paradoxical if one still believes

[2] See Koffka, [8], pp. 567-570; [10], pp. 334 f.; and [9], pp. 254 f.

in what Köhler called "the constancy hypothesis" [10], i.e. the hypothesis that what really appears to us is in a continuous relation with the outside stimuli, so that it should be isomorphic to them. For here, the phenomenal figure changes from white to blue while its underlying stimuli remain constant, whereas the phenomenal ground remains white while its underlying stimuli change from white to yellow. The facts upon which Koffka built his first structural theory are thus generally facts that contradict the constancy hypothesis, and in which the phenomenal changes seem grounded on a change in the relations between the stimuli. Some of those facts, such as "contrast" phenomena, in which two adjacent colours in space or time tend to tinge with the complementary colour of each other, were known long before Gestalt psychology. But most of the empirical data used by Koffka to legitimate his structural conception of sensation is gathered from child and animal psychology. Koffka thus tries to show at great length in *The Growth of the Mind* [7] that children have to *learn to differentiate* colours and that only when they have began to do so, do colours indeed appear to them. According to the detailed interpretation Koffka makes of the facts available at the time, even "things" or "figures" do not at first appear as such to children or animals, but only as members in more comprehensive "structures" which are more immediate or instinctive to children and animals than the "thing-structure" is. But let us now turn to those structures from a theoretical point of view, and begin our examination by clearly stating the way Koffka defines them.

## 2. Koffka's definition of "structures"

The notion of mental structure first appears in Gestalt psychology in Köhler's book on *Physical Gestalten* [4] but it is mainly developed by Koffka in *Die Grundlagen der psychischen Entwicklung* (1921), though in the English version of this book (*The Growth of the Mind* [7]), "*Struktur*" is translated as "configuration", so that it won't be confused with the notion of "structure" as used by Titchener at the same time[3]. But Titchener's use of the word is no longer predominant, and as a matter of fact "structuralism" as we mean it today is largely based on the notion of structure as Koffka developed it[4]. So that it is not exaggerated to affirm that the modern notion of structure arises in Koffka's *Growth of the Mind* and in his following article, "Perception : An introduction to the Gestalt-theorie" (1922, [8]), by which Koffka first

[3] "The translation of the book … was a difficult task because of the new terminology employed, for which English equivalents had to be coined. The difficulty was increased by the fact that one of the chief terms employed, namely, *Struktur*, could not be retained as 'structure', since, as a result of the controversy between *structuralism* and *functionalism*, this term has a very definite and quite different meaning in English and American psychology. For want of a better term, we have chosen to follow a suggestion originally made by Professor E. B. Titchener, and have translated *Struktur* as 'configuration,' although I can not say that it has completely satisfied me" ([7], pp. xv-xvi).

[4] Of course this is not the place to trace the history of "structuralism". For converging views, see for instance Merleau-Ponty [12], pp. 102 f.; and [13], pp. 142 f. Jakobson himself ([14], p. 715) reminded "the assiduous attention which linguists of the two hemispheres paid to the progress of Gestalt psychology" during the development of structural linguistics.

introduced Gestalt-theorie in English, and where *Struktur* was still translated as "structure".

The importance of the notion of structure as Koffka uses it lies in the fact that it is clearly designed to replace the old empiricist notion of "sensation" as a real and separable element of the phenomenal field, corresponding to a definite stimulus. In that sense, as Merleau-Ponty put it in *La structure du comportement*, "the theory of form … tends to develop in a philosophy of form which would substitute itself to the philosophy of substances" ([15], pp. 142-143). In *Physical Gestalten* ([4], p. 55; [5], p. 27), Köhler distinguished "structure" and "Gestalt" by admitting that "structures" are interdependent elements, thus revealing properties which they would not have, were they simply added one to another as in a pure "distribution". But those properties are not only whole properties, and "structures" are not only wholes distinct from the sum of their parts, as Ehrenfels' *Gestaltqualitäten* were ([4], pp. 35-27; [5], pp. 24-25): their very parts themselves are transformed by the structural nature of the whole. This amounts to saying that the whole which unites the parts is not only "formal": it is a causal, dynamic whole, which is what a "Gestalt" means for the Berlin school of Gestalt Psychology. In other words, a mental "structure" between sensations reveals that there is a physiological "Gestalt" between their physiological correlates in the cortex. This is what the "isomorphism" hypothesis introduced by Gestalt psychologists means: each mental "form" (or "Gestalt quality") is a "structure", thus corresponding to a dynamic system in the brain. To talk about "structure" is to talk about the interdependent parts of this system, whether psychological or physiological; to talk about "Gestalt" for the Berlin school is to talk about the causal and dynamic whole which makes them qualitatively interdependent. But, yielding to many suggestions by Köhler, Koffka does not only understand the interdependency of sensations in a structure as a causal one: in fact, he decidedly understands it as a logical one. Here is how he defines "structures" in "Perception":

> "Structures, then, are very elementary reactions, which phenomenally are not composed of constituent elements, their members being what they are by virtue of their 'member-character,' their place in the whole; their essential nature being derived from the whole whose members they are" ([8], p.543).

Thus, Koffka wants to show that there are no absolute sensorial contents in our perception, but only structures. He takes the example of two squares of gray cardboard lying side by side, which we perceive to be of different grayness: can we describe this experience, as Ehrenfels and the Graz school would have done ([8], p. 536), as grounded on a comparison between two sets of otherwise atomic and independent sensations? In reality, Koffka says, what appears in this case is at once a differential structure, with a "steep or moderate ascent" ([8], p. 540), in one way or another, between the two squares. Hence, those do not appear for themselves, in isolation from each other, as two sets of sensations should, but they only appear as "steps" in a brightness scale:

> "This must be rightly understood. If I say a real stair has two steps, I do not say there is one plank below and another plank above. I may find out later that the steps are planks, but originally I saw no planks, but only steps. Just so in my brightness steps: I see the darker left and the brighter right not as separate and independent pieces of color, but as steps, and as steps ascending from left to right. What does this mean? A plank is a plank anywhere and in any position; a step is a step only in its proper

> position in a scale. Again, a sensation of gray, for traditional psychology, may be a sensation of gray anywhere, but a gray step is a gray step only in a series of brightnesses." ([8], p. 540)

What we see, according to Koffka, is again a "'crescendo' or 'diminuendo'", which is "an undivided whole" ([8], p. 546), though it may be articulated into two different moments or "steps". The main point is thus that those *steps* are really inseparable from the crescendo itself, which does not hold *between* them. On the contrary, the steps only hold *within* the crescendo:

> "For, speaking of 'steps' I mean not only two different levels, but the rise itself, the upward trend and direction, which is not a separate, flighty, transitional sensation, but a central property of this whole undivided experience. Undivided does not mean uniform, for an undivided experience may be articulated and it may involve an immense richness of detail, yet this detail does not make of it a sum of many experiences. The direction upward or downward under certain conditions, e. g., under brief exposure, may be the chief moment of the total experience; in extreme cases, this direction may be present and nothing else, the plank-character of the steps having entirely vanished." ([8], p. 541)

Defined as they are by Koffka, it seems to me that "structures" must then be understood as networks of internal relations, and that is what Koffka himself sometimes writes:

> "Two colours adjacent to each other are not perceived as two independent things, but as having an inner connection which is at the same time a factor determining the special qualities A and B themselves." ([7], p. 221)

But one must be very careful here to understand those *structural* internal relations in their very precise meaning. To talk about internal relations *logically* means that the terms of this relation would be different, were they not in this relation. Thus, a change in internal relation logically "implies" a change in the terms. But, as François Clementz most notably has clearly shown ([16], [17]), this can have two different *ontological* meanings: either the relation is grounded on its terms; or the terms are grounded on their relation. In the first case, the change in the relation "supposes" a change in the terms; in the second case, the change in the relation "determines" a change in the terms. The first type of internal relation is the most commonly discussed. "Similarity" for example, is generally admitted as an internal relation inasmuch as two white things cannot cease to be "similar" unless at least one of the things ceases to be white. But such is precisely not the way Koffka understands similarity in the case of two similar *sensations*: it is then the "inner connection" between the two colours that *determines* "the special qualities A and B themselves". In this case, we are then dealing, not with a "grounded" internal relation (which are the only kind of internal relations discussed by Russell in his debate with Bradley), but with a holistic type of relation, that François Clementz (and also John Bacon [18]) calls "directly constitutive" internal relations. Clementz interestingly points out that the question whether "there *really* are internal relations in this sense – which seems to be what the British Idealists had in mind when they claimed that all relations are internal – is open to dispute" ([17], p. 172), but he adds in a note that, even today:

> "Many philosophers would probably accept that there might well be relations of that kind – notably 'structural' relations – holding betweeen such varieties of abstract, formal or intensional entities as space points,

> numbers, concepts or meanings, phenomenal colours, social institutions, artworks and so on. Whether there are constitutive relations beyond this abstract domain is much more controversial. A widespread argument to the effect that they are no such relations obtaining between concrete particulars is that this would violate Hume's principle that there cannot be any kind of logical link between 'distinct existences'." ([17], p. 172 note 7)

It is worth noting here that, according to Clementz, phenomenal colours today only appear reducible to their relations on the condition that they are understood as "abstract, formal or intensional entities": but the question is precisely whether they are such, and I now want to show that they are not, beginning with "the widespread argument" that Clementz talks about.

## 3. Objections against Koffka's "structural programme"

Once Koffka's "structures" are understood as networks of "directly constitutive internal relations", it appears that some classical objections have been formulated against them, of which Koffka takes no account.

### *3.1. "Structural relations" as inauthentic relations*

The "widespread argument" Clementz refers to is indeed Bradley's classical objection against internal relations in *Appearance and Reality*, an argument very well summed up by Hylton:

> "If *a* is internally related to *b*, then the relation to *b* is part of *a*'s internal nature. Since '*a*'s internal nature' is just what *a* essentially *is*, it follows that *a* is not independent, but is what it is only because of its relation to *b*. Internal relations are thus unstable: as relations they set up their objects as independent entities; as internal they make it clear that their objects are not independent, but can be considered only as part of a larger totality … By their internality, internal relations make it manifest that they are destined to be transcended in a higher unity in which the separateness of the relata, and thus the relational nature of the whole, has disappeared." ([3], p. 55).

Interpreted most faithfully, this argument by Bradley seems to lead to the conclusion that internal relations cannot be *authentic* "relations", since they simply *cannot have any term*. Indeed, the ultimate goal of neo-Hegelian Idealism seems to be the reduction of all separate substances in traditional ontology to knots of "relational predicates", as a premise to demonstrate that only the "whole" uniting those "pseudo-substances" can be real. Thus, admitting that it is the *definition* of a relation to have terms, the pseudo-reality of internal relations is "destined to be transcended in a higher unity in which the separateness of the relata, and thus the relational nature of the whole, has disappeared". However, this argument thus formulated does not really bear against Koffka, since this "transcendence" of relations *with terms* actually seems to be what "structures" are destined to accomplish as well for Koffka, at least concerning sensations. The left square appears as the "less bright", the right one as "the brighter" of the two, and this *difference* in brightness is supposed to be *constitutive* of the brightness itself of both squares. But, if this is true, one important conclusion has to be drawn from the rejection

of Bradley's argument: the "steps" by which Koffka is trying to replace the old-fashioned separate sensations are nothing but what it is more traditional to call "relational predicates" – I shall rather say here "structural predicates". As such, those steps truly cannot be separated from the relations in which they are involved, since, as Russell said in his *Principles of Mathematics* ([19], § 214, p. 222), they are nothing but "cumbrous ways" of talking about relations (or structures) themselves.

*3.2. The need of an absolute ground for structures*

Nevertheless, it seems at first glance quite difficult to admit, and to conceive, that a brightness difference might be constitutive of two brightnesses. As a matter of fact, this is the central point around which this whole discussion revolves. A first obvious objection is anticipated by Koffka: isn't it obvious that a brightness difference has to be grounded on two different brightnesses? But the "isomorphism" hypothesis introduced by Gestalt psychology actually provides Koffka with a very easy and interesting answer to this objection: according to this hypothesis, phenomenal "structures" are supposed to be the immediate correlates of causal relations in the brain, those causal relations being supposed to hold between physiological processes linearly issued from stimuli. Thus, phenomenal "structures" are ultimately grounded on non phenomenal stimuli, and not on sensations:

> "Here the argument may be anticipated that, in the analysis, parts must determine the whole; you lay the lighter gray at the left and you have a different brightness gradation than when you lay it at the right! But what does this argument really prove? Remember, you must not substitute your sensations for your stimuli. If you are careful not to do this, your argument must be that the arrangement of the single stimuli determines the whole structure. But you have not proved that the part phenomena have determined the whole phenomenon." ([8], pp. 543-544)

Therefore, there seems to be no contradiction in the psychological possibility that structures might appear without visible grounds. However, we still have to understand how plain "steps" inside those structures can finally appear, or seem to appear, as absolute qualities.

*3.3. Empirical refutation*

Now, the most radical idea in Koffka's "structural" programme (and probably the most radical idea in the Gestalt programme in general) is that to see a figure on a ground (and, hence, to see a "sensation" in the classical sense of the "mosaic" theory), is still to see a "structure" in Koffka's sense. This particular structure, of which figure and ground are thus only "steps", is called a "segregation" structure by the Gestalt psychologists. Thereby, Koffka writes in *The Growth of the Mind*, that "it is … a part of the nature of a quality that it should lie upon a ground, or, as we may also say, that it should rise upon a level" ([7], p. 131). All "things" or "figures" we see are thus reduced to steps in segregation structures by Koffka. And he conversely maintains another very strong claim, according to which the ground itself phenomenologically depends upon such a "segregation" structure: therefore "mere ground would be equivalent to no consciousness at all" ([8], p. 566), so that "the most primitive phenomenon of consciousness is not the inarticulate ground-work, but the [structure (*configuration*)] or quality, which arises from this uniform background" ([7], p. 136). Merleau-Ponty in

particular has presented this claim as the center of the whole Gestalt theory in his *Introduction* to *Phénoménologie de la perception*, when he wrote that "the Gestalttheorie tells us that a figure on a ground is the most simple datum we can get", so that "no point can be seen except as a figure on a ground", and that "a truly homogeneous area, offering nothing to *perceive*, can be given to *no perception at all*" ([20], p. 26).

But it has to be stressed that meanwhile this last claim had been purely and simply refuted by Wolfgang Metzger, in a series of experiments published in 1930 [21], to which Koffka later devoted a central position in his *Principles of Gestalt Psychology* [9]. Indeed, Metzger managed to produce homogeneous stimulus conditions and observed that something *could* be perceived in those conditions: namely, "a mist of light which becomes more condensed at an indefinite distance" ([21], p. 13; quoted in [9], p. 111), and the whiteness of which is a function of the intensity of the light received. Although Koffka does not precisely state the problem, it is thus surely no coincidence that his initial claim that "the most primitive phenomenon of consciousness" is a segregation structure, is nowhere to be found in the *Principles*: it would clearly be in direct contradiction to Metzger's results, since the correlate of this claim is that "mere ground would be equivalent to no consciousness at all". On the contrary, it is now Metzger's "mist of light" that Koffka establishes as "the simplest case" of perception (though this simplicity does not imply, it is true, any genetic primitivity, but only means a dynamic privilege, as the most "balanced" distribution):

> "If perception is organization, i.e., a psychophysical process in extension depending upon the total stimulus distribution, then homogeneity of this distribution must be the simplest case and not the traditional one which contains a discontinuity." ([9], p. 110)

By excluding here that any discontinuity in the stimulus distribution might produce a dynamically "simple" perception, it is not only the "traditional" case of a single sensation that Koffka henceforth considered as complex, but also any case of figure seen upon a ground. More importantly, by admitting, as he had to, that a pure ground can appear as a phenomenon, Koffka *ipso facto* ceased to consider this ground as a plain "step" in a segregation structure, which means he had to abandon his initial structural programme.

### *3.4. The "transposibility" of structures*

Finally, at least two other *de jure* arguments can be objected to structural theories of sensation such as the one Koffka initially formalized. The first argument was precisely formulated by William James in his *Principles of Psychology* against the neo-Hegelian attempts to reduce sensation to relations. It was also directed against certain "sensationalist writers" such as Alexander Bain, who, on the basis of empirical data very similar to the ones later used by Koffka (e.g. the "contrast" phenomena mentioned above), "believe in a so-called 'Relativity of Knowledge,' which, if they only understood it, they would see to be identical with Professor Green's doctrine. They tell us that the relation of sensations to each other is something belonging to their essence, and that no one of them has an absolute content" ([2], p. 11). James' objection is particularly simple and effective: if all that was experienced, when listening to music, for instance, was the relations between the notes, one could not make any difference between two identical melodies played in different scales, since the relations between

the notes would be the same in both. Actually, one could not even tell the difference between any two pairs of notes:

> "So far are we from not knowing (in the words of Professor Bain) 'any one thing by itself, but only the difference between it and another thing,' that if this were true the whole edifice of our knowledge would collapse. If all we felt were the *difference* between the C and D, or *c* and *d*, on the musical scale, that being the same in the pairs of notes, the pairs themselves would be the same, and language could get along without substantives." ([2], p. 12)

I think it is fair to say that this argument anticipates the argument known as the "transposibility" of Gestalt qualities, that Ehrenfels used the same year in his famous article [22]: since the relations between the sensorial contents can be transposed from one set of contents to another one, qualitatively different from the first, it is obvious that relations are something "more" than those contents. Ehrenfels used this argument against the reducibility of Gestalt qualities to their terms; James uses it against the reducibility of the terms to their relations. Of course, Koffka and Merleau-Ponty knew this argument by Ehrenfels: but they only referred to it through Köhler [4], who insisted on the necessity to admit that *physical* systems were Gestalt qualities too, since their whole properties could also be transposed from one set of physical substances to another. As a consequence, Koffka and Merleau-Ponty only spoke of the possibility to transpose structures from one set of *stimuli* or physiological processes to another, with the effect that the resulting phenomenal structure *and its phenomenal terms* remained the same despite the transposition. But if one insists on the fact that the transposition Ehrenfels himself talked about, as a criterion for Gestalt qualities, was a transposition from one set of *sensations* to another; then one immediately sees that this property of phenomenal Gestalt qualities as such is enough to refute Koffka's initial structural programme.

### *3.5. Abstraction and real separation*

I will only add one last argument against such a programme, which will help us understand why the facts so much seem to corroborate a structural theory of sensation. I will borrow this argument from Husserl's mereology in his *Logical Investigations*, though one could also find the same general idea in James' writings. This general idea is again quite simple: it very well might be that *in fact* no single stimulus can ever produce the same sensorial content in another context; it may even be that *in fact* no single sensorial content is ever the same for it constantly changes with the context in which it appears, which is itself in constant change. But the fact remains that *de jure*, it is always possible to consider such content for itself (a colour, for instance) and to *abstract* it from its context[5]:

[5] By this Husserl means that the content is "isolable in idea", which precisely does not mean that "the actually *experienced* contents of the phenomenological sphere … can be freed from all blending with coexistent contents", but "means only that we can keep some content constant in idea despite boundless variation – variation that is free, though not excluded by a law rooted in the content's essence – of the contents associated with it, and, in general, given with it. This means that it is unaffected by the elimination of any given arrangement of compresent contents whatsoever. This self-evidently entails: that the existence of this content, to the extent that this depends on

> "In the 'nature' of the content itself, in its ideal essence, no dependence on other contents is rooted; the essence that makes it what it is, also leaves it unconcerned with all other contents. It may *as a matter of fact* be that, with the existence of this content, other contents are given, and in accordance with empirical rules. In its ideally graspable essence, however, the content is independent; this essence by itself, i.e. considered in *a priori* fashion, requires no other essence to be interwoven with it." ([23] p. 9; see also pp. 6-7)

On the contrary, Husserl adds, it is *de jure* impossible to abstract a structural predicate, or what Husserl calls a "moment of unity" in an intuitive content, from the whole or form-quality of which it is a moment ([23], p. 8). Indeed, as we already said with Russell, such structural predicates are only "cumbrous" ways of talking about the structure itself. Thus, it seems to me that Husserl's argument can be summed up this way: one must not confuse the *abstraction* that can always be made of a sensorial content whatsoever, with the *real separation* from its context of the stimulus beneath it. It is this confusion that made it seem possible to think that facts could support a structural theory of sensation. That the phenomenal *effects* of *stimuli* may depend on the context of their presentation does not imply that those effects are *in themselves* dependent on their phenomenal context. Even if those effects only existed for an instant, they would exist as absolute beings, whereas structural predicates can only be relative beings: therefore, the possibility to abstract colours can only be conceived if they are not relational predicates, and this proves that they have to be admitted as irreducible absolutes in our ontology. As a consequence, phenomenal structures or form-qualities must be conceived as external to their terms, even though they might still be accepted as immediate phenomena, according to the "isomorphism" hypothesis.

As a matter of fact, this last hypothesis makes it very easy to conceive why, *de facto*, almost no phenomenal change in the relations can ever occur without concomitant change in the quality of the phenomenal terms. If those *absolute* terms are themselves correlates of absolute physiological processes, the "isomorphism" hypothesis entails that those processes are causally interdependent, since they are phenomenally structured. Now, it is a truism to say that causal relations can modify their terms. It may very well be for instance that, in the "colour-tranformation" phenomena, the effect of those causal relations on the "level" processes is always to transform them into objectively "white" processes, and that those same causal relations actually accordingly affect the surrounding colour processes, in such a way that the objective difference between the colour stimuli might be preserved and translated between the colour processes in the brain. Actually, such is the way Koffka finally understood those phenomena in his later works ([10], [9]; see also [24], pp. 232-234). The resultant phenomenal colours would immediately appear as "steps" in "difference" or "segregation" structures, so they would immediately be *felt as* having the meaning of being different from each other, but they would nevertheless be absolute in themselves, and those structures would remain external to them.

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itself and its essence, is not at all conditioned by the existence of other contents, that it could exist as it is, through an *a priori* necessity of essence, even if nothing were there outside of it, even if all around were altered at will, i.e. without principle." ([23], p. 9).

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