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# Zero Point Content

### **Abstract**

*The strategy is to first present the usual content atomistic fullness approaches, in their occurrent and dispositional guises. Then, the focal point semantic treatments are summarized. This difference may be explained through workings of chromatic illumination from the local external information inviting incline surrounding at the background cognitive landscape, in two directions. First, the external information is appreciated, and thus becomes a total cognitive state non-dimensional point at the middle level of the cognitive system's description. At the upper level of description, total cognitive state content obtains its experiential richness from the multiple characteristics present in the mentioned local environment, and appreciated in it, without which they would be explicitly represented in epistemic agent's consciousness. Failure of this second step leads to the requirement of content's explicit representation. In comparison, the failure to apply chromatic illumination to the external information leads to the externalist focal point semantic strategies.*

### **Keywords**

content, zero point, morphological content, dynamical cognition, levels of description, cognitive landscape

## **Introduction**

Content tends to be presented in an atomistic fullness accepting manner, a strategy embraced by models of mind and views about content. This goes for occurrent and for dispositional contents. Atomistic fullness of content is a questionable strategy, considering content's vagueness and psychological implausibility of occurrent content involving the entire class of its characteristics. Thus came a proposal to distinguish content's focal point from the abundance of its semantic surroundings. The focal point as content's essential part was interpreted in an externalist and objectivist manner: causal rigid designator, natural kind or historic link naming basis, as opposed to the mentalist description. The precursor may be a logical proper name, with its epistemic effort to establish a direct acquaintance link to the referred item, with the tempted exclusion of descriptive fullness. The reductive effort thus shifts from the causal external to the epistemic direct demonstrative relation.

This brings us to the referential zero point, as the first-person point of view perspective, with its qualitative consciousness or phenomenological centring. The dynamical cognition model provides a plausible perspective to the zero point content, by reducing first the usual atomistic fullness of total cognitive state to being positioned as a non-dimensional point at the multidimensional background cognitive landscape. The semantic richness of the content in question is then provided by that point's local, global and transglobal environments, along the spatial and temporal dimensions. We are confronted with morphological content, coming from the shape of the multidimensional cognitive landscape. Morphological content relevantly enriches zero point content in a qualitative

experiential semantic moment. Morphological content as a cause of belief formation exercises its effectiveness through its appreciation. Without that, its reflexive consciousness representation would be formed in the process. Thus, zero point content works with morphological content's chromatic illumination.

## 0. Preliminaries

As preliminaries we introduce the topics of cognitive system's description and that of chromatic illumination. We believe that both are related to how one's approach to content proceeds.

### *a. Levels of Cognitive System Description*

Cognitive systems may be described at three levels. First, there is the underlying physical realization basis of the cognitive system, which tends to be described in physical or physiological terms. My thought about the cat happens in my brain, and so it can be described as a certain specific brain activation pattern upon the physiological basis, which is an intricate physical arrangement. We may call this the *bottom* basis description of the system.

However, then, the thought featuring its content about the cat may also be described at the *upper* level of the cognitive system's description. Here, the thought in question appears as *Total Cognitive State* (TCS), featuring all the characteristics and properties which are specific to it. This tends to be seen as the basis of *psychological* description involving the thought in question, including its content.

In between these, there is the *middle* level of the cognitive system's description, featuring the *algorithm* which leads from this specific thought to others. If one subscribes to the traditional computational model of the mind, contents or their representations are treated as atomistic items, whose transactions follow exceptionless computational rules. Machine learning algorithms which are to be found in connectionist systems may treat contents at this middle level of the cognitive system's description as points in the multidimensional space. The algorithm there possibly follows more dynamical, probabilistic arrangement forces.

The main difference between approaches to modelling of mind happens at the *middle* level of the cognitive system's description. Classicism subscribes to tractability of transitions, whereas connectionism instead embraces a force involving transactions. A dynamical model of the mind which we accept is inspired by connectionism, but it takes the cognitive system to be much richer and subtler than this one would allow. Total Cognitive States are upshot of the support from the cognitive background of *morphological content*, as we call it, the content that dispositionally resides in the landscape of that background, morphology referring to its shape. There may be inclines at the landscape, the areas which would attract a piece of certain information to be settled in them.

The question is whether levels of description are just that, descriptive approaches to their subject matter or if they refer to genuine slices of reality. We are inclined towards this last proposal, although this may be left undecided. It is substantial to our approach that content behaves in a different, although dialectically interconnected manner at the two levels of description. The link between its appearance at these two levels is provided by the mechanism that

we call *chromatic illumination*, which is a phenomenology involving feature rooted in the local background environment into which the incoming external information is invited to settle. The primary chromatic illumination supported dialectics happens between middle and upper levels of description, so that we leave out the lower level of cognitive description, despite that we subscribe to its reality.

### ***b. Chromatic Illumination***

We introduced *chromatic illumination* as an experiential phenomenology-based mechanism which provides epistemic justification for a certain belief that *p*. The reasons for this belief's formation may be evidential. It is the evidence combining whatever is dispositionally there in the cognitive background with the supposedly external information incoming to the epistemic agent. Nevertheless, this evidence tends to be complex, building upon the rich holistic background of everything that the agent has assembled and stored during his long-term experience. This is a holistic setting where the abductive procedure is to be applied momentarily to arrive at a satisfactory result. A dynamical approach involving the mentioned holistic and abductive moves is needed so that belief, along with its content, is relevantly assessed and produced, avoiding the trap of the frame problem resulting from the tractable and atomistic content involving ways of confronting such matters as belief (along with its content) formation.

For a belief to be justified, one may presuppose the effectivity of the reason that causes it producing an effect in the epistemic agent's consciousness. The reason has to be represented in consciousness. But given the holistic entanglement of multiple partial reasons which affect the formation and maintenance of one's belief along with its content, of the holistic and abductive ways it succeeds, one can realize that these simply cannot be explicitly represented in one's consciousness. There is no time for this, all else being equal. And yet, reasons do produce an effect upon the epistemic agent's consciousness. We can use this to explain joke-getting. In a moment, one gets a joke without that one would represent in one's consciousness all the multiple reasons which lead one to grasp it. And yet, these reasons do all affect one's consciousness, for otherwise, one would not be able to get the joke. So these reasons are *appreciated* in one's consciousness without being explicitly represented in it. We say that reasons *chromatically illuminate* the moment of joke-getting. Another illustration is the aesthetic effect upon the colouration of a painting, showing the effect of variously coloured sources of light which are not themselves depicted in the painting all in illuminating it, providing a specific aesthetic feeling. Finally, one can talk of one's experience being harmonically rhythmic: harmony means that several musical strains come together suitably, despite that the possible choice of combining them is practically infinite, and rhythm means that this may be a process extending in time as opposed to the momentary joke-getting experience. And indeed, epistemic agents, and simply agents, constantly happen to be confronted with the choices to be made, at each step of their engagement. Some expectations may be overturned, and one needs to be able to react to several unexpected counterfactual situations.

The basis of *chromatic illumination* is that the total cognitive state along with its content cannot be forthcoming from reasons which are explicitly represented in epistemic agent's consciousness, but that these multiple reasons nev-

ertheless exercise their effect upon consciousness by being *appreciated* and not represented in it. Notice, by the way, that appreciation is a normativity supporting attitude. Our idea is that the external information coming to the cognizer or epistemic agent has to be relevantly positioned in one's multidimensional background cognitive landscape, by being appreciated, thereby turning from external information to the total cognitive state non-dimensional point at the middle level of the cognitive system's description. Once as external information is accommodated into the relevant incline environment at the cognitive background landscape, once it is *appreciated* there, in epistemic agent's phenomenology, it becomes a *total cognitive state non-dimensional point* positioned at this landscape. This is the first act of *chromatic illumination*. Given that the usual approaches tend to require explicit representation in consciousness to come to the total cognitive state, they thereby neglect *appreciation* and its supportive *phenomenology*, understanding total cognitive state non-dimensional point at the middle level of the cognitive system's description as an *externalist* matter, or again explicitly represented content at the upper level of cognitive system's description. So at the same time of external information I being turned into a TCS-point, there is a second chromatic illumination push from the middle to the upper level of the cognitive system's description: the middle level cognitive relevant background local incline gets appreciated at the upper level as the complete psychological total cognitive state.

## 1. Content's Atomistic Fullness

Mental content is a pervasive category discussed in philosophy, appropriated and adapted by models of mind. It tends to be presented in the form of atomistic fullness, so that certain content is well-delineated and distinguished from its environment, including other contents. Such atomistic content is supposed to involve the entire stock of features which belong to it. Atomistic fullness characterizes both occurrent and standard dispositional renderings of content. However, this atomistic fullness of content may be questionable. Its well-delineated atomism confronts the recognized content's vague nature. Its proposed fullness seems to be psychologically implausible as well since it is questionable if each occasion of content instantiation would include the entire class of its characteristics. In fact, content's atomistic fullness is an upshot of neglecting the appreciation of reasons supporting it from the middle level of the cognitive system's description of local background cognitive landscape environment.

The reason for content atomistic fullness pervasive presence, we suggest, is in the complex nature of the basis for fixation, i.e. formation and maintenance of beliefs or judgments featuring such a content. The cognitive background upon which content leans is namely holistic, and it is obtained in an abductive manner. This would require an acknowledgement that reasons for belief formation, say, are *appreciated*, and that they are not explicitly represented in consciousness. Although this is a fact, people instead cling to an explicit conscious representation of content as their departure, and thereby with content atomistic fullness. We will now describe some of its turns.

### a. Content's Atomistic Fullness

Content tends to be presented in an atomistic fullness accepting manner, a strategy embraced by models of mind and views about content.

In philosophy, *content* is a variably rich and richly discussed category. In the Platonist tradition, ideas may be precursors of what is nowadays discussed as content. Take the mental content [chair]. It may be conceived as the idea of a chair, and Platonists would say that it is the only genuinely real thing: each empirically existent chair one day comes into being as the carpenter designs and construes it, and one day it will certainly perish. This is in value for an infinite myriad of specific existent chairs. But, say Platonists, the abstract idea of the chair, however, will stay there forever. As mentioned, the Platonist idea, with its infinite existence, may be a precursor of the content.<sup>1</sup> But lately, mental content is in the centre of discussion in mainstream philosophy. It is mentioned<sup>2</sup> in the following discourses: non-conceptual mental content, narrow mental content, externalism regarding mental content, causal and teleological theories of mental content, the normativity of meaning and content, contents of perception. Later, we will try to shed some light on this diversity. One can say that mental content is an important chapter in the contemporary philosophy of mind, coming in the multiplicity of guises. Another outstanding tradition related to mental content has its roots in Brentano's (1874) concept of intentional directedness. The Brentanian and contemporary philosophical traditions happen to be intertwined, but this is rarely noticed.<sup>3</sup> However, the connection was well-documented in the Spindel Conference held in Memphis in 2001 (Horgan, Potrč and Tienson eds., 2002; the editors were also organizers of the Conference). The rich Brentanian tradition explained balancing between content- or object-centred intentionality interpretations.<sup>4</sup> Object interpretation actually tended towards Platonism.<sup>5</sup>

Mental content is usually portrayed as a presentational reflexive conscious package. It tends to be seen as a full presentational content. This involves the representation of proposition *p* and its conscious awareness. This is often presented as *intentional* content. If I form a belief about a cat being here, I am supposed to be directed at the content [cat]. That content is supposed to be different from other contents, such as [dog], [cup], having very little or preferably nothing in common with them. The very intentional directedness of myself at the content such as [cat] also presupposes my full conscious

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Balaguer (2016) writes about Platonism in metaphysics: "Platonism is the view that there exist such things as abstract objects – where an abstract object is an object that does not exist in space or time and which is therefore entirely non-physical and non-mental. Platonism in this sense is a *contemporary* view." In this manner, Platonism does not involve mental content which, as we argue, includes both spatial and temporal potentialities. Opposed to Platonism is nominalism, according to which naturalism is compatible with the dismissal of abstract entities (Field 1980), following the Ockham's razor principle (see its mention in Potrč 2020).

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In *Stanford Encyclopedia of Philosophy*.

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See Horgan, Potrč and Tienson eds. (2002), where the link between the so-called continental

and analytic traditions is firmly affirmed, contrary to myopic part-taking still persisting in most of academia. Zalta (2002) mentions the following names and topics in the linked tradition: Brentano, Meinong, Husserl and Mally; Findlay, Castaneda, Rapaport; Formal Object Theory, Leibniz and Plato; Frege and Russell; Kripke; Goedel.

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Twardowski (1894) brought attention to the content/object intentionality distinction. See Sajama (1987).

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See Meinong (1904), his Slovene pupil Franc Veber (1921), and Ernst Mally, born in Kranj, Slovenia (1912) (when Zalta visited Slovenia and held a lecture in Matjaž Potrč's apartment in Ljubljana, Potrč took him to the town of Kranj where they saw the house in which Mally used to live).

awareness of that content. In other words, the intentional content is supposed to be *atomistic*, i.e. self-sufficient and independent from its peers. It is also supposed to be *full* in the sense that everything related to the content [cat] is included in it, distinguished comparatively sharply from other contents such as [dog]. Sometimes this atomistic fullness of the intentional content is conceived as being innate. All variability of your approach to the intentional content [cat] is just a matter of empirical psychological access to the atomistic fullness of the supposedly innate mental content [cat].<sup>6</sup>

That was a short introduction about how philosophy approaches to content: sometimes in psychological and other times in a more metaphysically inclined manner so that it is apprehended as a kind of object. However, the philosophy of mind crystallized two already mentioned methodological characteristics about how the content is understood, which we name its *atomism* and its *fullness*.

Under *atomism*, as already announced, we understand content to be treated as an independent, kind of self-sufficient semantic matter. The content [cat] comes forward as a unit, independent of other contents, such as [dog], [chair]. This seems to help in a semantically based understanding so that the independence of the content [cat] does not get mixed up with [dog] or [chair]. There seems to be an advantage for organisms being able to separate different meanings as they navigate through the world, in which they encounter some affordances and several obstacles. It is evolutionarily profitable to understand what you deal with in the world clearly so that meanings and your attention do not get mixed up. In this sense, atomistic contents rule the day.

*Fullness* represents those characteristics of content from which the content is made and all characteristics which it links to and is determined by it. Thus, content [cat] comes with all the properties which it involves, such as animal, vertebrate, pet, etc. This relies upon an understanding of the content's *innateness*. Here is an argument to this effect, provided by the *innatism-centred* language of thought hypothesis, as against non-full or partial characteristics of a certain content offering approaches, such as prototype theory. Psychologists introduced a hypothesis according to which contents are a kind of concepts so that epistemic agents will centre only at some of their characteristics first, at their prototypical properties. The concept or content [bird] is psychologically approached through properties such as flying or nesting in trees, where some are more typical for some exemplars in respect to others (flying is certainly more typical for a swallow than for a chicken), and some do not satisfy any of the mentioned properties (the chicken is a bird which does not fly or nest in trees). Thus, there seems to be a hierarchy of properties in respect to various specimens belonging to a certain concept or content, and prototypes are offered as typical exemplars of certain content or concept (I form an image of *my* dentist as the word dentist gets announced). Thus, there seems to be a gradual variation proper to one's psychological grasp of content and its related concept. Additionally, prototypes display zeroing at an instance as a psychological point directedness, and these are the topics which we tackle here.

*Innatists*<sup>7</sup> have the following answer to this. Semantically, a given content or concept does come with all the rich fullness of its characteristics, irrespectively of anybody's capability to grasp them. The content [cat] comes with all of its properties, with their *fullness* included in it. So, in the innate realm, concepts and their related contents need to be complete, *full* of any item belonging to

them. The failure to grasp them all, and to only partially approach them, is, on the other hand, forthcoming from our *psychological* limitation.

One may ask why such semantic *fullness* may be needed. The answer is that it complies with the earlier announced *atomism* of content. And they are both there in support of a tractable and surveyable explanation of how the content works, how our mental capabilities function. Innatism, with its presupposition of atomism and semantic fullness, is an answer to the tractability requirements explanation.

Atomistic fullness of content is needed by theories of mind, such as the ones inspired by classical computers. The presupposition is that one has to have well-delineated atomistic representations given as a certain well-ordered set, over which logical exceptionless rules exercise their moves. In this manner, one aims to possess a reliable guide to the result, as this one is based upon the available data. The *Language of Thought* (Fodor 1975) was the first philosophical proposal for a model of mind after its behaviourist black box dismissive treatment. Objective measurement techniques of input and output were substituted with tractable rules proceeding over well-delineated presentations. However, computational optimism underlying the philosophy of mind was soon put under question by Fodor's (1983) realization that the model may only work for lower reflex-like sensory modular processes, given that beliefs and similar higher cognition capabilities encounter frame problem following that model, due to their holistic and abductive nature (Henderson, Horgan and Potrč, 2020). Precisely these come with mental content.

In respect to the intentional content, the Brentanian, especially in the manner in which its descendants have developed in the contemporary theory of mind, clings to atomistic fullness of content as well. Mental content needs to be well-delineated or determined according to it. It also needs to be explicitly consciously represented in an occurrent manner. Tractability of rules dealing with content is well-entrenched, especially in functionalist approaches to the mind. Explicit representation of content goes along with our mentioned content's fullness: the idea may be that holding representation clearly and distinctly before one's mind provides access (or at least potential access) to all of its constituents. This is a case of transparent and objective conscious access to content. It gets questioned by qualitative consciousness-phenomenology, which is closer to the first-person point of view perspective.

### ***b. Occurrent and Dispositional Content***

Atomistic fullness of occurrent and dispositional content cases is the topic we now approach. Both of these contents come in this form, and they are the usual ones to occupy the scene.

*Occurrent* content is the one which is active at the moment as the cognizer gets engaged in it. Before this content became occurrent, it is supposed that it

6

Renderings of contents as prototypes or stereotypes allowed for the gradual and specific individual experiences underlying approach to the content (E. Rosch 1978). However, innatists (G. Rey 1983, Fodor 1998) dismissed this as a mere contingent psychological gradual approximation to what is actually innately

present in the intentional atomistic well-delineated fullness. We will turn to this again in a moment.

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Rey (1983), Fodor (1998); also see footnote 6.

was there in the cognitive background, waiting for the occasion that triggers it. In this case, the same content is *dispositional*.<sup>8</sup>

The supposition is that both of these forms of content share *atomistic fullness*. When content *that p* is dispositional, it is taken to be waiting for an appropriate stimulus to activate it. As I see a cat, I form the *occurrent* content [cat]. This content was waiting in my cognitive background as a *dispositional* content to become *occurrent* once a fitting occasion calls for it. To assure that appropriate content is triggered based on a certain kind of stimulus, this content [cat] should differentiate itself from other contents, such as [dog] or [chair]. From this perspective, the most appropriate form in which a dispositional content gets stored is *atomistic*: there should be a possibly clear delineation between various contents, and this can be achieved through their independent, well-defined form. The independency means that each dispositional content is stored separately as a semantic, clearly outlined unit. The content in question should also have sharp boundaries, which further underlines its atomism. To avoid confusing the content [cat] from the content [dog], etc., one should be aware of the entire stock of characteristics for particular content, say of all the properties which apply to something being a cat. That is the *fullness* of the *occurrent* content. Once the dispositional content becomes *occurrent*, the fullness of the characteristics belonging to it is assured through reflexive consciousness or awareness of them. *Occurrent* content produces conscious representation which encompasses the entire range of [cat] characteristics.

It is an interesting observation that *atomistic fullness* joins *occurrent* and *dispositional* content in that they get supported by the reflexive consciousness involving evidence. Representation of the content *that p* (i.e. [cat]) figures in belief formation: content gets explicitly represented in its *occurrent* form, and it is prepared to take this role when it simmers in its *dispositional* form. Representation offers an *atomistic* shape, and its explicit rendering aims at its fullness. This can be illustrated by the justification procedure of belief with the content *that p* which centres at the *propositional* justification form. A proposition – whatever it may ultimately be – displays an independent, *atomistic* style: this particular proposition is autonomous and comes as well-formed. Conscious evidential insight performs scanning of all the proposition's many features, its fullness. This evidence aims at the possibility to reach any of the richly full constituents involved by the content. In this way, we see *atomistic fullness*, according to *clara et distincta perceptio* being approached and justified. The evidence aims at reaching, at least in principle, any of the many (full house) content characteristics. Belief formation involving certain content is parallel to belief justification, and due to the content's *atomistic fullness*, belief justification stays at the *propositional* level.

There is evidence aiming at the proposition and its justificatory support. However, due to their *atomistic fullness*, neither *occurrent* nor *dispositional* content reaches *the doxastic* justification level. For this one to be approached, the presupposition that content is *atomistically full* needs to be dismissed. But how can this be possible? We will address this question in the continuation of the paper, the limitation to see content only as *occurrent* and *dispositional* needs to be abandoned. The cause for a belief being formed will not be tractable and *atomistically well-delimited* in advance. It will need to attain *dynamical richness*. The cause in question will then be what we call *morphological content*, and this is the topic of the third, final part of the paper. The dialectical



move from propositional to doxastic justification of a belief with content *that p* happens in an *indirect, appreciative manner*:<sup>9</sup> the possible evidence in support of propositional justification of the content *that p* needs to be *appreciated* by the epistemic or cognitive agent. This injects a normative ingredient into the story, given that appreciation (without the explicit formation of representation) is itself a normative manner. But is there support for such a move? We claim that both *atomism* and explicit *fullness* of content requirements defy psychologically plausible considerations to which we subscribe, along with the practical stance of beliefs and contents. The presupposition about atomistic fullness of content proves to be psychologically too demanding. Perhaps one should abandon both the atomism and the fullness requirement in an account of content – and perhaps people already tried that out. In the continuation of the paper, we will show how this is possible and how it needs to be there given our psychological limitations.<sup>10</sup>

### c. Limits to Atomistic Fullness of Content

Atomistic fullness of content is a questionable strategy, considering content's vagueness and psychological implausibility of occurrent content embracing the entire class of its characteristics.

Here we question the supposition of the atomistic fullness of content in respect to two empirical psychological limitations that people encounter regarding belief or content formation and justification. The first limitation is the realization that mental content is *vague*, which puts into question its supposed *atomistic* well-delineated nature. The second is the psychological *limitation* to have access to the *full* range of content characteristics. The first paves the road for the second, which will be the main topic of the second part of the paper. To anticipate: the *fullness* of contents' characteristics is reduced in our psychological practice to nothing more than the (almost) content-less point, which, however, serves as an attracting point for a multitude of content's characteristics. These characteristics are not forthcoming in a well-delineated representationally transparent manner but are rather subtly normatively *appreciated*.

Let us first put into question the presupposed content's well-delineated *atomism*. There may well be atoms that are vague, and some people would

8

Dispositional properties usually cling to their physical basis realization, such as the solubility of sugar as it is put into the cup of hot tea. Under these appropriate circumstances for the sugar's property of solubility to emerge, sugar loses its crystalline appearance. Dispositional properties are discussed in the framework of mental-physical identity theories, of which there are token-identity (Davidson 1980) and type-identity (U.T. Place 1956) variants. At the Veber international conference in Maribor, Slovenia, organized by Matjaž Potrč, U. T. Place reproached Davidson for his perceived dogmatism from his type-identity scientifically verifiable perspective. Physical realization of content is not our topic here, as our accent is rather on the first-person perspective and its phenomenological basis.

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It is the *becauseal* move from propositional in the direction of doxastic justification evidentialism, through which this one advances from atomistic fullness of content embracing evidentialism to chromatic phenomenological evidentialism.

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For example, Smithies (2019) sticks to propositional justification based on possible evidential access. We argue for doxastic justification as an *appreciative* move upon the normative becauseal take in respect to propositional justification.

claim that this is exactly the case with the basic physical ingredients. They are an interwoven and not well-delimited assemblage of dynamically interacting protons, muons, etc. But we do not think that there is vagueness in the world (Horgan and Potrč 2008). The reason for that is that according to us, vagueness is an incoherent and yet productive normative setting. The world just cannot be based on normative incoherence. But language and thought, in our view, are indeed benevolently normatively incoherent. If this is true, then well-delineated content atomism becomes questionable.

The second sceptical question concerning content relates to its *fullness*. The idea was that there needs to be explicitly formed representation of content, actually or potentially fully evidentially accessible. People might end up with a range of characteristics of certain content. But there is a psychological *limitation*, preventing them from being centred at all of this stuff. Instead, they dismiss *fullness* of content, at least in the first logical time, reducing it to practically no richness of items containing a (referential) *point*. In the second logical time, as already mentioned, they gather access to a lot of characteristics, but in a momentary and escaping manner. As Descartes said about consciousness, it is “ponctuel et évanouissant”<sup>11</sup> – which certainly goes against the atomistic fullness presupposition.

## 2. Focal Point

Given that the standard approach to content along the lines of *atomistic fullness* turns out to be questionable, due to the mental content’s atomism defying vagueness and what emerges only as limited access to its fullness, one may start searching for an account that would avoid its trap. That may turn out to be easier than expected, for we believe that both people in general and some philosophers have embraced a limited and (sometimes) vague approach to the content’s presupposed fullness. One may then ask how it came about that content was treated in an atomistically full manner. The way out of the conundrum is hinted at by several attempts to reduce the content’s fullness to its *focal point*, or at least show that focal point may serve as a gathering matter for the rest of characteristics to assemble around. Both people in general and some philosophers adopted content’s focal point as the guide to their semantic surroundings.

Interestingly, this was notably proposed by externalist objectivists advancing rigid causal designators, semantic essentialism and historical causal name chain approach. One focal point precursor is a logical proper name, with its epistemic effort to establish a direct acquaintance link to the referred item, with the tempted exclusion of the descriptive fullness. In this manner, the reductive effort shifts from the causal external to the epistemic direct demonstrative relation. This leads to the referential zero point, as the first-person point of view perspective, with its qualitative consciousness or phenomenological centring.

The persuasiveness of what is here called focal point approach to semantic content is, we take it, in the failure to appreciate how the external information coming to the cognitive system gets appreciated by the phenomenology of attraction incline where that information is momentarily relevantly positioned. One stays with a kind of external information, perhaps close to the propositional approach as its counterpart, instead to see it as a total cognitive state non-dimensional point at the middle-level description of the dynamical

cognitive system. Nevertheless, one needs to recognize the involvement of the first-person point of view phenomenological perspective in such a move. A review of some positions will make this clear, we hope.

### ***a. Content's Focal Point to the Rescue***

Atomistic fullness troubles lead to a proposal about distinguishing content's focal point from the abundance of its semantic surroundings.

We have seen that *atomistic fullness* presupposition can be questioned. The presupposed atomism of content implies its strict boundaries delineation. These may be adopted by platonic content approaches, which tend to be embraced by semanticists. The mental content approach, however, gets sceptical in respect to the content fullness presupposition, for some characteristics proper to content may be noticed sooner and better than others. It is interesting that several semantic approaches also adopted a focal point approach to content.

Standard approaches to content took an atomistic fullness angle in the belief that they could cherish tractable principles guiding models of mind, or again evidentialist representational reflexive conscious (actual or potential) access to the fullness of a certain content's characteristics. Given that there are insuperable limits to this approach due to (mental) content's vagueness and psychologically restricted access to the plentitude of its characteristics, one searched for a way to account for them. The *content's focal point* came to the rescue, in its several variants. A straightforward guide is our noticing that switching from one content (say, [cat]) to another content (say, [dog]) changes our content related *focal point*. One may also say that as we deal with certain content, we centre at its (psychological) focal point. This realization may rescue us from the promise to attain full atomistic rendering of the content. Surprisingly perhaps, it may as well help in some *semantic* projects. Content's focal point is thus not only psychologically realistic; it also shows an advance into the platonic realm.

### ***b. Externalist Objectivism Focal Point***

The focal point as content's essential part was interpreted in an externalist and objectivist manner: causal rigid designator, natural kind or historic link naming basis, as opposed to the mentalist description.

Perhaps the most popular *focal point* is not psychological teaching, as one would expect from the perspective of content discussion, but a *semantic* enterprise, which we ranged closer to the objective Platonist tradition. It became pervading in the last part of the former century. There are an *externalist* and *objectivist* approach to the focal point.

A famous take in this direction is the so-called *rigid designator* (Kripke 1980). One main idea behind it is the rejection of the descriptive characteristics to

11

In French, for punctual and fainting. From my memory of reading Descartes, some of his works were written in Latin (similarly as I write nowadays in *English Latin*), from which I use my memory of reading about *clara et distincta perceptio*. My English

Latin experience is different from Descartes' Latin experience in that I sometimes interact with English (in all of its varieties) speakers, whereas Descartes did not meet any Latin native speakers, perhaps just the convent artificial Latin language participants.

get to the referential function. This displays a reductive approach in respect to what may be rendered as descriptive fullness of content's characteristics, in the manner in which we approach the debate. As against this plurality, just one focal point is allowed, the causally and modally forthcoming essential relation providing referential hook, promising constancy through all of the possible worlds. So, against the full descriptive richness of what we call content, there is just one causally and objectively externalist rigid designator securing the referential function. As just mentioned, it is in a way surprising to see the psychologically plausible centring of content at just one protruding point to be used in the objectivist enterprise of semantic externalism.

The second to mention is *natural kinds* involving focal point, which was also used for *semantic* purposes. It is not important that water (i.e. content [water] according to our exercise) has so many descriptive properties characteristic for it, what we call content's fullness, such as being liquid, transparent, drinkable, abundant in lakes and seas, etc. The important thing is the reduction of all this *fullness* of content characteristics to one essential trait of a natural kind, i.e. H<sub>2</sub>O. It may have the same descriptive characteristics, but if it turns out that its chemical structure is, say, XYZ, our intuition will be that this is not water, but rather some quite different substance, let us call it *twatter*, given that we can find it on Twin Earth, sharing all the descriptive characteristics with our own Earth, except for this essential chemical structure. Furthermore, the cat in my house has so many characteristics, which bring me to the content [cat]. But if I would find out that Martians substituted it with their robot spying on me, it would turn out that it is not a cat at all, since it lacks the usual feline DNA. Again, we can observe the *reduction* of a content's (such as [cat]) characteristics just to one focal point, the natural kind determining DNA. Content's fullness is reduced to the focal point of a natural kind. Moreover, I may not know the difference between the elm and the oak. Does an expert understand it through the descriptive characteristics specific for each of these contents or concentrating on the externalist objectivist focal point of a natural kind (Putnam 1975)?

The last of these approaches to be briefly mentioned here is the historic link naming basis. If I use the name Aristotle, it refers to the original bearer of that name despite all the different causal chains that may in sometimes contingent manner link my use of the name to him. A historical causal connection is established to support the meaning or the referential power of the name, dismissing the rich fullness of the individual's characteristics. Interestingly, the strict "dthat" demonstrative focal point (Kaplan 1978) was introduced in this respect as well. Both this and the rigid designator focal point approaches originally dealt with proper names.

### *c. Logical Proper Name*

The precursor of the mentioned focal point approaches may be logical proper name, with its epistemic effort to establish a direct acquaintance link to the referred item, with the tempted exclusion of descriptive fullness.

The precursor of the discussed focal point adopting approaches of externalist objectivism is the theory of *logical proper name*, introduced by Bertrand Russell (1905) as one basis of his theory of descriptions. Here, Russell attacked what we call *richness* of content by expelling all descriptive ingredients of what we name its (descriptive) characteristics. For Russell,

each sense-endowing description leads astray from the genuinely referential job which expressions of language are designed to perform. Thus, he decides to expel all of the possible linguistic (or perhaps mental) connotations by reducing descriptions to the genuine logical proper name. What would it be? His proposal is “That!”, namely a demonstrative. This also applies to proper names. Instead of seeing me and saying “Matjaž“, you can simply point at me and say “That!” This is, then, a logical proper name, distinguishing itself through the lack of any connotative or descriptive richness, or content’s fullness, as we call it (this fullness is considered to introduce the havoc of referential linguistic and mental confusion, such as brought by your view of the content [Matjaž]). Interestingly, Russell supports his position by proposing a direct epistemic link between the speaker entertaining the content and between the referent or the bearer of the name. He calls it *knowledge by acquaintance*, which is different from knowledge by description, thereby underlying the reductive approach to content’s fullness.

#### ***d. Demonstrative Focus***

The reductive effort thus shifts from the causal external to the epistemic direct demonstrative relation.

We brought attention only to a sample of what we call content, in a broad sense. We noticed the reduction of content’s fullness: descriptive characteristics coming along with content are not just reduced, but finally, they are dismissed in profit of a *demonstrative* relation. This focal point then supposedly succeeds without *any* of the descriptive characteristics. This is important in the sense that it brings us from the objective externalist to the subjective, perhaps internalistically supported relation, directly involving the epistemic agent and the referent at which it aims.

#### ***e. Referential Zero Point as First-Person Perspective***

Causal focus and direct acquaintance strategies bring us to the referential zero point, as the first-person point of view perspective, with its qualitative consciousness or phenomenological centring.

Here, through the first-person perspective, we rejoin the referential zero point, which was singled out by Ernst Mach (1984) as the very source of any possible knowledge about the objective physical world. (See Potrč 2017). It turns out that content needs focal point support, from the first-person phenomenological consciousness perspective. This kind of consciousness-phenomenology supports an appreciation for reasons that lead to the content and perhaps on this basis to the belief formation: it is the qualitative phenomenology-consciousness, different from the reflexive consciousness in support of explicit representation formation.

### **3. Morphological Content**

We started with content’s atomistic fullness approach, and substituted it with the psychologically plausible focal point proposal, from its objective externalist to the subjective experiential form. What we need is a model of mind and an approach to content which will surpass both atomistic fullness and the

existing focal point proposals. We find it in the model of dynamical cognition (Horgan and Tienson 1996), where the total cognitive state (TCS) is realized as a non-dimensional point at the multidimensional dynamical connectionist computational approach-inspired landscape. TCS as a point at the background cognitive landscape, once it is positioned there, experiences effects from the spatial and temporal local, global and transglobal environments. The shape of the landscape or morphology provides a basis for *morphological content*, which is different from both occurrent and standard dispositional contents. It is a content involving essential multiple potentialities. In this manner, landscape environments provide richness to the semantic TCS point. Morphological content relevantly enriches zero point content in a qualitative experiential semantic moment. Morphological content as a cause of belief formation exercises its effectiveness through its appreciation. Without that, its reflexive consciousness representation would be formed in the process. Zero point content works with morphological content's chromatic illumination.

### ***a. Dynamical Cognition Treatment of the Total Cognitive State***

Only the dynamical cognition model provides a plausible perspective to the zero point content, first by reducing the usual atomistic fullness of total cognitive state to its being positioned as a non-dimensional point at the multidimensional background cognitive landscape.

Content as total cognitive state (TCS) realized as a non-dimensional point at the very rich multidimensional dynamical landscape is opposed to the full atomistic internal approach.

A curious thing with the atomistically full intentional content is the presupposition that, in a way, all possible cat experiences and all possible semantic richness of the term seem to be involved into that content. But this does not seem to match our experiences with that content. Usually, as I think about the cat, there is just a certain perspective pertaining to that content that I engage with, a certain sense.<sup>12</sup> So, one may try the opposed reductive explanation, according to which the richness of atomistic intentional content boils down to just one feature-less referential point. This point is perhaps assessed from one's first-person perspective, but this comes at the second stage.

In fact, what we engage into as we think about the cat or as we form a belief related to it is our full attention at *that*<sup>13</sup> content. One can talk about our engagement into the total cognitive state (TCS) at a certain moment in time. At that moment, we centre our intentional attention at that item in question, the cat, and without that, we would consider any specifications (this helps us in being intentionally directed at that item). That is the point. But of course, specifications and adumbrations impose themselves from the perspective of all the rich information that we keep in our cognitive background. They, then, illuminate the non-dimensional referential point. All this may happen momentarily.

That is just an opposite take upon the previously mentioned mental content's atomistic fullness. TCS as a non-dimensional *point* is neither coming with the rich diversified ("cat") content, for it is just a point as indicated, nor is it separated from its cognitive environment, as it would be along the lines of atomism. Just to the opposite, there are innumerable cognitive forces in the TCS point's environment which exercise their impact upon that point once it gets settled in their midst.

One can help oneself with a depiction of the connectionist network.<sup>14</sup> In fact, Horgan and Tienson (1996) were the first to use connectionism as an inspiration for cognitive architecture, without falling prey to its probabilistic traps.<sup>15</sup> One main inspiration was the *multi-dimensionality* underlying connectionist cognitive architecture. The idea is that there is a multitude of neurons in our brain, each of which could come with one dimension. One can say that there are ten thousand of them, although certainly there are many more. Now, these ten thousand dimensions are something that we are unable to represent, especially if we consider that there are innumerable additional possible connections (that is the connectionist environment indeed) between these ten thousand neurons. Add to this the fact that there is a constant dynamic interaction between several neurons, with the connections between them displaying and changing variable strength following the cognitive agent's experiences. To be able to represent the situation, one may take an overall look at the situation and concentrate at the rich, multidimensional pattern as a *two-dimensional landscape*. That will do for one's ability to represent the situation. Then add to this the *third* dimension, which enables you to conceive the variability of the multidimensional landscape in *time*. One can take the *downward* direction of the landscape to depict its timely progress.<sup>16</sup>

In summary, we face the reduction of full atomistic content to the *non-dimensional point*, situated at the *multidimensional, rich, dynamical* cognitive background *landscape*, which as mentioned may be portrayed in *two* dimensions so that one can represent it, or in *three* dimensions, so that its *temporal* incline is considered.

That offers the possibility to introduce *morphological content*, i.e. content which is *dispositionally* there, positioned at the multidimensional landscape. The expression morphology refers to the *shape* of the represented landscape, which we will try to disentangle to some extent in what follows.

TCS being positioned at the multidimensional landscape in a *dispositional* manner indicates that there is a multitude of directions in which the morphological content may evolve, all the innumerable dynamical forces involving dimensions.

The difference now arises with the *standard dispositional content*, which is indeed dispositional but inherits *full atomistic intentional reflexively conscious* approach. This is countered by morphological content, relying upon

12

A Fregean sense perhaps, in respect to the perspective that it involves. The questionable point with it, however, is that its perspective is supposed to be nonvague, which counters our experiences.

13

The demonstrative form in Potrč 2017.

14

Connectionist computational architecture is opposed to the classical computer-inspired cognitive architecture, with its atomistic representations and exceptionless logical rules taking care of their arrangements (Churchland 2012).

15

See Horgan (2016, 2017).

16

This is certainly a simplification which allows representing the supposed three-dimensional situation in two dimensions, as the mentioned landscape. A timely downward direction of the landscape would then involve the third dimension. However, usually one can represent oneself three spatial dimensions, with the fourth dimension coming as that of time (physicists are sceptical here). We struggle here to represent not just three or four, but a gargantuan number of dimensions, forthcoming from a multitude of neurons and their connections.

the shape, morphology, of the multidimensional landscape, to obtain its specificity.

What is the TCS *non-dimensional point*? It is the bare demonstrative, which in our discussed case would boil down to the first-person engaged semantic “cat”-indication. And this one then obtains its actual content from being positioned at the multidimensional space, with its many dynamical forces and variable environments, indicating potential enrichments.

*Standard dispositional content* is nothing else but full atomistic inherent content, waiting in the wings for its suscitation condition to occur. *Occurrent content* is simply the *atomistic* full reflexive conscious content. TCS as a non-dimensional point is opposed to both of these. Its positioning, however, enriches it at the multidimensional dynamical landscape, from which it gets its illumination and its semantic richness.

Why does one aim at atomistic fullness at all? This is because of the mainly embraced preference to work with a tractable model. The classical computational model of mind would be a case in point, including modular mechanisms, extended to the massive modularity to encompass higher cognition, such as an account of belief formation.

### ***b. Landscape Environments Providing Richness to the Semantic Point***

The semantic richness of the content in question is then provided by that point’s local, global and transglobal environments, along the spatial and temporal dimensions.

According to the dynamical cognition model, content does not involve atomistic fullness. Total cognitive state (TCS) is rather a reduced semantic non-dimensional point. This point, however, is positioned upon a multidimensional rich background cognition involving landscape. And this one provides its richness to the TCS content.

One can say that the background cognitive landscape provides a local environment to the TCS non-dimensional point positioned upon that landscape. Suppose TCS is the content involved in belief formation and accordingly into belief justification. In that case, the local environment may be seen as aiming towards the goal of belief formation, namely reliable truth. In this sense, the local environment support is externalist. But the support also comes from the transglobal qualitative phenomenology involving the environment. Thus, we can mention transglobal evidentialism-reliabilism (Henderson, Horgan and Potrč 2007) as the justification of belief upon this basis. The global environment upon the landscape supports coherentist justification of the belief in question, and evidentialism vacillates between its reflexive consciousness and the qualitative phenomenology-consciousness, thus between local and transglobal environments. Notice that all this provides a pluralist kind of belief’s justification, involving the interaction of all these environments, and the means-to-ends hierarchy of belief formation (Horgan, Potrč and Strahovnik 2018).

This was a short look at the spatial environments upon the cognitive landscape where TCS is positioned as a point. But there are also *temporal* environments, given that the landscape inclination involves temporal dimension. There are local, global and transglobal temporal environments for each TCS point positioned upon the landscape. The local temporal environment may be a moment. But the moment is positioned at the wider temporal landscape dimen-



sion, involving a transglobal temporal environment. And there is a global temporal environment, perhaps including expectations, such as those available in action planning.

There is an interaction between spatial and temporal dimensions of TCS positioning upon the landscape environments. The transglobal (spatial and temporal) dimension provides a genuine ex-sistence plan to the cognitive agent. This is opposed to the everyday forgetful “we all do this” existence, such as watching TV. Compare this to Heidegger’s genuine existence in *Sein und Zeit* (1927) and the everyday “man”, as in “man denkt, man arbeitet” cases.

### ***c. The Shape of the Landscape***

We are confronted with morphological content, coming from the shape of the multidimensional landscape.

The very expression *morphological* content refers to the *shape* of the multidimensional landscape upon which TCS is positioned. This shape is a dynamical intertwining of several forces, which are constantly at work, trying to establish relevant connections between different points, thereby constantly changing the intensity of this gargantuan number of connections. Content is no longer atomistically full; rather, it is forthcoming from and depends upon the shape of the background cognitive landscape.

### ***d. Momentary Relevant Enrichment***

Morphological content relevantly enriches zero point content in a qualitative experiential semantic moment.

Zero point content, i.e. TCS non-dimensional point positioned at the multidimensional background cognitive landscape, gets to the point, one may say, in the local momentary cognitive environment, with its support from the *transglobal* spatial and temporal dimensions providing environments. Our experience is that we form beliefs and their underlying contents in a fraction of a moment, and relevantly so. This testifies to the holistic and abductive nature of higher cognition, of which belief and content form a part, as opposed to the atomistic fullness embracing views of content. The frame problem is easily solved, so it is not a problem in a dynamical cognition environment, as it is a problem in the atomistic fullness of content sticking approaches.

### ***e. Appreciated Effectiveness of Morphological Content***

Morphological content as a cause of belief formation exercises its effectiveness through its appreciation. Without that, its reflexive consciousness representation would be formed in the process.

Morphological content, inhabiting the background cognitive multidimensional landscape, acts as a cause, evidential reason for belief formation. This is quite different from the atomistic fullness content views offering the same role. Morphological content as a reason cannot be explicitly rendered as representation to be effective because of its dynamical nature. It rather provides its effect by being *appreciated*, through the transglobal spatial and temporal phenomenological quality providing environments. Morphological content is effective through its appreciation.

### *f. Chromatic Illumination*

Zero point content works with morphological content's chromatic illumination, in attractive and supportive manners. First, external information is invited to settle into the relevant area of the background cognitive landscape. The information is thus *appreciated* through the relevant surrounding that attracts it. Chromatic illumination by the phenomenology of the local inviting landscape area turns external information coming to the system into the total cognitive state non-dimensional zero point at that landscape. The local landscape surrounding the zero point content as well chromatically illuminates total cognitive state at the upper level of cognitive system's description, involving a richness of supportive cognitive dimensions, such as properties pertaining to the phenomenologically supported total cognitive state in question.

*Chromatic illumination* is a manner in which causes are effective by being appreciated. Without that, they would be explicitly consciously represented. This, then, involves qualitative phenomenological consciousness, different from the reflexive transparent evidential richness promising consciousness. Total cognitive state non-dimensional point is the zero point content appearing at the middle level of the cognitive system's description so that the incoming external information gets appreciated and invited to settle by the chromatic illumination from the relevant local landscape area surrounding, which attracts that information. At the same time, the mentioned surrounding also chromatically illuminates the phenomenologically constituted zero point content appearing at the upper level of the cognitive system's description. This again succeeds through appreciation of the relevant positioning inviting background local surrounding at the cognitive landscape and not through explicit representation of the supposedly atomistic content in consciousness.

Taking a look at mental content, one notices its atomistic fullness, in the form of the explicit representation in consciousness requirement. On the other hand, there are several popular approaches to take a look at semantics in a causal or informational manner, so that external links become important, at the cost of descriptive elucidation by the perspective or senses. The suggestion is that these are both consequences of the lazy attitude of not recognizing the power of chromatic illumination in semantic matters. External information becomes a total cognitive state non-dimensional point at the middle level of the cognitive system's description, through illumination by the richness of the local environment where it gets positioned. Ignoring this appreciative move leaves one with external information as a semantic referential point. Referential act, however, rests upon epistemic agent's first-person phenomenology. At the upper level of cognitive system's description, ignorance of appreciative chromatic illumination phenomenology subvenient basis of content formation leaves one with the requirement of explicit representation of the occurrent content, despite its holistic and abductive underlying sources. This is just the beginning of dynamical cognition model application into the area of content which certainly needs further attention.

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### **Matjaž Potrč**

### **Sadržaj nulte točke**

#### **Sadržaj**

*Strategija je najprije predstaviti uobičajene pristupe sadržajne atomističke potpunosti, u njihovim okurentnim i dispozicijskim oblicima. Zatim, sažima se semantički tretman fokalne točke. Razlika se može objasniti radom kromatičke iluminacije iz izvanjske lokalne informacije, pozivajući strma okruženja u pozadini kognitivnog pejzaža, u dva smjera. Prvo, uzima se u obzir izvanjska informacija, čime se dolazi do potpunog kognitivnog stanja nedimenzionalne točke u srednjoj razini opisa kognitivnog sustava. Na gornjoj razini opisa, sadržaj totalnog kognitivnog stanja zaprima svoje iskustveno bogatstvo iz više karakteristika prisutnih u spomenutom lokalnom okruženju, te su u njemu prihvaćene, bez čega bi bile eksplicitno reprezentirane u svijesti epistemičkog agenta. Neuspjeh drugog koraka vodi do obveze na eksplicitnu predodžbu sadržaja. Usporedno, neuspjeh primjene kromatičke iluminacije na izvanjsku informaciju vodi do strategija eksternalističke semantičke fokalne točke.*

#### **Ključne riječi**

sadržaj, nulta točka, morfološki sadržaj, dinamička kognicija, razine opisa, kognitivni pejzaž

**Matjaž Potrč**

**Der Inhalt des Nullpunkts**

**Zusammenfassung**

*Die Strategie besteht zunächst darin, die gebräuchlichen Ansätze der inhaltlichen atomistischen Vollkommenheit in ihren okkurrenten und dispositionalen Formen darzustellen. Anschließend wird die semantische Behandlung des fokalen Punkts zusammengefasst. Der Unterschied lässt sich durch die Aktivität der chromatischen Illumination aus der externen lokalen Information, indem man steile Umgebungen im Hintergrund der kognitiven Landschaft anspricht, in zwei Richtungen erläutern. Zunächst wird die externe Information berücksichtigt, womit man zu einem vollkommenen kognitiven Zustand des nicht dimensionalen Punkts in der mittleren Ebene der Beschreibung des kognitiven Systems gelangt. Auf der oberen Ebene der Beschreibung erwirbt der Inhalt des totalen kognitiven Zustands seinen Erfahrungsreichtum aus mehreren Merkmalen, die in der erwähnten lokalen Umgebung vorhanden und in dieser akzeptiert sind, ohne die sie im Bewusstsein des epistemischen Agenten explizit repräsentiert würden. Das Scheitern des zweiten Schritts führt zu der Verpflichtung zu einer expliziten Darstellung des Inhalts. Parallel dazu führt der Fehlschlag, die chromatische Illumination auf die externe Information anzuwenden, zu den Strategien des externalistischen semantischen fokalen Punkts.*

**Schlüsselwörter**

Inhalt, Nullpunkt, morphologischer Inhalt, dynamische Kognition, Ebenen der Beschreibung, kognitive Landschaft

**Matjaž Potrč**

**Le contenu du point zéro**

**Résumé**

*Notre stratégie consiste à présenter en premier lieu les approches habituelles de la complétude atomistique substantielle, sous leurs formes d'occurrences et de dispositions. En second lieu, nous résumons le traitement sémantique du point focal. La différence peut être expliquée par le biais du travail d'illumination chromatique à partir d'une information externe, faisant appel à un environnement rude en arrière-plan du paysage cognitif qui s'engage dans deux directions. Premièrement, l'information externe, au travers laquelle nous parvenons à un état cognitif complet du point non dimensionnel au niveau intermédiaire de la description du système cognitif, est examinée. Au niveau supérieur de la description, l'état cognitif complet reçoit sa richesse d'expérience à partir de plusieurs caractéristiques présentes dans l'environnement local mentionné qui y sont acceptées, sans quoi elles seraient explicitement représentées dans la conscience de l'agent épistémique. L'échec de la deuxième étape conduit à une représentation explicite du contenu. En comparaison, l'échec de l'application de l'illumination chromatique sur l'information externe mène à des stratégies du point focal d'externalisme sémantique.*

**Mots-clés**

contenu, point zéro, contenu morphologique, cognition dynamique, niveaux de description, paysage cognitif