

## MENTAL CONTENT: MANY SEMANTICS, ONE SINGLE PROJECT<sup>1</sup>

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When we talk about intentional states, the waters are divided into two major groups: there are philosophers who think it is worthwhile to develop a semantic for mental content and there are those who think otherwise.<sup>2</sup> The former hold this position because, among other reasons, they consider the constituents of mental content to be internal representations, so the task should be to explain how our mental representations obtain their meaning. In addition, they believe that the relation between representations and the world must be a natural one. Therefore, they think that the intentional properties of mental states must be linked to something in the natural world, otherwise they are eliminated or we are left with dualism. By *intentional properties* we mean a kind of mental property, that consists in an organism being in a certain state of belief, desire, etc., which is 'about' something. For these philosophers, the *natural world* means the world of the natural sciences, which is why it is better to call this project *scientific naturalism*.<sup>3</sup> This project con-

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<sup>2</sup> I will use the terms 'mental' and 'intentional' interchangeably. I will do the same for the terms 'intentional' and 'semantic'.

<sup>3</sup> I follow Philip Pettit (1992) in the utilization of this expression.

sists in formulating a semantic theory of mental content in which mental terms should not appear, but rather terms for properties should appear that the natural sciences are willing to accept.

In this paper, I will first propose what I consider to be the principal theses of the Scientific Naturalistic Project (SNP). The theses are based on two of the more elaborate semantics of mental content that represent the two most significant tendencies within the scientific project of mental content naturalization: J. Fodor's 'Informational Semantics' (IS) and R. Millikan's 'Biosemantics' (BS). It is not my main purpose to describe these theories but rather to make explicit the theses involved in the SNP. In order to do so, and for the objections to be as clear as possible, I will have to enlarge upon the formulation of the theses. In the second part of the paper, I will present four strategies for objecting to SNP: the *a priori* arguments, the internal objections, the theses discussion, and the alternative conception of naturalism. I will argue against the first two and opt for the second two, which are closely related. I will discuss the theses of the SNP within the scope of the third and fourth strategies with the objective of showing that one does not have to accept the SNP in order for intentionality to be in the natural world.

## I. Scientific Naturalistic Project

In what follows I will try to make explicit what I consider the principal theses of the SNP.<sup>4</sup> Naturalism about mental content consists in the following thesis:

(1) *Naturalism*: the sufficient conditions for a mental state to have content are specified in non-semantic or non-intentional terms.<sup>5</sup>

The intentional realists maintain that there are mental states with a content that can be semantically evaluated (that is, it has semantic properties, such as truth conditions and reference) and that it causes the behavior of individuals by virtue of those semantic properties. If, in addition to being an intentional realist, one is a physicalist, that is, if one believes that the basic properties are the physical ones, then the problem to solve is how to include intentional properties in a world whose prop-

<sup>4</sup> The theses appear all together at the beginning of the second part of this paper.

<sup>5</sup> For some philosophers, sufficient and necessary conditions. I follow Fodor (1994, p. 5).

erties are physical. Naturalism is no more than a methodological consequence that leads, basically, to naturalize those properties that, in principle, do not seem to form part *per se* of the natural world. Both Fodor and Millikan offer natural sufficient conditions for something physical to be intentional, which implies that the intentional is reduced to (in the sense that it 'is explained by') the physical.

According to Fodor, those conditions are a set of (causal) laws that connect, in a reliable way, tokens of representations in the organism with tokens of properties in the world, in such a way that representations carry information about those properties. For instance, when one thinks COW, this concept means *cow* because there is a law that connects this representation and the cow in the world and supports counterfactuals. In that way, the content arises and is determinate by counterfactual nomic relations. However, the scope of semantic contents is much narrower than that of the causal relations. Fodor adds the 'Asymmetric Dependence Theory' (ADT) to the IS as an attempt to resolve the traditional problem of the covariational/causal theories consisting in that not all that causes a representational token is semantically relevant for its content. Thus the natural conditions for the content to arise are a set of nomic relations among properties that maintain an asymmetric dependency upon one another, and they are formulated in non-intentional terms.<sup>6</sup>

According to Millikan, the sufficient natural conditions are a set of Normal conditions (together with mapping principles) that connect the representations with what is represented. The key notion of BS is that of 'biological function' and it is understood in terms of natural selection, which acts upon the species to produce adaptations to the environment.

<sup>6</sup> "X" means (or has a content) X if:

1- 'Xs cause "X"s' is a law.

2- Some "X"s are actually caused by Xs.

3- For all Y not = X, if Ys qua Ys actually cause "X"s, then Ys causing "X"s is asymmetrically dependent on Xs causing "X"s. (Fodor, 1990b, p. 121).

Thus, for example, COW has the content *cow* and not *horse in a dark night* because the fact that there are tokens of COW caused by horses in a dark night depends on there being tokens of COW caused by cows, in such a way that the law that the horses in a dark night causes COWS depends on the law that the cows cause COWS but not the inverse. (Note that Fodor (1994) rejected clause 2 and returned to the purely counterfactual nomic covariation that was introduced in his 1987. Cf. Aydede, 1997). Hereafter I will use the abbreviations IS and ADT indistinctly.

The appearance of new traits that are favorable to reproduction are transmitted and the function of those traits consist in the performance of the capacity they carry out. Thus all organic structure has a 'proper' function that is related to its history, and not to its causal powers or its physical constitution, because it is the ancestors that determine if a system has a determinate function (since its performance leads to its preservation) independently of whether the function is currently performed. Like the organic structures, mental states are members of biological categories and those are defined by their proper functions. The performance of a function depends on what a system should, or is supposed to, or is designed to, do and on the Normal (proper or optimal) conditions for a successful performance. The Normal conditions are those that are historically optimized under which the function was performed. This means that a condition is proper for the performance of a function not because it is the actual (or possible) condition under which a system performs its function, but because it is the one that allowed this system to reproduce a capacity with that function.<sup>7</sup>

So, IS laws, as much as the BS Normal conditions, are formulated in non-intentional terms. In addition, both theories are scientific in the sense that they maintain the following thesis:

(2) *Scientistic naturalism*: the non-intentional terms used in (1) are terms that refer to properties (events, processes, relations, etc.) that the natural sciences accept as part of its theories.

It is scientific naturalism, strictly speaking, which gives its name to the entire project owing to its guiding influence. In both IS and BS, the sufficient conditions for a mental state to be intentional are formulated in terms accepted by the natural sciences, although both appeal to different sciences as the paradigms that account for the natural world. Fodor is physicalist, he accepts that all entities are, or 'supervene on,' or are 'realized in,' physical entities, so that the intentional relation, outlined in terms of the connection between representations and the world, is reduced to a legal physical relation. Physicalism is a narrower ontological thesis than naturalism (thesis (1)). One might hold (1) and nevertheless accept that conditions are formulated in non-physical terms, for in-

<sup>7</sup> That is why Normal is written with a capital 'N'. 'Normal' does not allude to the actual, frequent or average character of the conditions, but to its normative, historical character (related to the history of a function). I address the notion of mapping principles in the consideration of thesis (8).

stance, that they allude to natural properties of another science. That is the case of Millikan who considers psychology to be a branch of physiology that, in time, forms part of biology and thus the latter is the science to whose ontology we should appeal.<sup>8</sup>

So the difference in (2) should be understood simply as the paradigmatic science chosen to which the intentionality phenomenon shall be reduced (in terms of explanation). Thus the thesis is specified in the following way:

(2.F) The terms used in (1) are terms that refer to properties (or other entities) from *Physics*.

(2.M) The terms used in (1) are terms that refer to properties (or other entities) from *Biology*.

Theses (1) and (2) endorse a metaphilosophical naturalistic thesis about the philosophical enterprise that is concerned with the relations between the mental and the physical:

(3) *Metaphilosophical naturalism*: philosophy of mind develops in conformity with, and makes use of, or makes explicit, the metaphysical device of current science in a way that integrates the mind into the scientific-natural world.

In IS and BS there are empirical data that enter into arguments that are no longer the traditional *a priori* ones, such that philosophical activity is not conceived as a purely *a priori* argumentative task, but rather one that incorporates the data, terminology, examples, and ontology of the natural sciences. Thesis (3) is implicated by theses (1) and (2) since, as they are formulated, I cannot imagine someone who holds (1) and (2), that is, someone who carries out a reductionist enterprise within the philosophy of mind, not accepting (3), that is, holding that the task of philosophy of mind is exclusively a conceptual one.<sup>9</sup>

The motivation to adhere to theses (1) and (2) is based in the conjunction of two theses related to the nature of the intentional states. Both Fodor and Millikan are intentional realists, they hold that there really are

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internal states with content and that those states are composed of representations. If one begins with an ontology such as this (in which one of the elements of the intentional relation is representations and, of course, it is assumed that one is not dualistic) then, one will seek to relate the representations with something of the natural world.<sup>10</sup> Both theses can be formulated in the following way:

(4) *Intentional Realism*: there are internal states with intentional content that is causally explicative of an organism's behavior and that can be semantically evaluated.

(5) *Representationalism*: the intentional content is constituted by internal representations.

As mentioned above, intentional realists maintain that there are states with a content that can be semantically evaluated and that it causes an organism's behavior by virtue of those semantic properties. Some philosophers think that only a representational system can accomplish both constraints. Therefore, intentional realists are committed to the idea that there are internal representations that possess intentional properties that cause behavior. According to Fodor this representational system has syntactic (or formal) and semantic properties, such as natural language (though it is not any of the natural languages). The content has the form of propositions, such that it can be semantically evaluated and its syntactic properties carry a causal role. In IS, (5) takes the specific form of the language of thought hypothesis.<sup>11</sup>

Millikan (1993) rejects this hypothesis for all the species other than human beings, and fluctuates between accepting or rejecting it for human beings. The fluctuation seems to rest upon the way that Millikan understands Fodor's hypothesis. She holds that such a hypothesis is not only unnecessary, but also contains a technical problem that shows up in any formal logic language.<sup>12</sup> However, she maintains that only humans

<sup>10</sup> Because this is an important point for understanding why some philosophers believe it is necessary to develop a semantics for mental content and, moreover, a naturalistic one, I will leave the exploration of the sort of relation that there is between theses (4)-(5) and theses (1)-(2) for when I discuss the SNP.

<sup>11</sup> See in particular, Fodor (1975) and (1987).

<sup>12</sup> It is unnecessary for reasons that have to do with her projection theory between maps or mental models and structures in the world. The technical problem arises because the language of thought would require symbols that are put together in types in order to apply formal rules that determine the validity of the inferences, and

have representations, strictly speaking, and those are defined as elements that enter into inferential processes. And for entering into inferential processes, it is required that there be representations with a sentential structure. Thus she holds that human representations can adopt the form of mental sentences and that only they have propositional content, so they can be semantically evaluated.<sup>13</sup>

In both theories, the content of the representations are determined by the (covariational or projection) relations that the representation maintains with what is represented. That means that the content of a person's mental state depends on his relations to the world. This is the externalist thesis that is opposed to the internalist thesis that claims that the content of our beliefs does not depend on the person's relations to the world.<sup>14</sup> Thus both perspectives share the following thesis:

(6) *Externalism*: the content of a person's intentional states depends on his relations to the world.

Thesis (6) is not associated with any of the theses mentioned previously, that is to say, one can be externalist without maintaining the naturalism specified in theses (1)-(3) and without adhering to the representational intentional realism (theses (4) and (5)).<sup>15</sup>

On the other hand, if the objective is to provide natural conditions for a mental state to have content, this is because it is believed that a 'determinate content' of a particular mental state can be identified by these conditions, so, both theories hold:

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since there is no criterion for putting them together in a particular type, there is no way that such a language works.

<sup>13</sup> But even if there do not happen to be mental sentences, the contents expressed in the public language could be implicit (in the sense of being implicated by) in the mental representations, in the same way that the sentences of the public language express the representational content of frogs or bees. Cf. Millikan (1993).

<sup>14</sup> There are different ways of formulating the externalist and internalist theses. The one I chose is in the spirit of Peacocke (1994). In terms of supervenience, the externalist thesis holds that the content of a mental state supervenes on relational or extrinsic physical properties of the person, whereas the internalist thesis affirms that the content supervenes on intrinsic physical properties of the person, see Kim (1994).

<sup>15</sup> One can be instrumentalist, that is, support the idea that ascribing beliefs forms part of adopting an attitude toward certain systems so as to treat them as intentional without postulating that they have intentional internal states. And one is externalist because, when ascribing desires and beliefs to account for the behavior of those systems, one takes into account the environment.

(7) *Determination of content*: there is always a fact of the matter as to what is the content of a certain mental state.

The idea is that a belief content cannot consist in more than one option because if that were the case, then the natural conditions would not be sufficient for determining it. According to the ADT, the content is fixed by counterfactuals. According to BS, the content is fixed by the Normal conditions and mapping principles. Thus, thesis (7) is formulated in these two ways:

(7F) Content is fixed by nomic relations between representational tokens and tokens of properties in the world.

(7M) Content is fixed by mapping relations between representations and its referents in Normal conditions.

Thesis (7) seems to be closely related to:

(8) *Content atomism*: the associate beliefs that a person holds are not constitutive of the content of a certain intentional state.<sup>16</sup>

This thesis is opposed to semantic holism, which holds that a belief content is constituted by the contents of our entire belief system (or, at least, by a subset of beliefs, if one is molecularist). Such a holism has terrible consequences for the SNP. First, it threatens the determination of content (thesis (7)) because if any non-denotative element is introduced, such as the agent's conceptions, then a belief content would depend on the entire (or part of the) system of beliefs. And this not only renders it very difficult to individuate a certain belief but, second, it would also be difficult for two persons to share the same belief (or even for one person to have the same belief at different moments). And if it cannot be established that at least two persons share beliefs, then intentional laws (or generalizations) would not exist, and then a Scientific Psychology (SP) (thesis (10)) would not obtain. Third, if thesis (7) does not obtain, then, as I said before, the natural conditions for a mental state to have content would not be sufficient and if in addition an epistemic element is involved for the determination of content, then it would no longer be an

<sup>16</sup> There are different ways of formulating the 'content atomism or localism' in addition to the way I formulated it. It can be expressed appealing to the inferential connections that a belief has (see Guttenplan, 1994) or as in Fodor & Lepore (1992).

explanation of intentionality in non-semantic terms. Thus theses (1) and (2) fall.

In IS, content only depends on denotation, which is why no content depends on any other. In BS, although content does not only depend on denotation but also depends on a semantic mapping function toward the world, the determination of content does not depend on the content of other representations either.<sup>17</sup> In Millikan's isomorphism theory, representations are *pictures* (in an abstract sense) and are articulated so that they represent "states of affairs"<sup>18</sup> by means of mapping relations according to principles that operate transformations in representations and in what is represented. These principles are biunivocal correspondence rules (understood in terms of mathematical functions of projection). The theory accepts that there is an infinite number of projection relations, but this does not lead to the indetermination of content because the only thing that this affirms is that "it is supposed" that beliefs are projected in states of affairs in the world according to certain projections. This "it is supposed" is explained in terms of Normality, such that only beliefs that are true are indeed true by virtue of a certain actual correspondence having been established.

On the other hand, the idea that the behavior of individuals is a product of their beliefs and desires is what it is called Folk Psychology (FP). Almost all philosophers of mind endorse FP. Fodor goes far beyond and believes that FP not only has to be the starting point of psychology, but also that cognitive psychology is no more than the scientific formulation of FP. Based on FP we make intentional generalizations to account for individual behavior. If those generalizations could become laws, then FP would have the laws (in this case, intentional) that are necessary for every theory that aspires to be scientific. If the intentional laws were not possible, then psychology could not be included within the scientific view of the world. The enterprise of a SP in Fodor covers two related aspects. One aspect is the elaboration of *intentional causal laws* that relate contents to one another and these are the law-like generalizations that every theory needs in order to be scientific. The other aspect is the elaboration of *psychophysical laws* that determine the wide content that appears in the intentional laws (that is, a semantics for mental content).

<sup>17</sup> Cf. Gomila (1995, p. 108) who says that BS is clearly atomistic in the sense that "a mental state content does not depend on the content of other mental states."

<sup>18</sup> In the sense of Wittgenstein's *Tractatus*. Cf. Millikan (1990), pp. 158-9.

Thus, the semantics of mental content plays a fundamental role in the shaping of the content that figures into the intentional causal laws.

Millikan (1986) maintains that only if FP were understood in terms of a theory that aspires to explain organism behavior positing internal states with proper functions (and not entities that obey laws), then it could be the starting point for cognitive science. Regarding a SP, she holds that to have a function does not confer causal power. A system does not do something because it has a function. Therefore, there will be no causal laws in a future cognitive science. In any case, there would be explanations of how a cognitive system normally performs the functions and, those explanations would not be law-like (making reference to initial conditions and laws), but would be like the historical explanations, that is, retrospective, attempting to explain how an episode happened alluding to the steps of a sequence. Since the explanation of how a cognitive system performs a function calls for the contents of the system's states (determined by the Normal conditions and a correspondence relation between the representations and what it is represented) it is necessary to develop a semantics for mental content.

Beyond the disagreement about how to understand FP and the structure of SP, both consider that it is possible to convert FP into science and, accordingly, to have a SP; therefore, both agree on:

(9) *Folk psychology*: the starting point of cognitive psychology is folk psychology.

(10) *Scientific psychology*: one of the (implicit or explicit) objectives for the development of a semantic of mental content is to obtain a scientific psychology.

Up to now, we have seen that the SNP of the content of mental states is committed to the ten aforementioned theses.<sup>19</sup> What remains for us to examine is an issue that seems to break the ideological unity outlined thus far, which is the issue of the place of normativity. Intentional states seem to have normative properties: beliefs are correct or incorrect, ap-

<sup>19</sup> I am aware that it is arguable whether some of the theses (1)-(10) must necessarily be part of a SNP (other scientific naturalistic theories that I did not consider might not endorse some of them). In any case, on one hand, a theory cannot be considered within a SNP if it rejects some of what anyone would consider its core theses ((1)-(8)), and, on the other hand concerning the remaining theses, these are the ones that can be found in the semantics on which I based my proposal.

propriate or inappropriate, acceptable or unacceptable, true or false. The question is if in a naturalistic project of content, with the characteristics that we have seen, there is room for normativity. The normative issue is a complicated one and would require a detailed examination which exceeds the purposes of this paper. Here my intention is only to present the sense of normativity that seems to be compatible with this kind of project and the one that does not.

The notion of normativity can be understood in at least two ways: 1-intentionality is a normative property in the sense that the instantiation of contents incorporates conditions of correctness. Thus representations have a normative element, something like what "*is meant to do*"; and 2- there are standards of rationality that govern the attribution of beliefs. Thus principles of rationality are constitutive of content.<sup>20</sup> Neither Fodor (1990b, 1992) nor Millikan (1993) thinks that normativity is constitutive of content in sense 2. This sense is obviously incompatible with the main objective of offering natural sufficient conditions for a mental state to have content. Regarding sense 1, BS conserves a normative aspect. Appealing to evolutionary biology and, in particular, to the notion of function, is what permits evaluations regarding whether an organism works adequately or not. Since the function is identified independently of what the organism currently does, there is an aspect related to 'what the function was designed to do' that would act as a normative standard upon which to evaluate whether or not the system is doing what it was designed to do. So for a system to perform correctly its function has to possess a correct content and the correction of the content is evaluated with respect to its function. That does not prejudice content naturalization because content is not determined by function, but rather by natural (Normal) conditions.<sup>21</sup> Thus representations have a natural aspect that fixes content and inherits normativity from the design of the systems in which they take part.<sup>22</sup>

<sup>20</sup> An example of this is the charity principle that affirms that an individual should attribute truth to his interlocutor's beliefs.

<sup>21</sup> Because the content is determined by what is represented and the correspondence relation, content is not identified with the function. Bringing up Millikan's most cited example, the *function* of the bee dance is to stimulate the bees' nervous systems so that they see the dance and fly in a certain direction to gather the nectar; the *content* of the dance is the localization of the nectar. Cf. Millikan (1999).

<sup>22</sup> Papineau (1999) objects that these kinds of biological norms are not normative if by that one understands prescriptive norms, since from 'biological norms' like

In IS, there does not seem to be a place for any normative aspect intrinsic to intentionality because nomic relations are those which determine content so that content is fixed in an objective way. Fodor (1990b) thinks that one could follow a route that is opposite to BS and derive a belief function from the belief content. Fodor tests the possibility that once mental states have their contents, we can talk about normativity as long as the mental states accomplish functions according to their content. Thus the function of a belief that *P* is representing the world as *P* when it is the case that *P*, such that the belief has to be true in order to accomplish its function.

## II. Towards a Wide Naturalism

These are all the theses of the SNP on content (I have chosen the order of the theses for expositive purposes in the first part of this paper, although it may be noted that the first three are on naturalism, the next four are on the nature of intentional states, and the last two are on SP):

- (1) *Naturalism*: the sufficient conditions for a mental state to have content are specified in non-semantic or non-intentional terms.
- (2) *Scientific naturalism*: the non-intentional terms used in (1) are terms that refer to properties (events, processes, relations, etc.) that the natural sciences accept as part of its theories.
- (3) *Metaphilosophical naturalism*: philosophy of mind develops in conformity with and makes use of or makes explicit the metaphysical device of current science in a way that integrates the mind into the scientific-natural world.
- (4) *Intentional Realism*: there are internal states with intentional content that is causally explicative of an organism's behavior and that can be semantically evaluated.
- (5) *Representationalism*: the intentional content is constituted by internal representations.
- (6) *Externalism*: the content of a person's intentional states depends on his relations to the world.

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X has been biologically designed to Y, one cannot infer that X ought to Y. As I said before, I cannot go further here on this issue so I assume that BS incorporates a normative approach.

- (7) *Determination of content*: there is always a fact of the matter as to what is the content of a certain mental state.
- (8) *Content atomism*: the associate beliefs that a person holds are not constitutive of the content of a certain intentional state.
- (9) *Folk psychology*: the starting point of cognitive psychology is folk psychology.
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If one wanted to oppose the SNP, and yet remain naturalist, in a broader sense, one could adopt a variety of different strategies. One of them would consist in giving *a priori* arguments with the intention that they be conclusive and devastating as to why such a project is not viable. Nevertheless, since the SNP is proposed as an empirical challenge (because it is empirical science that has to discover which sufficient conditions are at work), the strategy would be to reject metaphysical impossibility because this is an empirical matter.<sup>23</sup>

A second strategy would be to formulate criticisms of Fodor's and Millikan's theories, so as to show that they do not successfully connect mental states to something in the world and, therefore, that the project has not worked so far. (The difference from the first strategy should be noted. Here, it is not a question about the metaphysical impossibility of the project, but rather about the problems - which could be of a metaphysical or other nature - that the theories have). Both theories have received criticisms and, in particular, have difficulties with the determination of content issue. Of course, that does not mean that the project could not succeed in the future, but a significant accumulation of anomalies (in Kuhn's terms) would be a strong reason to abandon it. On the other hand, internal criticism, as 'criticism' alone, is limited to negative aspects without offering a concrete proposal for a non-SNP, and, as 'internal,' it does not usually undermine the basic assumptions of a the-

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<sup>23</sup> An *a priori* argument that can be used *versus* the possibility of mental content naturalization is that of the impossibility of there being psychophysical laws (Davidson, 1970). As Fodor (1987) says, the only thing that one needs to prove in order to win over whoever considers that there is an *a priori* metaphysical reason to hold that semantics cannot be naturalized, is that there are sufficient naturalistic conditions for "P" to mean *p*.



ory but rather takes it for granted. It is something like a family dispute when it is just a question of discussing the bases of the project.<sup>24</sup>

A third strategy would be to opt for discussing its basic theses and evaluate which of them we are willing to accept and which we reject, and see what kind of naturalistic project remains. A fourth strategy would be to directly oppose another conception of the relation between individuals and the world, so as to show that a project of mental content semantics is superfluous. I think that these two latter strategies are supportive. In what follows I will present some lines for a naturalistic option, unlike the SNP, within the scope of the third and fourth strategies, which I will call 'Wide Naturalism' (WN).<sup>25</sup>

In my opinion, what is at stake is the peculiar conception of naturalism (theses (1)-(3)) within which the SNP is centered. But this conception seems to be the consequence of the thesis on the nature of intentional states (thesis (4)), and more precisely, on content (thesis (5)). Due to limited space I will not be able to explain the reasons why I consider these theses inappropriate, so I will confine myself to showing that it is possible to conceive intentional states in another way.<sup>26</sup> If this is so, then, there is no need for this kind of scientific naturalism. In other words, what I propose to show is that this kind of ontology about mental states ((4) and (5)) is one which leads to the development of not only a semantics of mental states but of a scientific naturalistic one.

<sup>24</sup> For whoever is interested in those criticisms, for objections to ADT see Putnam (1992), Adams and Aizawa (1994), Papineau (1994) and Millikan (1991), and for objections to BS, see Fodor (1990a, 1991), Gomila Benejam (1995), and Peacocke (1992).

<sup>25</sup> The theses of the WN appear all together at the end of the discussion of the SNP.

<sup>26</sup> The basic reasons lie, briefly, in three kinds of confusions, and an erroneous conception of the goal of psychology. The confusions are the following: the deliberate one between the properties of the linguistic expressions and those of mental states (to assimilate *tout court* the syntactic and semantic properties of the natural language into the content of mental states), the also deliberate one between intentional states and representational states (not distinguishing between states with intentional content and states that carry information); and the confusion between psychological and epistemological questions (to mix the question about how it is possible that a representation represents what it does with questions about truth or falsehood of representations). The erroneous objective that is attributed to SP is to believe that it must account for the complexity of all human behavior. I address some of these issues below.

If one starts from an anti-dualistic view, that is, that there are mental states that depend somehow (supervenience, realization, etc.) on the natural world, two options are open about what elements are involved in the connection, which depend on what ontological conception of the mental states one has. The advocates of the SNP think that there are internal states in an individual that possess a content, constituted by representations (instantiated somehow in the brain) that can be true or false and that cause the individual's behavior. Thus intentionality is a matter of linking representations with something in the world. However if one maintains that, from an ontological point of view, an individual possesses intentional states (nobody denies that we have beliefs, desires, etc.), that is, one is realistic in some sense, but those states are not conceived as a relation with representations that possess intentional properties, then the task of a semantic for content is not necessary and much less necessary is the task of naturalizing it.

If one thinks that intentionality is a matter of linking representations with something in the world, the mental content semantics arises whose task is to explain how internal representations obtain their meaning and, since the defenders of the project in question are anti-dualistic, what has to be naturalized is that 'mental' which is inside the individual. And this is so because having a content is not a physical property and the ontology of the world is physical, or the ontology that the natural sciences establish, and so this property must be explained in non-mental terms in order to form part of the world ontology. Thus thesis (4) on intentional realism, and (5) on representationalism lead to the peculiar conception of naturalism specified in theses (1)-(3), which, as a group, maintain that there is something like a content of the intentional states composed of representations that are connected with what the natural sciences say is the natural world (and, as I said before (1) and (2) involved (3)). Hence, the scientific naturalistic semantic project for intentional states.

I should like to add a few qualifications regarding what has already been said. I do not support the strong thesis that a conception of mental states, such as the one outlined, is a sufficient and necessary condition for a development of a naturalized semantics, though I think it is a necessary one. Even though I think that it is possible to formulate an argument that shows that it is also a sufficient condition, here I am content with something much weaker that consists in exhibiting the dichotomy 'representations – naturalized semantics' / 'non-representations – non-naturalized semantics'. This dichotomy is based on philosophical theo-

ries available today regarding intentional states. It can be perceived from them that every theory claiming that content is conformed by representations with intentional properties develops a semantics in order to account for how they obtain their content. One might think that there could be a non-naturalized semantics since one thing is to connect representations with the world and another is for that connection to have to be done in non-semantical terms. Nevertheless, this is not the case since we are talking of anti-dualistic theories, that is, if one believes that the last touchstone of the mental lies in mental representations, one would not want to leave them disconnected from the natural world because to do that would inevitably lead to dualism. Now, given a naturalized semantics, one might think that there is no need for that naturalization to be scientific, in the sense that the utilized terms should be those of the natural sciences. This is true because one might make use of the terminology of a non-basic science, but those sciences have the same status as psychology and, hence, it does not seem to be another anti-dualistic option rather than a scientific naturalism for mental representations.<sup>27</sup> In other words, the path that can be observed is the one that leads from the postulation of mental representations to a semantic of mental content, which leads to naturalism, which in turn leads to a scientific naturalism.

However, if one maintains that, from an ontological point of view, an individual possesses intentional states, that is, one is realistic, but those states are not conceived as a relation with representations that convey intentional properties, then the task of a semantic for content is not necessary and much less necessary is the task of naturalizing it. One can hold that what we think, believe, etc. is not a question of what instantiated representations we have in our brains and with what things in the world they are connected, but rather the content of our beliefs are expressed in our belief attributions (our linguistic expressions) that are connected with the world through our interests, points of views, and, in general, our practices. Thus the field in which intentionality is fully explained is not that of representation but instead that of communication (or the field of performance, in general). I will expand this idea through the discussion of the remaining theses. Since theses (9) and (10) on psy-

<sup>27</sup> Cf. Fodor ((1994), p. 5), who considers that the problem of the connection between physical and non-physical properties affects any special science, that is, all sciences except physics.

chology will enable me to develop the notions I need in order to discuss the remaining theses, I will continue with them.

Regarding the idea that FP is the starting point for SP (thesis (9)), and the idea that a SP requires a scientific naturalistic mental content semantics (thesis (10)), I do not think this is a fruitful way to conceive the task and goal of psychology. Many philosophers of psychology and cognitive scientists have argued that as physics does not have to incorporate or depart from folk physics, neither does psychology have to do so with respect to FP since there is no reason why a science should have to incorporate commonsense notions.<sup>28</sup> The attempt to convert FP into SP leads to the view that the full phenomena of human behavior should be explained by cognitive psychology and I think this is an objective beyond the scope of that science. In other words, since one of the reasons for postulating representations is to account for the behavior of people, some philosophers of mind and psychology think that since the science that has that goal is psychology, it is within its scope to account for the full complex phenomenon of intentionality.

One might accept the idea of a SP, but one which does not attempt to account for all the complexity of human behavior. Rather, its concern would be with the internal processes that account for the human capacities and, for that, there is no need to postulate internal states that are related to the world in the way that the SNP requires. As Chomsky (1994, p. 162) says:

In the philosophical literature, cognitive science is often construed as the study of how behaviour is caused by a complex of beliefs, desires, and so on. The approach to the study of mind just outlined [Chomsky's internalist methodological naturalism] has nothing to say about these topics. I'm not sure that is a defect, since cognitive science in this sense does not exist, and may not even be a reasonable goal. No principles are known, or even imagined, that go beyond low-level descriptive observations of limited credibility and scope.

In that sense, SP might be a set of internalist theories in the sense of Chomsky (1995, p. 27) whose goal is to "understand the internal states of an organism". In addition to this Chomskyan approach, those theories will have a functional or semantic level of description of what the system does. On this level it is possible to describe the content of internal states

<sup>28</sup> The paradigmatic cases, though for completely different reasons, are in philosophy, Churchland (1981) and in cognitive science, Chomsky (1995).

in semantic terms but the assignment of content is just an 'interpretation function' that assigns content to formally described computational states, in the sense of Cummins (1989) and Egan (1995). The 'interpretation function' depends on the relations that the scientist postulates there to be between the internal states and the cognitive behavior embedded in physical and social environment. The pretheoretic explananda sets the terms of the ascription of content to those internal states, and in order to specify this pretheoretic explananda cognitive science would need the aid of other disciplines. Since what is at stake are complex behaviors which are the performances of complex and intricate interactions of different capacities, those behaviors could not be described without the aid of disciplines such as pragmatics, sociolinguistics, anthropology, etc., and in that sense they contribute to the specification of the content of the internal computational states.<sup>29 30</sup>

I will now discuss the remaining theses about the nature of the content of intentional states (theses (6), (7) and (8)). In order to do that, I need to develop further specifications regarding thesis (5). I have said that if one does not conceive intentional states as states constituted by mental representations with semantic (and syntactic) properties, there is no point in seeking a scientific naturalistic semantics. According to the advocates of this project the representations are the bearers of intentional properties, so the internal states have an intentional description in an essential or intrinsic way. Whereas in the approach just outlined computational states do not have an intentional description in an essential way since the interpretation function supplies an extrinsic description. This concurs with a view of internal states as states that carry some kind of information that one can describe in semantic terms. It is this minimalist conception of representation to which I adhere. This does not mean that this information is carried or constituted by representa-

<sup>29</sup> That is why the phenomenon of intentionality falls into the field of performance. Note that this view goes beyond that of Cummins and Egan.

<sup>30</sup> Regarding the laws of the SP, one can opt between a psychology that would not require special laws (see Schiffer, 1991) or one that would not require 'causal' laws (in the spirit of BS developed in the first part of this paper or the 'functional explanation' of Cummins (1983)). The development of this point goes beyond the scope of this paper. I was concerned with this issue in Skidelsky (unpublished manuscript).

tions, as the intentional realists posit, that is, entities with paramount intrinsic semantic properties.<sup>31</sup>

To illustrate the point, one can think of an internal state as some kind of (neural) discriminative pattern (or, in more abstract terms, as a computational state) that carries some kind of information that is interpreted (by an interpretation function) in semantic terms as the content of this state. The interpretations can ascribe wide or narrow content depending on the pretheoretic explananda which is at stake. In the case of vision, sometimes it will be necessary to ascribe wide content (interpreting those states as representing distal properties) and in other cases, like early vision, to ascribe narrow content to internal states (interpreting them as representing features of the images). The same with language in which in the course of processing there will be states that do not represent distal objects but rather carry information internal to the system of language, as in syntactic and phonological processing. In the case of beliefs, sometimes there will be contents based on relations between the person's mental state and things of the physical or social world, and other times contents will be based on the agent's perspectives. Thus the dichotomy externalism-internalism is not a fruitful way to approach this issue.<sup>32</sup> Therefore, thesis (6) will require a modification providing that in some cases the semantic interpretation of internal computational states will allude to wide content and in other cases to narrow content, depending on the explananda.

With respect to thesis (7) on determination of content, there is not always a need for a fact of the matter as to what is the content of a certain mental state. There always seem to be cases where the content of some internal state will be indeterminate. The issue can be illustrated in terms of the disjunction problem for the SNP: there are cases in which the content of a mental state seems to be the disjunction of many contents, be it because there are several properties in the world that could cause the same representation or several Normal conditions by virtue of which a system would perform its function.<sup>33</sup> This problem is a lethal

<sup>31</sup> As Cummins (1989, p. 129) says: "...when theorists assign an interpretation to R [a representation], they do not thereby *endow* R with semantic properties; they merely state a hypothesis that might or might not be true, *viz.*, that S [a system] actually does simulate *f* [the cognitive function] under that interpretation."

<sup>32</sup> On this point I am drawing upon the consequences of Egan's (1995) view, I am not sure she would endorse this conclusion.

<sup>33</sup> Some of the articles mentioned in note 24 deal with this problem.

threat to the SNP of content, for if there is no determined content, the natural conditions for a mental state to have content will not be sufficient and, if they are not sufficient, then the whole project of a naturalized semantics collapses.

Whereas from the perspective of computational psychology, as it was characterized above, this is not a dreadful problem because this approach does not fall within the project of a naturalized semantics.<sup>34</sup> The states of the computational systems do not have an intended interpretation which yields to the non-unique assignments of contents. Different interpretations can be compatible with what the system is doing. That does not mean that one can assign whatever interpretation one wants, there are ways of ruling out unintended interpretations but there will always be room for indetermination in some cases.<sup>35</sup> This goes along well with the indetermination that poses the idea introduced above that one can appeal to internal aspects of the agent (like other beliefs) in order to attribute content to a certain agent's belief. This amounts to saying that there would be cases in which we can not pick out a determined content because of the molecularism that this epistemic element supposes. Since in some cases the semantic description of an internal state will allude to information that is in the cognitive system, like other beliefs, the antagonism holism-atomism is not fruitful in this conception. Hence thesis (8) will require a modification providing that the semantic interpretation of an internal computational state sometimes will make use of associate beliefs that a person holds and other times will not, depending on the explananda which is at stake.

Regarding thesis (3) of metaphilosophical naturalism, as mentioned before, although it is supposed by thesis (1) on naturalism and (2) on scientific naturalism, it does not entail (1) and (2). I do not see a principled objection to claiming that philosophy may make use of the data of scientific disciplines as long as science is conceived in the broader sense of covering disciplines such as the humanistic sciences, or that some of

<sup>34</sup> I do not mean that from the indetermination of content problems do not arise (which I cannot pursue here), rather I mean that indetermination by itself does not undermine the project of WN as it does for SNP.

<sup>35</sup> For the indetermination that arises from the computational view of mind see Cummins (1989, chap. 8), Hornstein (1991), and Egan (1995). There are various proposals in order to rule out unintended interpretations, see the 'directness requirement' in Cummins (1989, chap. 8) and the 'pretheoretic explananda restriction' in Egan (1995). I have used a kind of derivative of this latter.

its theses could be empirical. One can have this naturalist attitude without committing oneself to the reductionist claim involved in theses (1) and (2). On the other hand, as (3) is formulated, it initially assumes the perspective that the mind is not inserted in the natural world whereas WN initially assumes that minds are part of the natural world, so the motivation for the philosophy of mind will not be how to connect the mental with the physical but instead to figure out (together with the rest of the human disciplines) how human beings manage to interact with their environment and other human beings.

The world is not now the restrictive physical world and neither is it only the world of the natural sciences. We must understand the 'world' in a different way from that of the scientific theories of mental content. The world contains both the physical object world and our practices which are anchored in our 'forms of life' which in turn are anchored in our sensory-perceptive systems and in certain physical regularities. In that sense, since intentionality is a matter of interpretation of a person's internal states and this practice, as well as the capacities and performances of people, are anchored in the natural world, there is no need for scientific naturalism (theses (1)-(2)).<sup>36</sup>

The remaining point is about normativity. WN makes room for normativity but not in the senses we dealt with before. The first sense is tied to a particular conception of mental states that I rejected as part of the SNP. Regarding the second sense, I am not sure that 'rationality principles' figure in ascription of content. Nevertheless, I think there is a normative element in language and linguistic thought, that is, that there are patterns of correction that enable us to explain what happens when a speaker makes a mistake using language or a misinformed individual has a false belief but is not incoherent or irrational in having this belief. I am not sure where these patterns lie (maybe in the grammar of our language -using Wittgensteinian terms- as different from rationality principles) and it is beyond the scope of this paper to pursue this issue. I only want to point out that since the content is an extrinsic description of an internal state and is expressed in our linguistic utterances and since the latter are normative, WN makes room for normativity.

<sup>36</sup> This argument is another way of stating the same point as that of the previous argument that showed that it is the ontological nature of the intentional states posited by representational intentional realism that leads to theses (1) and (2).

So the WN about content that remains would be something like the following (the original numbers of the scientific naturalism theses will appear beside the theses numbers, so as to note the changes):

1-(1/2) *Naturalism*: what we think, believe, etc. forms part of the natural world because it is anchored in 'forms of life' or in sensory-perceptive systems or certain physical regularities (or wherever it is considered natural).

2-(3) *Metaphilosophical naturalism*: philosophy of mind develops in conformity with, and makes use of, current science in order to contribute to the explanation of the different aspects of the human sphere.

3-(4/5) *Intentional Realism*: there are internal states that are some kind of (neural) discriminative patterns (or in more abstract terms computational states) that carry some kind of information that is interpreted (by an 'interpretation function') in semantic terms as the content of those states.

4-(6) *Externalism/Internalism*: the content of a person's intentional states depends sometimes on his relations to the world and, at other times, on factors internal to the person depending on the pretheoretic explananda which is at stake.

5-(7) *Indetermination of content*: there are cases in which there is no fact of the matter as to what is the content of a certain mental state.

6-(8) *Content holism/atomism*: the content of a person's intentional states will sometimes allude to associate beliefs that the person holds and, at other times, will not, depending on the pretheoretic explananda which is at stake.

7-(9/10) *Scientific psychology*: a scientific psychology can be obtained.

Now I would like to make some final observations about the way a view like the one outlined above may still be considered naturalistic. In a paradoxical way, the SNP seems to assume that the mind is not something natural *per se*. Hence the idea of explaining mental properties (like intentionality) in terms of physical properties. This is so because, on one hand, naturalism and scientificism are conflated, and, on the other hand, the demands on (natural) science are greater than what it can provide. This leads to a sort of tension between a methodological dualism and the incorporation into the (natural) science of elements foreign to them. On one hand, the mind is treated as something distinct from a natural ob-

ject, and, on the other hand, attempts are made to insert this pole of dualism into science so that it explains, completely, phenomena like intentionality. If we abandon the idea that naturalism is equal to scientificism and that there is a content to be naturalized, then we can hold that what we think, believe, etc. forms part of the natural world and we can leave it to psychology to be concerned with internal cognitive processes and appeal to the rest of the disciplines for help in accounting for questions like intentionality and, in general, human behavior.<sup>37</sup>

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## BIBLIOGRAPHY

- Adams, F. and Aizawa, K.: 1994, 'Fodorian Semantics', in S. Stich and T. Warfield (eds.): 1994, *Mental Representation*, Oxford, Basil Blackwell.
- Aydede, M.: 1997, 'Has Fodor Really Changed his Mind on Narrow Content?', *Mind & Language*, vol. 12, 3/4, 422-58.
- Chomsky, N.: 1995, 'Language and Nature', *Mind*, vol. 104, 413, 1-61.
- Chomsky, N.: 1994, 'Chomsky, Noam' in S. Guttenplan (ed.): 1994, *A Companion to the Philosophy of Mind*, Oxford, Blackwell
- Churchland, P. M.: 1981, 'Eliminative Materialism and the Propositional Attitudes', *The Journal of Philosophy* 78, 67-90.
- Cummins, R.: 1989, *Meaning and Mental Representation*, Cambridge, Mass., MIT Press.
- Cummins, R.: 1983, *The Nature of Psychological Explanation*, Cambridge, Mass., MIT Press.
- Davidson, D.: 1970, 'Mental Events', reprinted in D. Davidson: 1980, *Essays on Actions and Events*, Oxford, Oxford University Press.
- Egan, F.: 1995, 'Computation & Content', *The Philosophical Review*, vol. 104, 2, 181-203.
- Guttenplan, S.: 1994, 'Holism', in S. Guttenplan (ed.): 1994, *A Companion to the Philosophy of Mind*, Oxford, Blackwell.
- Fodor, J.: 1994, *The Elm and the Expert: Mentalese and Its Semantics*, Cambridge, Mass., MIT Press.

<sup>37</sup> I am aware that the theses of WN would require a detailed specification in order to defend them for objections, but this of course would have required another paper. Here I just wanted to delineate a direction and a general framework for an alternative to the SNP.

- Fodor, J.: 1991, 'Replies', in B. Loewer and G. Rey (eds.): 1991, *Fodor in Mind. Fodor and his Critics*, Oxford, Basil Blackwell.
- Fodor, J.: 1990b, 'A Theory of Content I', in *A Theory of Content and Other Essays*, Cambridge, Mass., MIT Press.
- Fodor, J.: 1990b, 'A Theory of Content II', in *A Theory of Content and Other Essays*, Cambridge, Mass., MIT Press.
- Fodor, J.: 1987, *Psychosemantics*, Cambridge, Mass., MIT Press.
- Fodor, J.: 1975, *The Language of Thought*, New York, Harper & Row.
- Fodor, J. and Lepore, E.: 1992, *Holism. A Shopper's Guide*, Oxford, Basil Blackwell.
- Gomila Benejam, A.: 1995, 'Externalismo semántico y determinación del contenido: el enfoque teleológico de R. Millikan', *Análisis Filosófico* XV, 107-33.
- Hornstein, N.: 1991, 'Grammar, Meaning, and Indeterminacy', in A. Kasher (ed.): 1991, *The Chomskyan Turn*, Oxford, Basil Blackwell.
- Kim, J.: 1994, 'Supervenience' in S. Guttenplan (ed.): 1994, *A Companion to the Philosophy of Mind*, Oxford, Blackwell.
- Millikan, R.: 2001, 'The Language-Thought Partnership: A Bird's Eye View', in H. J. Glock (ed.): 2001, *Language and Communication* 21.
- Millikan, R.: 1993 'On Mentalese Orthography', in B. Dahlbom (ed.): 1993, *Dennett and His Critics*, Oxford, Basil Blackwell.
- Millikan, R.: 1991, 'Speaking up for Darwin', in B. Loewer & G. Rey (eds.): 1991, *Meaning in Mind. Fodor and his Critics*, Oxford, Basil Blackwell.
- Millikan, R.: 1990, 'Compare and Contrast Dretske, Fodor, and Millikan on Teleosemantics', *Philosophical Topics*, vol. 18, 2, 151-61.
- Millikan, R.: 1986, 'Thoughts Without Laws. Cognitive Science With Content', *The Philosophical Review*, XCV, 1, 47-80.
- Millikan, R.: 1984, *Language, Thought, And Other Biological Categories*, Cambridge, Mass., MIT Press.
- Papineau, D.: 1999, 'Normativity and Judgement', *Aristotelian Society*, Suppl. 73, 17-43.
- Papineau, D.: 1994, 'Content (2)', in S. Guttenplan (ed.): 1994, *A Companion to The Philosophy of Mind*, Oxford, Basil Blackwell.
- Peacocke, C.: 1994, 'Content (1)' in S. Guttenplan (ed.): 1994, *A Companion to The Philosophy of Mind*, Oxford, Blackwell.
- Peacocke, C.: 1992 'Concepts and Norms in a Natural World', in C. Macdonald & G. Macdonald (eds.): 1992, *Philosophy of Psychology*, Oxford, Basil Blackwell.

- Pettit, P.: 1992, 'The Nature of Naturalism', *Proceedings of the Aristotelian Society. Suppl.* 66, 254-66.
- Putnam, H.: 1992, *Renewing Philosophy*, Cambridge, Mass., Harvard University Press.
- Schiffer, S.: 1991, 'Ceteris Paribus Laws', *Mind* 100, 1-17.
- Skidelsky, L.: 'Realismo intencional, eliminativismo y psicología científica', unpublished manuscript.
- Wittgenstein, L.: 1921, *Tractatus Logico-Philosophicus*, translated by D. F. Pears and B. F. McGuinness: 1961, Atlantic Highland, NJ, Humanities Press International.