

Rereading 'The rationality of emotions' in terms of processes

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Abstract

This text is an attempt to reconstruct the main concepts (target, motivational aspect, formal object) of de Sousa's analysis of emotions and of his conception of emotions as "a kind of perception of values", starting from an ontology whose basic entities are processes (time is deduced from processes). If we cannot be certain about the identity of a process, we nonetheless can reason about the connections between processes (even if connections themselves are also processes). Emotions imply a connection between the subject's expectations (SPs) and the dynamics of his environment (EPs), therefore between two types of process. Imagining EPs also induce emotions. The mode of handling symbols (usual language of formal language associated with abstract contents) may also constitute EPs. Emotions do not only imply an incoming differential from EPs, but also a reaction, mobilizing EPs in a retro-differential (RD). Stabilizing the "content" of an emotion (in a sense not limited to its object but including the connection between processes) and thus identifying its "target" implies a mutual reinforcement of SPs and RD. The connections specific to the differential of the EPs with the expectations and the mode of reception of the SPs - including the reactivation of memorizations of previous contents - define the "focal property" of the emotion and its "motivating aspect". A value is a property involved in the interaction between a differential EP and RD (a form of compensation for the differential) and remaining stable after successive revisions of this interaction.

By focusing on the formal object of emotion, de Sousa (1987; 122) seems to rule out any account of emotions as processes. Such an account seems to have to focus more on understanding the dynamics of how emotions are triggered and evolve, including the link between past emotions and present emotions. It also seems difficult to reconcile an approach to emotions in terms of process and a conception of emotions as a 'kind of perception' of values (De Sousa 1987, 45)¹. By contrast to a perception, an emotional process may interact with the situation that is the source of the emotion, which would thus be modified. Of course, perception itself involves processes, but not in this intrusive way. Perceptive processes ensure the combination between different sensations and cognitive anticipations. The connection formats of such combinations are influenced by cognitive patterns that have been already recorded and validated by past perceptions. Emotional processes mix these validated and supposedly faithful patterns of connections to the environment with desires and expectations that go beyond these

¹ De Sousa has since developed an evolutionary perspective that has more affinity with process analysis.

patterns, and by doing so they introduce a new processual dynamic. A "perception of values", or "axiological perception" cannot be reduced to the basic perceptual connection formats. It requires to be faithful to values. This supposes a second step, in which the dynamics of emotional process may give rise to the stabilization of a new network of connections, this time between expectations and desires on a side and identification of a given type of interactive situation with the environment on the other side. On one hand, the emotional processes, triggered by the differences between these expectations and desires and the situation, are not sufficient for developing the process of axiological judgment: the stable formatting of the new network is needed for guiding this process. On their own, emotional processes may incite us to flee or counter the new situations without their reaction processes having the foundation provided by such a stable formatting. On the other hand, directly presupposing an "axiological perception" would imply neglecting the unavoidable contribution of the interactive dynamics of emotional processes which connect our expectations and desires with the orientations of the dynamics of our environment, and pretending to jump directly from stabilized perceptual connections to the result of the second step : stable frameworks of connections between the expectations and desire component on a side and our sensitivity to the type of dynamics of interactions with environment on the other side.

The point in de Sousa's book that suggests a processual approach is his insistence that defining the types of emotions and recognizing the traits of situations that make such emotion appropriate involve social learning that takes place since childhood. Only this learning makes possible to get the 'paradigm scenarios' necessary to recognize the reasons for being moved. But on the other hand, according to de Sousa, this can be a problem, since these scenarios depend on such and such a society and on such and such a stage in their development, which can come into tension with the axiological aiming of emotions when one claims universality of values (while their specific formulations are contextual). De Sousa goes so far as to present this tension as one of the 'fundamental tragedies of life' (De Sousa 1987, 328).

De Sousa therefore recognizes emotions to be anchored in processes, those of social interactions and their evolution. But this anchoring (via the learning of 'paradigm scenarios') is for him simply one of the conditions which would allow emotions to give us the means to escape the aporias of the 'framing problem' (how to know what in a situation is relevant for its actors and what is not), therefore to resolve some of our perplexities in a changing world.

De Sousa's account also seems to go against a perspective that links emotions to processes of revision of attitudes or even preferences, since this could lead to changing the definition of what

in an emotion is appropriate to its object, even to revise some of our values. How could we perceive values if the emotions supposed to perceive axiological contents had also the capacity to modify them?

2. Object approach versus process approach

There is a tension between two approaches. The object approach to the emotions considers them as perceptions of qualities of objects, or of situations, and which can serve as an anchor to establish the relationship of these objects and situations with values. On the other hand, the process approach to the emotions starts from their occurrence - which is clearly a process- and is at first focused on its initiation conditions, the dynamics of its unfolding, and the changes that it can bring in the subject's cognitive and practical orientations. The identification of the qualities and properties of the situation which trigger these emotions implies to determine in a stable way an 'object' of the emotions, while the analysis of the process of triggering, development and consequent influence of the emotions seems to challenge this postulate of stability. However, there must be a way of reconciling the two approaches, since we distinguish different emotions not only by feeling differences of dynamics between them, but also by anchoring these differences of dynamics on differences between situations that we can categorize without having to immerse ourselves in these dynamics again, which implies linking these emotions not only to our dynamic impressions, but also to properties of these situations, according to stable connections. The satisfaction of this double requirement seems to be sufficient for considering an emotion as well-founded.

An ontological difficulty underlies these problems. It is due to what one must suppose possible and even necessary, in the 'objectual' approach, to identify 'the' object of an emotion, and that in an ontology of processes, it can be difficult, if not impossible, to identify 'the' process of an emotion. If you consider processes as the *basic* ontological entities, they cannot be understood simply by adding, so to speak, a dimension of temporal evolution to more basic entities (substances, or qualities). Indeed, if processes are ontologically fundamental, it is time which depends on processes and not the reverse. We must then understand processes as 'processings' - a neologism, instead of 'proceedings' that has not really a 'processual' meaning- which implies the ordinary idea of 'doing something' but revises it by accepting that this does not produce anything other than the process itself and can be reduced to: 'proceed'. Time is then only a mode of connection between processes. For the same reason (that "processes" are the primary entities), one must admit that a 'connection' is itself only a process - which, in an ontology of relations, one would be tempted to understand as a concrete relation. It can be

argued, for example, that what we perceive are connections between processes (contrast, boundaries, bifurcations and their association with our own eyes and body movement processes). That a connection is itself a process does not imply an infinite regress as the type of problem that arises for relations: 'to connect processes, one needs a connection, and to connect this connection, another connection, etc.'. Connecting one process to another can simply consist of this process -or of both processes. This is the advantage of a process that 'does' something (here its 'proceeding' includes connecting) whereas a relation can be abstract and 'do' nothing. A relationship that would effectively links its terms would involve a connection, and unless we presuppose in advance that this relationship is already established, this sends us back to processes.

However, escaping this problem of relations comes at a price: since we have no way of ontologically separating (*de re*) a process and its connection(s), but can only distinguish them 'in thought', we cannot claim to 'identify' a process in its uniqueness. This seems to prevent us from identifying 'one object' or 'the object' that specifies the emotion. However, let us notice that a similar problem also arises for a theory of the object of emotion, as soon as we ask the question 'how do we access this object?'.

An object is in this object theory a particular. It carries a "focal property" (De Sousa 1987, 116). When this property is real and not illusory, it is "proper": that implies that it "would remain unchanged by the subject's possession of full relevant knowledge". This amounts to ensure uniqueness and identity. However, the apprehension of the focal property must also be considered as giving the "motivating aspect", and for that it must be the cause of the occurrence of emotion, but " there is no privilege of incorrigibility in the subject's aspects to motivating aspects" (De Sousa 1987, 117, Thesis V). De Sousa therefore assumes that when we aim at the object of our emotion under its proper focal property- which implies a relation of intentionality- this object is defined in its identity, whereas when we entrust ourselves to the process by which the object motivates us, this uniqueness and identity is not guaranteed. Yet it is the connection provided by this process that provokes our emotion - and not simply an intentional apprehension without affect. De Sousa moreover considers situations where the subject is mistaken about the reason for this emotion, and even its object. In his example, Wendy may find Bernie detestable because of his musical tastes, when in fact it is his voice, resembling that of a hated Wendy's grandmother, who is the reason (but also the object) of this emotion (De Sousa 1987, 117, Case 1). It turns out that an emotion must include two processes, the one that triggers the emotion (which causes it in the subject), and the one (linked to intentionality) that combines perception

and conceptualization and assigns the "motivational aspect" to an entity. De Sousa's perspective implies that it is the latter that ensures uniqueness and identity.

In our terms, the occurrence of emotion, if it can always be due to a differential with our dispositions or expectations, does not necessarily define clearly the conceptual focus of this differential. It is the reception of this differential by our elaborate cognitive system, and the work of its conceptualization specific to this reception, which operates this cognitive identification.

But if this intentional approach were sufficient for that, we would be satisfied even by purely subjective processes. This would allow to claim to solve the problem of access by reducing emotional interaction with the object of emotion to a simple projection.

We therefore do not see why the process of intentionality must be assumed to be more stable than the process of triggering the emotion. It is true that the perspective of processes cannot guarantee uniqueness, because it implies a connection between these two processes (intentional perception and causal triggering of emotion). As a connection is itself a process between two processes, and as a process is not necessarily invariant, emotion as a global process may present variations. We can no longer ensure uniqueness and identity. We have to be satisfied with what can be called a stabilization by double negation: we will admit as valid all the connections between the two processes which are *not incompatible* with each other (in the present case, as processes compatible with the categorization of the emotion). This defines a domain of equivalences, but not an identity. This perspective avoids to depend mainly on a not-processual intentional relation (which could be in addition reinforced or not by a processual causality of the intentional property as motivating). It depends on two types of processes: a process of perception and a process of triggering the emotion. The latter comes not from the object in the static sense, but from the processes of the environment intimately associated with this object, when they interact with perceptual (or even actional) expectations.

Perception, be it visual, tactile or olfactory, requires processes: the object is visible only if not perfectly transparent and if it partially reflects light rays in our direction, or audible only if it sends or reflects other waves, etc. Similarly, a movement of an object or several objects in the environment can be a source of emotion - if it triggers our perception, memorization or imagination.

Moreover, perception involves processes occurring in the sensory organs and the neuronal processing of their data. An emotion triggered by a perception thus implies, so to speak, an

encounter between two streams of processes, of which we assume usually - by simplification - that one is specific to the subject, the other specific to the object.

It will be objected that all these examples are physical and that it is a perspective to which a philosophy of 'cognitive' processes in the broad sense (including affects) should not be reduced. But the fact that we can associate these physical processes with cognitive activities does not necessarily give reasons for making these cognitive activities lose their process character.

If we admit that the environment can have an influence on these cognitive activities - which seems necessary to distinguish the perception and memorization of real events from the pure imagination - we must assume processes, which have the environment as their source. This would remain valid even if you are a pure sceptic and believe that your cognition is constantly the victim of illusions about the environment. This would only imply that the connections between the subject processes (SP) and the environment processes (EP) are never reliable, but not that they cannot exist ².

According to my thesis (Livet 2007, 2016), occurring emotions are due to a differential between the two flows SP and EP, when we feel this differential (which only implies that the SP are sensitive to the connection with the EP). Note that in an action, we are also interested in the modifications of the object situation by the flow coming from the subject. An emotion can also induce an action (Frijda 1986) but it is first triggered by the impact of the object flow on the subject flow (impact which incites action), and also of the "reverberations" of this impact on the flow of connections between processes specific to the subject's organism (particularly the processes which control actions).

Of course, we also feel an emotion simply by imagining an object or a situation, therefore in a way specific to the subject. This implies an interaction between at least two sets of processes specific to the subject, a) those which mobilize memories of past experiences (including their combination with present information, which allows to give substance to the image) and reactivate by reorganizing them in a personal way some aspects of the incidences of past external processes, and b) those which 'project' this reorganization in an imagined representation. What is usually designated by the term 'object' of a cognition (including affects) and here of an emotion, always implies a set of connection processes between processes of

² Even the "brain in a vat" is influenced by processes.

external origin³ now integrated with processes of internal origin - these connections allow to attribute the source of the emotion to the process of the set of processes specific to the situation.

One can also object that it is difficult in terms of process to define two important notions: on the one hand, what is a 'content' (of a perception, a belief, an evaluation) and the other, what is an 'attitude' (a belief, a desire, supposition). However, we can consider emotions as being kinds of perception of specific contents (for example, values, cf. Tappolet 2000, 2016) or else as being kinds of attitudes (Teroni and Deonna 2015). Nevertheless, if we start from the connection between SPs and PEs, it does seem that a necessary condition for the object of a belief or perception to ensure that this belief or perception is true is that the processes of the connections of SPs (to EPs) and the ones of EPs (to Sps) mutually strengthen their mutual connections.

Teroni and Deonna defined an attitude as 'the way the mind is concerned with' the situation or object of emotions. It would therefore be a question of considering this mutual reinforcement on the side of the PSs. On the other hand, even if they can define a content as 'what the mind is concerned with,' what 'content' means is not simply this reinforcement from the side of EPs -except if we focus on "content" in the 'object-centred' sense of the term, and not in its enlarged "state-of-affairs" sense. Rather 'content' in such an enlarged sense means what would guarantee the outcome of these mutual reinforcements between SPs and EPs and therefore ensure the stability of their connections. Assuming that this stability is acquired, it guarantees the coherence between such and such property of the object or of the situation and such result of the cognitive processes (including the affects) of the subject.

One will object that if the emotions are produced by a differential between the initial SPs and the occurring EPs, it is difficult for these occurring emotions to have a 'content' (defined by these mutually stabilized reinforcements between SPs and EPs). But the phenomenology of occurring emotions shows us that it is possible. The irruption of emotion makes us feel a change (the differential), and it is only its affective reverberation (its interactions with and between our SPs) that allows us to classify it in a particular category of emotions. This "reverberation" also 'proceeds' in different ways depending on the types of emotions - a bit like the line of a trajectory can modify its curvature in different ways, which allows it to be distinguished from other already recorded curvatures, and which allows us to identify the type of the curve. It is at this stage, when the reciprocal influences of SPs and EPs have defined by their mutual

³ We can imagine a terrible event that in fact never happened, but we can only do so by amplifying traits of events to which our past interactions have made us sensitive.

reinforcements a 'form' of interaction between these processes, that we can define a 'content' of the emotion. For example, we have an encounter that we feel embarrassing, but we do not know, until we remember a similar past interaction, if it is a resentment linked to a feeling of personal shame or a form of indignation because we suspect arrogance on the other's part.

Let us take a closer look at the process of focusing on what de Sousa calls the 'target'. This presupposes a convergence of several processes, which can therefore modify each other. If the target of the intentional object must be able to be that of an object which can be external to the subject, it is necessary a) that these processes of the subject can converge with the processes of an external object - whether this convergence succeeds or not to a definitive identification of this object. This convergence of connections could well be a good description of the indexical aspect of our perception of an object (as the perception of 'this' object), which is a first step towards an identification. In addition, intentionality implies b) that the subject can aim at the object under a certain aspect. But one cannot specify a particular 'aspect' of an object - which is the second step of identification - if one cannot c) relate this aspect to other experiences - by connecting it to similar aspect of previous objects, or by feeling it as a new aspect compared to our previous experiences. Identifying an object (a) as a certain 'content' and (b) under a certain 'aspect' implies that the mutual reinforcements of the connections between SPs and EPs converge and stabilize each other.

Condition c) implies connections between memorizations of similar objects which nourish anticipations processes, or memorizations of similar but different objects, which make it possible to judge the relative novelty of the object while reinforcing the stability connections specific to content and aspect. The EP's with which our SP's are thus connected are then seen directly as process-objects. Memorization processes imply that previous object perceiving processes have left imprints that facilitate subsequent perceptual processes. The processes of anticipation, or projections in imagination of the evolution of EP-SP connections modify the reception of EP-objects according to the process of reactivation of these imprints and of the reaction processes (movements, modifications of our expectations - for the imagination, modifications of its constructions). What we call here imagination implies a coherence between the different mnemonic elements and in addition operations of recombination of these elements. What we call perception implies a coherence (mutual reinforcement of connections) between these memorizations, anticipations and projections with the process-objects. What we call actions implies in addition a coherence with our goals and our impulses, and our movements, which are both SPs and EPs.

One will object that if it is possible to account in this processual approach of the sensitive, memorized, imagined contents, and of the evaluations of situations according to our desires and goals as well as of the actions, it does not take account of the abstract contents, like mathematical concepts or moral values. Yet the seconds, and even the first (when discovering theorems) can arouse emotions. However, it should not be forgotten that these abstract concepts are not manageable and combinable without recourse to symbols - that they simply belong to the language and its combinations of phonemes or that they require more strict symbolic constructions. The apprehension of their content is therefore also linked to mutual reinforcements, between the mental processes which construct these symbols to better fix the combination of traits of the situations and the processes of the transformations of the concatenations of symbols which make it possible to apprehend the relationships of this traits and their modifications. These transformations are the symbolic equivalent of actions, and when the construction procedures have been stabilized, the processes of implementing their rules are both mental SPs and EPs of what can be called the symbolic environment.

What can then arouse emotions in the domain of the processes that are specific to this symbolic environment (for example operations on symbols) is either that their operating capacity turns out to be more important than anticipated, or to the contrary that the rule of construction and handling reveal their limits. This is clearly what is happening in mathematics, when for example the revelation of the limits of the rational numbers involved a revision and the introduction of 'irrationals', now included in 'real' numbers. More generally, stabilization of content by mutual reinforcements between SPs and EP^es (EPs in this extended sense, including symbolic operations) are likely to be called into question when we extend cognitive exploration. This is why a notion of 'true' which would not be associated with a motivation for revision when this stability is called into question would be too fragile. In the axiological field too, it can also be argued that reflecting on the relevance of the definitions or our values by varying the situations (for example in analytical philosophy and moral philosophy) aims to achieve reciprocal adjustments that allow reciprocal reinforcements between mental processes and the EP^es of a more coherent system of values.

Focusing on the properties of an object, concrete or abstract, without taking all these processes into account appears to be a simplification. But the simplifications themselves, when they are not abusive, are most often processes necessary for the work of our cognition, which would otherwise always be overwhelmed by the complexity of our environment.

This leads to admit that the object perspective and the process perspective are necessarily complementary. The first because it allows this cognitive simplification, the second because it considers the work that underlies this simplification, and which gives it the (limited) validity that it can have. This does not mean, however, that the discussions of philosophers that adopt an analysis of emotions in terms of their objects and the properties of these objects only offer simplifications. Rather, as de Sousa shows, these discussions make it obvious that identifying what emotions are poses difficult problems. Conversely, we could therefore fear that the conflict between different conceptions would limit itself to highlighting these tensions. However, if we adopt a processual perspective, we will be rather tempted to understand to what extent these conceptions revise each other - which does not guarantee convergence but is likely to help us better recognize some of the sources of complexity of the problems.

3. Target, motivational aspect, formal object of emotions and perception of values.

We have seen that for de Sousa, an emotion has a 'target'. This target is often a particular object which is the cause of the emotion (in other cases, a 'feeling' has no object, but an emotion can sometime have an object which does not exist, and which is only propositional). This object (in favourable conditions) is the (appropriate) cause of such and such a category of emotion only if instantiates a 'formal object', which defines this category of emotion. While truth is the sole appropriate aim of beliefs, emotions of different categories such as anger and fear each have different formal objects and motivational roles. The challenge is now to give of this 'object' version of emotions a version in terms of processes.

We have seen that the process of the occurrence of an emotion, can be triggered by a differential (a variation of dynamics, a kind of acceleration or deceleration) between on the one hand the processes happening in the subject, and particularly those which make her presuppose the continuation of her perceptions and actions and more generally the continuation of the dynamics of her environment, and on the other hand at least some of the processes specific to the environment.

Notice that this differential can proceed even before it is clearly conceptualized. But it triggers a reaction that, even not yet fully conceptualized, could be consider as a kind of "retro-differential". Such a retro- or "reaction differential" consists in the change of orientation of our dynamics. Emotion is not just a reception of the dynamics of the environment but implies our dynamics of "reactivity" towards the external dynamics.

This implies that we cannot analyse emotions by considering only (1) the subjective expectations. We must relate them to (2) the differential of the dynamics of the environment and (3) the dynamics of subjective reactivity to this differential (a kind of "retro-differential").

Even while we can be moved by just reading a novel, it requires imagining the dynamics of the environment described by the novel. This change in environmental dynamics can also consist of the intervention of a new theme in our consciousness - a memory and idea that we no longer thought about, related in the novel to a new situation we had not yet considered. The associated memory refers to a real situation, and this new situation can trigger emotions only by presenting a differential with the anticipations that we usually associate to the memories evoked just before reading the new situation.

Considering the "retro-differential" dynamics (RDs) allows us to respond to an objection: some emotions may be said to have the same content, but nevertheless differ (for example, one may fear or hope to face a risky enterprise). This is explained very simply by considering not only the first differential (discovering the risk) but also different retro-differentials the dynamics of which allow or not the confrontation with the risk. We can explain in the same way that different emotions refer to the same 'content'. We can fear or hope that such and such a task will be difficult, depending on whether we are expecting or not to be able to deploy the relevant capacities - depending on different RDs. Our SPs can help us identify the difficulty (triggered by the EP), but our expectations regarding the SPs that can address it -our RDs- may vary, even if each RD could be the stabilized result of a mutual reinforcement between the subjective retro-differential and the environmental dynamics.

Another objection is that this theory does not explain the evaluative dimension of emotions (a dimension of the emotions acknowledged by most theories, even those that do not identify emotions with perceptions of values). Conversely, another problem is that an emotional experience is not reduced to a variation according to a single mode of value.

Indeed, a differential EP by itself does not define the evaluative tonality in question. But if we combine the variations of the modalities of the SPs which guide the expectations, for example those that de Sousa linked to his 'paradigm scenarios', and the different possible retro-differentials RDs, and finally consider the results of their interactions, and if in addition we can relate a given result to a set of similar results, we can associate different triples (EP-SP-RD) to different evaluative qualifications of the emotional process.

Conversely, the differential and the retro-differential that define the intensity or the magnitude of the variation in the domain(s) of value(s) considered can be multidimensional differentials. This is what sometimes gives emotions the power to upset our understanding of values and our axiology. Emotions remind us that values are not simple properties, but properties that can be involved in the interaction of differential and retro-differential (RD).

Finally, an emotional differential does not only play on idiosyncratic SPs and RDs, since the expectations that our SPs maintain are not simply individual expectations but also expectations towards the expectations of the members of our social environment - which belong also to EPs, maybe in a stronger sense than our pure symbolic environment. Here again, this is a dimension that de Sousa evokes in his scenarios.

We already have the elements needed to integrate the concepts of de Sousa in our perspective. Let us try to do it more systematically.

It is not difficult to take up the idea that an emotion has a cause; in the case of an emotion linked to a perceived and not imagined environment, it is an interaction between the processes of the environment (EPs) and subject processes (SPs and RDs). It is also possible to use the notion of 'focal property' of the target of the emotion. This is the property to which we can relate the difference between the two dynamics EPs and SPs, and that is the "focus" of an RD.

Let's take again one of de Sousa examples, but first presenting it *in a modified (simpler) version*. Wendy has a negative emotion caused by Bernie's voice, and the focal property associated with this cause is the resemblance of that voice to that of a relative who made Wendy suffer⁴. The occurrence of the EP process of Bernie's voice triggers SPs which are memories of negative emotions, which present a differential with the previous current dynamic - assumed to be that of an ordinary meeting, Bernie having no other defects. In other words, what de Sousa calls a focal property is not only due to the differential between certain aspects of the EPs and previously current SPs, but also to the fact that this interaction triggers RDs that were not active until then and which, once activated, are in tension with the SP previously in progress and can redirect them: instead of being sensitive to more ordinary aspects of Bernie, Wendy focuses negatively on his voice.

⁴ De Sousa constructs his more complex version of the example in such a way that Wendy attributes her negative emotion towards Bernie's voice not to this connection with the voice of a hated relative, but to what Bernie thinks she has a detestable musical taste (De Sousa 1987, 117). She is therefore mistaken about the link between the cause and the reason for her emotion.

De Sousa is right to say that what he calls a 'motivational aspect' can then be presented as the content of an 'explanation', which makes the emotion intelligible. This brings us into a more complex regime than that of the cause, since the differential EP-SP interaction (hearing Bernie's voice) had to be more than the hearing of a sound, but has a particular impact, that of selecting a SPm not yet reactivated (the memory of the voice of the evil parent) whose influence in return on a possible reorientation of the SPs combines causality and intelligible interpretation (in our modified version where Wendy is *aware* of this similarity of voices). The interest of this example is that it breaks down the cause and the reason of an emotion. It is the irruption, the differential of the perception of this particular voice which is the cause of the emotion, but the reason is that this cause (association with a memory) triggers a beginning of generalization, by opening a possibility of extension and somehow internal recruitment of a hitherto inactive SPm which takes us from a particular cause to a motivational property which has a more generic potential. The causal trigger has not only the effect to reactivate a memory, it also triggers, via the past repulsion associated with this memory, a retro-differential RD that is the negative qualification of this *type* of voice. It therefore seems that in this EP (the irruption of the voice) we have a 'target' as defined by de Sousa: a current particular, an object or situation towards which the emotion is directed, which has a 'focal property' (in terms of SP) which normally is also 'the motivating aspect' of this emotion (De Sousa 1987,117). The difference is that we started with the irruption of an EP, its differential with SPs, and that the determination of EP as not only a target but as a motivational aspect is done by the RD, in return of this differential.

You could say that we started with the cause instead of analysing the intentionality of the emotion directed at its target. But in fact, starting with the differential EP, we have already more than a cause that triggers a difference. We have a cause whose dynamics are qualified by one's RD.

The reader of de Sousa will protest and refer us to the original version of this example: the negative emotion is not a simple annoyance, but contempt, an emotion which for Wendy is linked to what Bernie would have a detestable musical taste. Wendy is therefore mistaken about the cause of her emotion *and* about the very type of her emotion. The motivational aspect invoked (the bad musical taste) should have been the cause of the contempt - but in fact the actual cause is the association with the voice of the hateful parent. Of course, this association alone cannot qualify the content linked with the emotional differential as 'contempt'.

De Sousa's example may sound a bit strange. A link is missing between 'similarity with hateful voice' which would be the real cause, and 'detestable musical taste', which is the reason given

for the contempt. However, the differential must be able to be qualified by SPs (including memories) whose connections with the EP of Bernie's voice are reinforcing Wendy's retro-differential to give rise to contempt. "Contempt would be relevant if Bernie's musical taste was loathsome, or if her accent gave rise to social contempt. If it is only the similarity of voice that qualifies the differential, the constitution of the content of the emotion by mutual reinforcement of the SPs and EP, constitutive of RD, would be rather annoyance or embarrassment than contempt. But this is precisely this discrepancy that De Sousa wants to make obvious⁵.

All this brings us to the notion of 'formal object' of emotion, proposed by De Sousa, following Kenny (Kenny 1963). In another example of contempt (towards anti-Semitic remarks) the formal object is defined when these remarks are taken under the description which makes it possible to experience this contempt as such - in other words, if these remarks are despicable (De Sousa 1987, 122; 341 note 4). One could fear here a problem of circularity, as despicable is equivalent to contemptible. But it is better to see here a reflexive equilibrium⁶ : we must be able to justify the qualification of the emotion by reference to traits of the object of this emotion and conversely the qualification of these traits with reference to emotions of this type. In our terms, the content of the emotion must involve certain traits of the EPs (activating differentials) and reciprocally these traits must be qualified by our retro-differential RD and its associated conceptualization with reference to emotions of this type of content. In a way, we redouble the mutual reinforcement of EP et SP (that define the content) so as to transform the differential of the EP side into a conceptual categorization, a type of EP. This operation, when it activates conceptualization, tends to reduce the differential to a content and erase the processual aspect. But of course, the interaction between the differential EP and our RD will always be the motor of emotions and it will be reactivated when we experience future differentials, which can still

⁵ Analytical examples are often built mainly in order to disqualify other theses than the one that the author claim to be better grounded. One could object that it could be a case of "confabulation", related to introducing complications that are only motivated by excessive focusing on this negative aim. The author of the example may escape this objection if in the example she gives plausible grounds, not directly of the focal theses, but of elements of the example. These grounds must be possible to test independently of these focal theses. Such grounds can be found for De Sousa's example, when one can test a) whether Wendy could (counterfactually) have noticed this similarity in voice, which would have made her to wonder if this could be the reason why she despises Bernie, therefore revising the "motivational aspect"; b) whether other people whose taste Wendy enjoys find that Bernie is not vulgar in his musical tastes ; c) whether once taking into account the similarity of voices and the appreciations of others, Wendy no longer perceives Bernie's musical tastes as detestable.

⁶ As De Sousa has developed in "Really what is else there? Emotions, value and morality", 2008, Critical Quaterly.

modify the contours of this formal object. The advantage of this processual formulation over the notion of reflective equilibrium is that it opens the way not only for processes of corroboration of the emotional qualification, but also of refinement or even revision of this qualification.

This brings us to take a closer look at de Sousa's main thesis, which is that emotions are 'a kind of perception' whose objects are axiological properties (De Sousa 1987, 45). At first glance, it is easy to apply the EP-SP (via SPm) schemes to perception. The difference between perception and emotion is that perception only implies that this encounter produces a correspondence, whereas the emotion (which is triggered by a perception associated with memorization but can also be triggered by an imagination) implies it via a differential with the previous expectations and via the associated retro-differential.

De Sousa's axiological conception seems to dispense with the notion of differential. We would evaluate (perceptively) the axiological property of the situation, and if it seems bad, we would have a negative emotion, if it seems good, we would have a positive emotion. In this framework, evaluation does not necessarily imply expectations, and in particular it does not imply their processual nature. A fortiori emotions do not imply a differential process (a process of variation of a first order process, a second-degree process) in relation to these expectations. The dynamic aspect of emotions is missing.

In this perspective, the specificity of emotions is limited to the possibility of being moved also by an imagination that does not correspond to anything real, and to the specificity of their objects, which are not factual but axiological. But suppose that we perceive values. Simply having access to an axiological entity would not necessarily produce emotions - but for example a value judgment. It even seems desirable that the judge who would propose a value judgment not to do so by virtue of his own emotion⁷.

De Sousa deals only indirectly with this problem, through a partial recognition of its relevance: he makes us aware of the fact that the values targeted by emotions are multiple and may possibly come into conflict, without it being possible or even desirable to reduce this plurality. His proposition is that we must adopt the opposite strategy and admit diversity. The motivation is that not to do so means adopting an axiology that boils down to a projection of the values that we want to impose. This, in turn, implies that we are totally dependent on the circumstances of

⁷ In fact, he proposes a judgment of "conformity to the law" which is even less subject to emotion, but which still has an axiological status - limited because the value in question depends on the definition of this right in the legal system.

our learning of paradigm scenarios. This form of “axiological blindness” should be countered by becoming more sensitive to other values, and therefore by enriching our emotional repertoire, even at the cost of tensions that are difficult to ease between different emotions which are justified (what de Sousa calls the "fundamental tragedies of life" (De Sousa 1987, 328).

4. A processual conception of values

For emotions to have stronger links with values, changes in values must also be able to trigger differentials (which does not exclude the possibility of making value judgments without experiencing emotions).

We can start from the most immediately obvious case, that where our own values prompt us to take actions aimed at improving a situation. We start from being sensitive to a difference between our expectations in terms of values and the situation in question, and this differential motivates us to try to modify the situation- this is a conative version of values- or simply to modify our reaction - retro-differentials in each case. A retro-differential is supposed to re-establish a form of balance, possibly by *compensating* this difference - if the action creates a situation more in conformity with the expectations which the emotional differential signalled to be called into question, or if the subject finds a better adapted reaction to the situation.

It will be objected that this only works in the case of a negative emotion, which actually incites to act in such a way as to compensate its causes and effects. What if the emotion is positive? However, this presupposes a differential: the situation is better than expected. It is not in this case a question of ‘compensation’, but rather of *adaptation*, which does not try to transform the situation by an action but consists in revising the expectations of the subject so that they are up to the level of this situation more satisfactory. Once this *revision* is completed, the validation of this redefinition of expectations by the situation is part of our memorizations. These will subsequently make it possible to reactivate these revised expectations not only emotionally (by a differential) but according to the compensation or adaptation produced by the revision which responded to the differential. This reactivation will not only take place in negative or positive emotional situations, but more generally in the evaluations of situations.

The scenario of this evolution in three aspects of the development of our retro-differential (compensation, adaptation, revision) gives an account of the particular role of emotions in the constitution of a sensitivity to values. It also allows us to understand that we must accomplish this adaptive compensation of the emotional differential so that we arrive at a stabilized value,

which we can recognize in other situations and without necessarily feeling emotions. Learning values often involves making revisions of our previous revisions, and it is to be hoped that the most fundamental values are those that have been selected by revision of revisions.

It is of course always possible that in a future situation this recognition of value elicits affects similar to the initial emotions, since these have left memory traces which are then reactivated by the perception of this situation, which will therefore be perceived as valued (positively, negatively, or simply as normal if they hardly activate emotion). Learning values implies that this global process validates the formation of our values and retains what in them has resisted successive revisions. This process includes in particular the emotions that are triggered by the differential related to the discovery that our initial conception and formulation of these values led to accepting behaviours that have consequences contrary to the orientations and aims linked to these values. These emotions therefore participate in the formation of our values, without necessarily having to identify them with a simple perception of values. Indeed, a perception, considered in isolation, implies only a connection between EPs and SPs (including SPm) but without differential nor a fortiori compensation of a differential and stabilization after revision. Our processual schema leads to temper the idea that we immediately have a direct perception of values. We first have to learn them by allowing them to emerge from this stabilization of the outward and return journey between the connection processes in the direction EP->SP and those of our reaction RD, and its different steps of revision.

One could object that this processual scheme could just as easily be applied to the learning of forms recognition, therefore already in a simple perception, supposedly non-axiological. But this is to forget that these forms will have already had to be learned in order to the emotional differential can have its impact. The stabilization that allows us to evaluate situations is therefore a second-degree stabilization, after a questioning by an emotional differential (whether negative or positive) of the anticipations of possible interactions guaranteed by these recognitions of forms.

Emotions would therefore have a role in the learning of value - even if our reasoning does not imply that this emotional role is necessary, but only that, once connected to the three processes of the retro-differential, compensation, adaptation and revision, it is sufficient. Even if this role were essential, that would not imply that emotions alone ensure a perception of values - De Sousa does not hold such a strong thesis. It is obviously possible that we have access to values by reasoning and more generally by an essentially conceptual cognition. Reasoning implies cognitive work and the possibility of revising those of the conclusions of this work which would

not have taken into account relevant elements. ‘Thin’ values, like the good, the true, the just and their negative counterparts, assume that this work has been done and that its results are stable. It would be better, moreover, to consider thin values as constantly renewed incentives to accomplish this work, rather than as attached to particular episodes of evaluation. They are therefore situated beyond the process of occurring emotions and their differential, whereas these emotions are on the contrary anchored in particular contexts and linked to ‘thick’ values. It seems reasonable to maintain that for a perception of values, emotions are necessary, but adding that they are not sufficient, since it is necessary to be able to transform their impact into incentives for revision which lead to stabilization. The fact remains that the combination between emotions, compensation and revision is not for all that guaranteed to establish a sensitivity to values that is irreproachable, that is to say such that there could not be any reason or even incentive to revise it. But the more revisions we have satisfied, the more we are justified in having a higher level of requirement before accepting further revisions⁸. This is nevertheless consistent with De Sousa's position on the socialization of values, and with his demand that our learning will be inspired by a spirit of openness to the values of others. Openness or sensitivity to possible differentials in conjunction with reasonable reactive revisions are the basis of values.

De Sousa is therefore right to posit as a principle of rationality that our emotions must allow us to be sensitive to the diversity of possible paradigm scenarios. Does this mean that we have to be sensitive to the widest variety of values possible? No, since a sensitivity to one value can result from but also lead to a revision of another value, so our learning of values can just as well lead to a decrease in our range of values. However, de Sousa does not claim that we should support with the same vigour all the values to which we are sensitive. We could say that for him, we must have a reservoir of diversity so as not to prematurely assume that we have reached a balance in the constitution of our system of values, by setting aside too quickly values which, in situations that we have not met until then, could also turn out to have a potential to revise the priorities between our present values.

⁸ A situation that is in some way similar to Wendy's case 1, but in which our reaction does not seem "irrational" (even if disputable): why it seems "not irrational" -for 50 years old people- to feel a "contempt" for very recent music, even if this reactivity is simply due to the fact that their musical education *has stabilized* their tastes mainly between 18 and 30 years. Is it reasonable? Maybe: this musical taste is the result of a musical learning, and this stabilization has required successive revision of our musical expectations, mainly possible between 18 and 30 years. But it is disputable, as it implies to block new revisions.

What de Sousa calls ‘fundamental tragedies of life’ could be reinterpreted in the terms of these revision conditions. He mentions three such tragedies: the fear of death is justified from an evolutionary perspective but is axiologically irrational since once we are dead we will no longer suffer; the individual who holds on to his own values may come into conflict with his civilization and yet be right; we aspire to universal values, but nothing guarantees that our learning of values was not limited to an abusive generalization of the ‘projection’ of our only personal experience. In the last two cases, our community (second case) or ourselves (third case) are not sufficiently sensitive to the potential for revising values that the collectives and more generally other individuals constitute. The first case, that of the relation to death, is in fact similar, since evolutionary rationality is judged only at the level of the becoming of the species, whereas it is only for individuals who no longer exist that to be afraid of death or to suffer from a process leading to death would be meaningless. But we don't have a better learning process of values at our disposal than the one that first makes us sensitive to a differential between our expectations and our environment, which usually triggers emotions, then activates our retro-differential and attempts to compensate for this differential, leading to adaptations, which, if we present any rationality, involves revising some of our expectations, and thus combining a form of truth and an aspiration to good.

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