Theory of Cognitive Distortions: Over-Generalisation and Mislabeling

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Summary

In a previous paper (Compléments pour une théorie des distorsions cognitives, *Journal de Thérapie Comportementale et Cognitive*, 2007), we introduced some elements aimed at contributing to a general theory of cognitive distortions. Based on the reference class, the duality and the system of taxa, these elements allow to define the general cognitive distortions as well as the specific cognitive distortions. This model is extended here to the description of two other classical cognitive distortions: over-generalisation and mislabelling. The definition of the two latter cognitive distortions is based on preliminary distinction between three levels of reasoning: primary, secondary and ternary pathogenic arguments. The latter analysis also leads to define two other cognitive distortions which insert themselves into this framework: ill-grounded inductive projection and confirmation bias.

Keywords: cognitive therapy, cognitive distortions, over-generalization, labelling, mislabelling, induction, confirmation bias.

In Franceschi (2007), we set out to introduce several elements aimed at contributing to a general theory of cognitive distortions. These elements are based on three fundamental notions: the reference class, the duality and the system of taxa. With these three elements, we could define within the same conceptual framework the following general cognitive distortions: dichotomous reasoning, disqualification of one pole, minimisation and maximisation, requalification in the other pole and omission of the neutral. We could also describe as specific cognitive distortions: disqualification of the positive, selective abstraction and catastrophism. In the present article, we offer to define and to situate, within the same conceptual framework, two other classical cognitive distortions: over-generalisation and mislabelling.

Over-generalisation and mislabelling constitute two of the twelve traditionally defined cognitive distortions: emotional reasoning; over-generalisation; arbitrary inference; dichotomous reasoning; should statements; divination or mental reading; selective abstraction; disqualification of the positive; maximisation/minimisation; catastrophising; personalisation; mislabelling (Beck 1964, Ellis 1962). Over-generalisation is classically defined as a rough and ill-grounded generalisation, usually including either of the quantifiers “all”, “none”, “never”, “always”. Moreover, it is often described as a cognitive distortion including four subcategories: dichotomous reasoning, selective abstraction, maximisation/minimisation, and disqualification of the positive. Mislabelling is also classically

defined as an extreme form of over-generalisation, consisting in the apposition of a label with a strong negative and emotional connotation to oneself or to an external subject.

1. Primary, secondary and ternary pathogenic arguments

Before setting out to define over-generalisation and mislabelling in the present context, it is worth describing preliminarily a structure of pathogenic reasoning (in the etymological sense: engendering suffering), with a general scope, susceptible of being found in some disorders of a very different nature, such as depression, generalised anxiety disorder, body dismorphic disorder, scrupulosity or intermittent explosive disorder. Such structure of reasoning includes several levels of arguments: primary, secondary and ternary. In a simplified way, primary pathogenic arguments are constituted by an enumeration of instances. Secondary pathogenic arguments consist of a generalisation from the latter instances. Lastly, pathogenic ternary arguments are constituted by an interpretation of the latter generalisation. Such reasoning as a whole presents an *inductive* structure.

At this stage, it is worth mentioning several instances of this type of reasoning. A first instance, susceptible to be found in depression (Beck 1967, 1987), is the following (the ∴ symbol denotes the conclusion):

(1_1)	I gave my ankle a wrench last January	$premise_1$
(1_2)	I lost my job last February	$premise_2$
(1_3)	Fifteen days ago, I had an influenza with fever	$premise_3$
(1_4)	I got into an argument with Lucy last month	$premise_4$
(...)		(...)
(1_{10})	Today, my horoscope is not good	$premise_{10}$
(2)	∴ Everything that occurs to me is bad	from (1_1)-(1_{10})
(3)	∴ I am a complete failure!	from (2)

The patient enumerates first some events of his/her past and present life (1_1)-(1_{10}), that he/she qualifies as negative, through a primary stage which consists of an enumeration of instances. Then he/she performs a generalisation (2) from the previous enumeration, which presents the following structure:

(2)	∴ All events that occur to me are negative	from (1_1)-(1_{10})

Lastly, the patient interprets (3) the latter conclusion by concluding “I am a complete failure!”. Such instance applies then to the reference class of the present and past events of the patient's life and to the Positive/Negative duality.

One can also mention a reasoning that presents an identical structure, which is susceptible to be met in body dysmorphic disorder (Veale 2004, Rabinowitz & al. 2007). The patient enumerates then different parts of his/her body, which he/she qualifies as ugly. He/she generalises then by concluding that all parts of his/her body are ugly. Finally, he/she adds: “I am ugly!”. The corresponding reasoning applies then to the Beautiful/Ugly duality and to the reference class of the parts of the patient's body.

In the same way, in a reasoning of identical structure, susceptible to be met in scrupulosity (Teak & Ulug 2001, Miller & Edges 2007), the patient enumerates several instances corresponding to some acts which he/she made previously or recently, and which he/she considers as morally bad. He/she concludes then: “Everything I do is bad, morally reprehensible”, and he/she further interprets it by concluding: “I am a horrible sinner!”. Such conclusion is likely to trigger an intense feel of guilt and a compulsive practice of religious rituals. The corresponding instance applies here to the duality Good/Evil and to the reference class of the present and past actions of the patient's life.

Lastly, an instance of this structure of reasoning can contribute to the development of hostility, of a potentially aggressive attitude toward other people. In that case, the patient concludes regarding an external subject: “All acts that he committed toward me are bad”. He/she concludes then: “He is a bastard!”. Such conclusion can then play a role in intermittent explosive disorder (Coccaro & al. 1998, Galovski & al. 2002). In such case, the over-generalisation applies to the Good/Evil duality and to the reference class of the actions of an external subject with regard to the patient.

At this step, it is worth describing in more detail each of the three stages – primary, secondary and ternary – which compose this type of reasoning.

Primary pathogenic arguments

The first step in the aforementioned type of reasoning, consists for the patient to enumerate some instances. The general structure of each instance is as follows:

(1_i)	The object x_i of the class of reference E has property $\bar{A}$ (in the duality $A/\bar{A}$)	$premise_i$

In the aforementioned example applied to depression, the patient enumerates some events of his/her present and past life, which he/she qualifies as negative, under the form:

(1_i)	The event E_i of negative nature occurred to me	$premise_i$

Different instances corresponding to this cognitive process can be described under the form of a *primary pathogenic argument*, the structure of which is the following:

(1a)	The event E_1 occurred to me	premise
(1b)	The event E_1 was of a negative nature	premise
(1)	$\therefore$ The event E_1 of a negative nature occurred to me	from (1a), (1b)

By such cognitive process, the patient is led to the conclusion according to which some negative event did occur to him/her.

From a *deductive* point of view, this type of argument proves to be completely valid (the conclusion is true if the premises are true) since the very event presents well, objectively, a negative nature. However, this type of primary argument can turn out to be fallacious, when the very event presents, objectively, a positive or neutral nature. The flaw in the reasoning resides then in the fact that the premise (1b) turns then out to be false. Such can be case for example if the patient makes use of a specific cognitive distortion such as requalification in the negative. In such case, the patient considers as negative an event the nature of which is objectively positive.

Secondary pathogenic arguments

At the level of the above-mentioned reasoning, secondary pathogenic arguments are constituted by the sequence which proceeds by *generalisation*, from the instances (1_1) to (1_{10}), according to the following structure:

(2)	$\therefore$ All elements x_i of the class of reference E have property $\bar{A}$	from (1_1)-(1_{10})

Such over-generalisation leads then to the conclusion "All events that occur to me are bad" (depression); "All parts of my body are ugly" (body dysmorphic disorder); "All my acts are morally reprehensible" (scrupulosity); "All acts that he committed toward me are bad" (intermittent explosive disorder).

From a *deductive* point of view, such generalisation may constitute a completely *valid* argument. Indeed, the resulting generalisation constitutes a correct deductive reasoning, if the premises (1_1)-(1_{10}) are true. However, it often proves to be that the premises of the argument are false. Such is notably the case when the patient counts among the elements having property $\bar{A}$, some elements which objectively have the opposite property A. The flaw in the argument resides then in a *requalification in the other pole* related to some elements and the enumeration of instances includes then some false premises, thus invalidating the resulting generalisation. In such case, secondary pathogenic argument turns out to be ungrounded, because of the falseness of some premises.

In other cases, the secondary pathogenic argument turns out to be fallacious from an inductive standpoint. For some positive (or neutral) events can well have been omitted in the corresponding enumeration of instances. Such omission can result from the use of general cognitive distortions, such as the omission of the neutral or disqualification of the positive. In such case, the elements of the relevant class of reference are only partly taken into account, thus biasing the resulting generalisation. The corresponding reasoning remains then logically valid and sound, but fundamentally incorrect of an inductive point of view, because it does only take partly into account the relevant instances within the reference class. Such feature of over-generalisation – a conclusion resulting from a valid reasoning

from a deductive point of view, but inductively wrong – allows to explain how it notably succeeds in deceiving patients whose level of intelligence can otherwise prove to be high.

Ternary pathogenic arguments

It is worth mentioning, lastly, the role played by pathogenic ternary arguments which consist, at the level of the aforementioned reasoning, of the following sequence:

(2)	All events that occur to me are of a negative nature	premise
(3)	∴ I am a complete failure!	from (2)

In such argument, the premise is constituted by the conclusion (2) of the secondary pathogenic argument, of which, in an additional stage (3), the patient aims at making sense by interpreting it. It consists here of a case of *mislabelling*. At the stage of a ternary pathogenic argument, mislabelling can thus take the following forms: "I am a complete failure!" (depression); "I am ugly!" (bodily dysmorphic disorder); "I am a horrible sinner!" (scrupulosity); "He is a bastard! " (intermittent explosive disorder). In the present context, mislabelling proves to be an invalid argument, which constitutes a rough and unjustified interpretation of the over-generalisation (2).

2. Over-generalisation

At this stage, we are in a position to give a definition of over-generalisation, by drawing a distinction between general and specific over-generalisations. A general over-generalisation applies to any duality and to any reference class. It can be analysed as the ill-grounded conclusion of a secondary pathogenic argument, the premises of which include some general cognitive distortions: dichotomous reasoning, disqualification of one pole, arbitrary focus, minimisation/maximisation, omission of the neutral or requalification in the other pole. It consists of an ungrounded inductive reasoning, because the resulting generalisation is based on an incorrect counting of the corresponding instances. In the same way, a specific over-generalisation consists of an instance of a general over-generalisation, applied to a given duality and reference class. Thus, the specific over-generalisation "All events which occur to me are of a negative nature" (depression, generalised anxiety disorder) applies to the Positive/Negative duality and to the class of the events of the patient's life. In the same way, "All parts of my body are ugly" (body dysmorphic disorder) is a specific over-generalisation that applies to the reference class of the parts of the patient's body and to the Beautiful/Ugly duality.

3. Ungrounded inductive projection

At this step, it proves to be useful to describe another error of reasoning, which is likely to manifest itself at the stage of secondary pathogenic arguments. It consists of an ill-grounded inductive projection. The latter concludes, from the preceding over-generalisation (2), that a new instance will occur in the near future. Such instance is susceptible to be met in depression (Miranda & al. 2008), as well as in generalised anxiety disorder (Franceschi 2008). In the context of depression, such inductive projection presents the following form:

(2)	All events that occur to me are of a negative nature	premise
(1_{11a})	The future event E_{11} of a negative nature may occur	premise
(1_{11b})	∴ The future event E_{11} of a negative nature will occur	from (2), (1_{11a})

The corresponding conclusion is susceptible of contributing to depression, notably by triggering the patient's feeling of despair. Other instances of this type of conclusion are: "My next action will be morally reprehensible" (scrupulosity), or "The next act that he will commit toward me will be bad" (intermittent explosive disorder).

4. Confirmation bias

The cognitive process which has just been described illustrates how over-generalisation contributes to the *formation* of pathogenic ideas. However, a process of the same nature is also likely to concur to their *maintenance*. For once the over-generalisation (2) has been established by means of the above reasoning, its maintenance is made as soon as an instance occurs that *confirms* the generalisation according to which all elements x_i of the reference class E have property $\bar{A}$. This constitutes a *confirmation bias*, for the patient does only count those elements which present the property $\bar{A}$, without taking into account those which have the opposite property A, thus disconfirming generalisation (2). Hence, in depression or generalised anxiety disorder, when a new negative event occurs, the patient concludes from it that it confirms that all events which occur to him/her are of a negative nature.

We see it finally, the above developments suggest a classification of cognitive distortions, depending on whether they manifest themselves at the level of primary, secondary or ternary pathogenic arguments. Thus, among the cognitive distortions which arise at the stage of *primary* pathogenic arguments, one can distinguish: on the one hand, the general cognitive distortions (dichotomous reasoning, disqualification of one pole, minimisation/maximisation, requalification into the other pole, omission of the neutral) and on the other hand, the specific cognitive distortions (disqualification of the positive, requalification into the negative, selective abstraction, catastrophising). Morevoer, among the cognitive distortions which manifest themselves at the stage of *secondary* pathogenic arguments, one can mention over-generalisation (at the stage of the *formation* of pathogenic ideas), ill-grounded inductive projection, and confirmation bias (at the stage of the *maintenance* of pathogenic ideas). Mislabelling, finally, is susceptible to occur at the level of *ternary* pathogenic arguments.

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