

The mountain of cultural psychology and the mouse of empirical studies. Methodological considerations for birth control

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Abstract:	<p>Cultural psychology has built up a powerful theoretical edifice, but it has not yet consolidated its own methodology of analysis. Thus, cultural psychologists adopt models of empirical investigation borrowed from other social science domains, taking it for granted that the latter are consistent with their theoretical framework. As a result, the mountain of powerful theory ends up giving birth to the mouse of empirical analyses which runs the risk of being just the translation into the language of psychology of what is already stated by the normative canons of common sense. This paper is divided into two parts. In the first, I provide arguments in support of my criticisms, focusing on the problematic role played by the interpreting empirical investigation in terms of inductive generalization. In the second part of the paper I propose abductive generalization as an alternative grounds for the empirical investigation of psychological phenomena, providing arguments highlighting why and how it may sustain a valid methodology for cultural psychology. In particular, attention is paid to the form of generalization (abstractive generalization) that abduction leads to, as well as to the search of boundary variability as a basic strategy of investigation.</p>

The mountain of cultural psychology and the mouse of empirical studies. Methodological considerations for birth control

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Abstract. Cultural psychology has built up a powerful theoretical edifice, but it has not yet consolidated its own methodology of analysis. Thus, cultural psychologists adopt models of empirical investigation borrowed from other social science domains, taking it for granted that the latter are consistent with their theoretical framework. As a result, the mountain of powerful theory ends up giving birth to the mouse of empirical analyses which runs the risk of being just the translation into the language of psychology of what is already stated by the normative canons of common sense. This paper is divided into two parts. In the first, I provide arguments in support of my criticisms, focusing on the problematic role played by the interpreting empirical investigation in terms of inductive generalization. In the second part of the paper I propose abductive generalization as an alternative grounds for the empirical investigation of psychological phenomena, providing arguments highlighting why and how it may sustain a valid methodology for cultural psychology. In particular, attention is paid to the form of generalization (abstractive generalization) that abduction leads to, as well as to the search of boundary variability as a basic strategy of investigation.

Keywords. Empirical cultural psychology, abduction, generalization, case study, methodology, boundary variability

Introduction

Cultural psychology has built up a powerful theoretical edifice, but it has not yet consolidated its own methodology of analysis (Valsiner, 2014) – though some steps in that direction have been taken in the last few years (Salvatore, Valsiner, Strout, & Clegg 2009; Salvatore, Valsiner, Traves Simon & Gennaro, 2011a, 2011b; Salvatore, Gennaro & Valsiner, 2012; Valsiner, Molenaar, Lyra & Chaudhary, 2009). Thus, cultural psychologists adopt models of empirical investigation borrowed from other social science domains, taking it for granted that the latter are consistent with their theoretical framework. As a result, the mountain of powerful theory ends up giving birth to the mouse of empirical analyses, which holds few surprises and runs the risk of being just a translation into the language of psychology of what is already stated by the normative canons of common sense. This paper is divided into two parts. In the first part, the *pars destruens*, I provide arguments in support of my criticisms. To this end I refer to the case study carried out by Cameron and colleagues (Cameron, Pinto & Tapanya, 2014) as a source of examples that help me to clarify my arguments. This case study concerns a young Thai boy, “Pond”. The Authors adopted a mix of data sources (interviews, film of a whole day in the boy’s life; the boy’s sketchbooks) in order to study the boy’s way of coping with a critical context (Pond was transferred to a different part of Thailand just with his father). In particular, the analysis focused on Pond’s interest in drawing and on the strong supportive role played by the relationship with his father, interpreted as two factors contributing to Pond’s wellbeing. On the base of such results, the authors underlined the role that symbolic activity can play in mediating young people’s growth, especially when they have to deal with a hard developmental task. This case study lends itself to being used as an example because it is a prototype of the well-written empirical analyses carried out in the field of cultural psychology. Thus, my arguments are not to be intended as contingent criticisms concerning this specific study; but as a way of calling for a paradigmatic development of the methodology of analysis of cultural phenomena. Some ideas concerning this perspective are proposed in the second, part of the paper, to contribute to the task of the *pars construens* to which my criticisms pave the way. In particular, my proposal is to consider abduction as the grounds of the methodology of empirical investigation of

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3 psychological phenomena (Salvatore & Valsiner, 2010).
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5 6 **Generalization within and beyond the case**

7 When cultural psychologists, and in particular those who take a socio-semiotic view of cultural
8 phenomena (Salvatore & Pagano, 2005; Salvatore, 2006; Valsiner, 2007, 2013, Valsiner & Rosa,
9 2007), commit on empirical research, they tend to adopt qualitative methodology and to focus on
10 single cases. This reflects a generalized idea that leads to take critical view-as if it were almost
11 blasphemy – of quantification (and at times the very idea of variables) as well as of the use of data
12 from collections of subjects (i.e. population samples). In other papers I, with others, have shown
13 how simplified and ideological the qualitative-idiographic versus quantitative-nomothetic contrast
14 is (Lauro-Grotto, Salvatore, Gennaro, Gelo, 2009; Salvatore Lauro-Grotto, Gennaro, Gelo Salvatore,
15 2009; Salvatore & Valsiner, 2009, 2010, 2011; Valsiner & Salvatore, 2012). On the other hand,
16 regardless of the assumption grounding such a preference, the case study may be considered a
17 prototypical modality of empirical investigation in the field of cultural psychology. For this reason,
18 the following discussion will focus on it, even if the core of my arguments can be generalized to
19 other research plans used by cultural psychologists (e.g. analysis of documental sources, content
20 analysis).
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24 When the analysis has to do with a single case (or a group of single cases), the basic issue to be
25 dealt with is to create an epistemic nexus between the empirical content of the analysis (i.e. acts,
26 events, speeches) and the general class of phenomena which the scientific knowledge concerns (i.e.
27 the cultural phenomenon the researcher intends to understand by means of the case). This is so
28 obvious that it should not require further discussion – case analysis is the means, not the aim of the
29 investigation. Though it is not the only function cases may have (e.g. a case can be analyzed for
30 aesthetic, pragmatic or political aims), within the scientific domain, investigations are performed
31 for the sake of developing theory (however this development may be understood), not as a self-
32 contained goal. For instance, the analysis by Cameron and colleagues (2014) of the use the Thai boy
33 Pond makes of drawing is guided by the purpose of understanding “his resilient processes in
34 ecological context” (Cameron et al, p. X); and with this purpose, the authors intend to highlight the
35 “potentials of identifying and promoting artistic creativity as a source of strength for vulnerable
36 youth” (Cameron et al, p. X).
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40 The construction of the link between the particularity of the case and the generality of the
41 knowledge pursued can be seen as an epistemic process performed in terms of four operations of
42 generalization set on different hierarchical levels and recursively linked.
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45 At the first level, the analysis brings into being an infinite series of *instant generalizations* thanks to
46 which the empirical occurrences acquire their semantic content. Indeed, taken in itself, any
47 occurrence is mute, void of significance; it has infinite possible significances, due to which class it
48 is considered the specimen of. Thus, instant generalization is the process of attributing the empirical
49 occurrence to a certain class – rather than another – and in so doing of projecting the semantic
50 properties of the class onto the empirical occurrence. Instant generalization constitutes the first
51 epistemic operation of constructive interpretation of the raw empirical material, through which it is
52 given meaning and therefore is experienced and conceived of as “datum”. Consider this brief
53 excerpt from Cameron and colleagues (2014)’s analysis:
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58 “Pond was determined to be a responsible youth by his schoolteachers, by his father and
59 by himself. When asked whether he resented his hard work at school, at home and in the
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3 noodle shop he replied that were he ever inclined to complain about his load, he just
4 looked at his father who carried so much heavier a load and he lost any inclination to
5 complain. During the filmed day, not only did he cook, clean and serve in the shop, but
6 he also took about one hour to iron his and his father's laundry (p. X)"
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10 In this excerpt, the authors support their claim about Pond's sense of responsibility by providing
11 data consistent with it – namely the time spent by the boy attending to domestic affairs as well as
12 the statements about the way he controlled his inclination to complain. Now, what is relevant to
13 observe here is that Pond's statement, along with his cooking, cleaning, serving and ironing do not
14 have a single inherent meaning, namely that identified by the authors (i.e. indications of Pond's
15 sense of responsibility). The authors' interpretation is plausible, but it is still an interpretation,
16 involving the choice of one possible meaning over others. Interpreting means foregrounding one
17 possible meaning and pushing into the background the alternative possible meanings (*omnis*
18 *determinatio est negatio*, according to Spinoza). In other words, what the authors collected were not
19 indications of his sense of responsibility, but empirical occurrences (in the format of film records
20 and reactions during the interview) that lent themselves to being interpreted in such a way. Yet,
21 although this interpretation is plausible, other interpretations could be considered – for instance,
22 Pond's engagement in domestic affairs could be seen as a way of avoiding confrontation with his
23 peers, or as the enactment of an emulative attitude towards his absent mother. As one can easily see,
24 each of these interpretations comes from a different line of generalization and, in the final analysis,
25 leads to the generation of profoundly different data from the same empirical occurrence.
26 Accordingly, one is led to recognize that the meaning of data is not inherent to the empirical
27 occurrence, but is the first product of interpretative activity in research. I have used the term
28 "instant generalization" to underline two complementary aspects. On the one hand, the
29 generalization is instantaneous in the sense that it concerns a discrete occurrence, extended over a
30 circumscribed space-time area. On the other hand, the generalization is instantaneous because it is a
31 very fast operation, quick enough to be grasped in terms of reflective backward analysis, but not
32 with awareness of its ongoing execution. Consequently, without this backward reflection, the datum
33 – intended as the output of instant generalization – is confused with the occurrence; instead of
34 interpreting what is seen, one sees what is interpreted.
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38 The excerpt from Cameron and colleagues given above helps to highlight the second level of
39 generalization too, the *intra-analysis generalization*. The statement that "Pond was determined to be
40 a responsible youth by his schoolteachers, by his father and by him himself." (p. X) is an example
41 of this level of generalization. Thus, cooking, cleaning, serving and ironing as well as Pond's reply
42 to the authors ("he replied that were he ever inclined to complain about his load, he just looked at
43 his father who carried so much heavier a load and he lost any inclination to complain.") are
44 interpreted as indexes/manifestation of a single, more general condition (i.e. the Pond's sense of
45 responsibility). Also in this case a process of generalization is at work; indeed, different data
46 (cooking, cleaning, etc.) are interconnected and given a systematic meaning in the context of the
47 case analysis. The meaning is systematic in the sense that it goes beyond the event – for instance,
48 cooking is no longer seen as cooking, but as an example of the sense of responsibility characterizing
49 Pond's attitude not only in the moment he was recorded while cooking, but over the whole analysis.
50 Here the third generalization comes into play, the *intra-case generalization*. It concerns bridging
51 between Pond-within-analysis and Pond-as-person. This level of generalization, then, is what leads
52 us to consider what is understood in the context of the analysis as concerning the whole context of
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3 the case. In other words, the knowledge built on the piece of cultural phenomenon under the lens of
4 investigation is exported – that is, it is generalized – to the cultural phenomenon in its entirety. This
5 is not at all an obvious form of generalization – as the vast debate on the external validity of
6 psychological research indicates. Cameron and colleagues seem to be aware of the non-
7 obviousness of it when they recognize that social desirability may have played a role in making
8 Pond in analysis different from Pond outside analysis.
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12 It is possible that our interpretations of his self-regulation and pride should be moderated
13 by consideration of his humility and filial piety. He might on other occasions complain of
14 his hard work or the challenges of his relocations but we respected here his reflections,
15 enactments and the transactions he chose to share with us as valid representations of the
16 cultural stance he chose to adopt in participating in our study. Social desirability could of
17 course be a factor in his exchanges. (Cameron et al, p. X)
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21 Finally, there is the forth level of generalization: the *ecological generalization* - namely that
22 concerning the interpretation of the results of the analysis as a bundle of knowledge valid for the
23 whole class of phenomena of which the case is considered a specimen. For instance, Cameron and
24 colleagues (2014) generalize their understanding of the Pond-father relationship to the whole class
25 of parent-son exchanges
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28 These observational data suggest that the parent's sensitivity to the son's attitudes and
29 talent may facilitate the son's general understanding of himself and of his external
30 reality, through the mediation of a congenial context (Cameron et al, p. X)
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34 Thus, through this process of generalization the knowledge produced in the contingent context of
35 the analysis, referring to the particular case, is universalized. In so doing, the analysis is given
36 meaning, namely the analytic purpose pursued by the case study acquires its function of being a
37 way of carrying out the scientific aim of the investigation, that, as said above, always concerns the
38 knowledge of universals.
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41 **Abduction**

42 My thesis is that generalizations enacted for the sake of case analysis, regardless of whether and
43 how they are recognized, entail processes of abductive inference.

44 Abduction consists of inference of the phenomenon through the empirical occurrences available.
45 Peirce (1902/1976) provides (among others) the following definition of abduction
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49 [...] The form of inference, therefore, is this
50 The surprising fact, C, is observed;
51 But if A were true, C would be a matter of course,
52 Hence, there is reason to suspect that A is true.” (Peirce, Harvard Lecture on
53 Pragmatism, CP 5, 188-189, 1902/1976)
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56 Thus, abduction is aimed at identifying the most plausible event/entity A whose (past or current)
57 presence would make the occurrence of the fact (C) meaningful; namely, the event/entity is
58 reconstructed due to the fact that it works as the grounds of the plausibility of the occurrence.
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3 Take the policeman, who realizes that there are pieces of glasses on the floor, under a broken
4 window, and footprints spread around the room. These co-occurring elements are mute,
5 meaningless, part of the same background where infinite other elements co-occur (e.g. the color of
6 the wall, the temperature of the room...). As soon as the policemen abducts a phenomenon working
7 as the scenario of the clues – “someone must have broken the window to get inside” – the clues
8 enter a gestalt, acquiring plausibility, then sense. Insofar as this happens, the reconstruction comes
9 to be a meaningful inference as well
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11 Three aspects of abduction are worth mentioning here.

12 First, the knowledge produced by abductive generalization is *local* and *contingent*: it concerns the
13 situated set of occurrences comprising the case – namely the understanding of A in terms of the
14 contingent event/entity according to which C ceases to be surprising (i.e. it is understood).

15 Second, as the example of the policemen shows, such understanding implies three intertwined
16 epistemic operations:

- 17 • Making the salient occurrences pertinent, and backgrounding the others
- 18 • patterning the salient occurrences, namely establishing a network of connections among
19 them
- 20 • reconstructing their occurrence in terms of retrieving the causal occurrence.

21 The three operations are strictly intertwined: they are components of the same dynamic gestalt
22 action of meaning making – each of them is performed by means of the performance of the others.

23 To come back to the example of the policeman, it can be seen that the identification of the clues
24 (pertinentization), their interconnection (patterning) as components of the same past event
25 (reconstruction) are faces of the same die.

26 Third, these three operations require a background system of knowledge to be performed. Such a
27 system provides the semantics and syntax that frame, constrain and channel the inference.

28 Thus, it can be concluded that *abductive generalization is a form of knowledge building aimed at
29 producing a local model of the phenomenon at stake (here, the case) starting from the empirical
30 occurrences and grounded on a general system of knowledge.*

31 The final observations help to highlight the difference between abductive and inductive
32 generalization. Induction and abduction start from the same departure point, yet they follow a
33 different path to arrive at a different form of knowledge. Inductive generalization addresses
34 occurrences in terms of their redundancies (local rule), used for the sake of identifying the
35 regularity (general rule). According to the terminology used by Pierce (1897/1932), induction is
36 “the formation of a habit”. Unlike inductive inference, abduction does not pursue the general rule,
37 namely the definition of regularities through the generalization of redundancies; rather, as said
38 above, it uses the general rule (i.e. the background system of knowledge) in order to interpret the
39 occurrences by reconstructing the phenomenon in terms of which the occurrences acquire meaning.
40 In sum, induction is aimed at producing the general rule, while abduction tries to understand the
41 case.
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52 **The abductive approach to case analysis. The journalist criterion**

53 The rhetoric of case studies may often make us think that the analysis is carried out in terms of
54 inductive inference. Consider as an example of this the following statement by Cameron and
55 colleagues (2014):
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3 “Pond’s high-quality transactions (...) and their creative outcomes stem in part from his
4 interactional synchrony with an adult who is passionate about artistic creativity and
5 clear about its value; a father who inspires his teenager by providing absorbing,
6 challenging and open-ended opportunities for learning; a father that exploits his son’s
7 interest in visual imagery, and encourages creativity and enhances its progress. (...).
8 These observational data suggest that the parent’s sensitivity to the son’s attitudes and
9 talent may facilitate the son’s general understanding of himself and of his external
10 reality, through the mediation of a congenial context (...). There are no studies in
11 English that we could find of Thai fathers’ and their teenagers’ relationships. This study
12 potentially commences to fill this gap in the literature by offering a small case study of
13 one father-son relationship” (p. X)
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18 The epistemic trajectory of the analysis outlined by the statement seems one that is typical of
19 induction. Empirical occurrences (“these observational data”), are proposed as if they were a class
20 of homogeneous intra-case phenomena (Pond’s high-quality transactions and their creative
21 outcomes stem in part from his interactional synchrony with an adult...); in turn, this redundancy
22 leads to (“suggests”) generalization, the setting of a universal rule, namely the projection of the
23 validity of redundancy over the whole class of phenomena (the relationship of “Thai fathers’ and
24 their teenagers”).
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27 Despite the rhetoric adopted, according to my argument, the operations of generalization
28 comprising the case analyses are best interpreted in terms of their underlying abductive inferences.
29 It is worth making it explicit that such an argument entails the idea that abduction and induction
30 have to be regarded as interpretative models of how knowledge building is carried out, rather than
31 two different modalities of knowledge building, characterized by inherent qualities, each mutually
32 exclusive. As the above discussion of the 4 levels of generalization outlines, any actual process of
33 knowledge building is carried out through a chain of generalizations placed at different hierarchical
34 levels and each serving as the input of the higher level. Accordingly, any generalization can be seen
35 both as a form of abduction and induction, as well as a mixture of both; this depends on which zone
36 of the process is made pertinent and which is placed in the background. For instance, when a
37 redundancy is detected and as such is subject to inductive generalization, this detection is possible
38 because it is based on two general rules – on the one hand, the general rule framing the
39 interpretation of empirical occurrences (i.e. instant generalization, in the terminology adopted in the
40 current paper); on the other hand, the general rule framing the detection of the redundancy (i.e. the
41 intra-analysis generalization). From a complementary standpoint, any abductive inference requires
42 induction as well. This is clear if one considers that the abduction is triggered by the need to
43 provide a local interpretation of the occurrences, namely to build an understanding that is required
44 because of the fact that occurrences do not lend themselves to being interpreted using the general
45 canon (Peirce calls the fact triggering the abduction “surprising”). But in the final analysis this
46 means that any form of abduction is inherently rooted in the recognition of the violation of a canon,
47 namely, in the inductive generalization that generates the general rule in terms of which the data can
48 be seen as a surprising deviation. Thus, the view of a process of inference in terms of abduction
49 and/or induction is a matter of pertinentization – it depends on the kind of segmentation of the
50 process the interpreter adopts.
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58 In previous papers myself and others (Salvatore & Valsiner, 2009, 2010, 2011; Salvatore &
59 Venuleo, 2013; Valsiner & Salvatore, 2012) have claimed the need to rethink psychology – and
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3 more in general social science – in terms of abduction. The basic issue is that psychosocial
4 phenomenical occurrences are field dynamics, which means they are contingent to the conditions of
5 their unfolding. This means that their empirical content does not have an unvarying psychological
6 meaning¹. Instead, it depends on the way the occurrences combine with each other in the spatial-
7 temporal local field: two elements that are empirically similar (e.g. two cooking actions) may have
8 two very different psychological meanings just as two very dissimilar elements may have the same
9 psychological meaning, according to the contingency of their field co-occurrence (Toomela, 2007,
10 2008). Consequently, to conceive of psychological analysis in terms of inductive inferences means
11 scotomizing the field dependency of the psychological occurrences. And this means that within the
12 frame of induction, the occurrences are interpreted and aggregated according to their factual,
13 commonsensical canonical meaning. Therefore, the abduction is still at stake (because the
14 occurrences are still interpreted in the light of a general rule); yet the abduction involved is that
15 which uses commonsense as the grounds of understanding.

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17 This is evident in Cameron and colleagues (2014)'s analysis. To interpret the occurrences in terms
18 of cooking, ironing and so forth does not entail any theoretical rule – it is an abductive inference of
19 a reality carried out with the canonical eyes provided by the participation in common sense. One
20 need not be a cultural psychologists to understand a certain event as cooking – one just has to be
21 part of a certain cultural world, where this class of meaning is available in its normative role – that
22 is, in its capacity to channel the interpretation of the event so powerfully as to get such an
23 interpretation to be taken for granted as reality – that is a *presentification*, rather than a *re-*
24 *presentation* (on the gestalt concept of presentification, Valsiner, 2007; see also Salvatore, 2012).
25 The same can be said as to the intra-case generalization. Just to give an example, Pond's sense of
26 responsibility, namely the class where a series of data are aggregated and thus generalized, is not a
27 theoretical concept, but a canonical category provided by common sense. Also in this case, my
28 journalist brother (namely a competent interpreter of common sense) would agree with this
29 interpretation or would at least find it plausible.

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31 In the final analysis, the role of common sense can be detected by means of a very simple criterion,
32 that can be implemented by asking the following question: would a naïve, yet clever observer
33 regard as plausible the meaning given to data (instant generalization) and the way of aggregating
34 them into a class of events and facts on the case (intra-case generalization)? This is what I propose
35 to call the *journalist criterion* (Salvatore & Monica Scotto di Carlo, 2006) - and if the answer is yes,
36 then one has to conclude that common sense works as the tacit, more or less latent background
37 knowledge according to which the dataset of the analysis is constituted.

46 **The coachman fly effect**

47 To ground the construction of data on common sense hides an important issue, which represents a
48 real fallacy when it concerns empirical analysis in cultural psychology. Indeed, cultural dynamics
49 consist of sensemaking (Salvatore & Venuleo, 2013; Valsiner, 2002) and sensemaking consists of
50 linkages among meanings. Therefore, once a certain occurrence is interpreted according to common
51 sense, what one has done is not only to provide an occurrence with a significance (e.g. this is a form
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55 ¹. It is worth underlining that the term “psychological” is used here to denote the conceptual meaning of
56 phenomena according to and for the sake of psychological science. Therefore, it does not concern the content
57 of the subjective experience. This use of the term “psychological” is thus similar to the use of the term
58 “physical” in reference to the objects of physics, rather than as used in the phrase “physical activity”.
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3 of cooking), but also to activate a normative network of linkages between this occurrence and many
4 others (e.g. cooking as a non-mandatory task being similar to ironing and different from attending
5 school). In other words, the interpretation of one occurrence is at the same time the instantiation of
6 a whole frame of understanding. As almost thirty years ago Smeslund (1995) clearly showed, in the
7 case of cultural dynamics the relation between meanings is given beforehand, as part of
8 commonsense. Consequently, to interpret certain events in terms of their commonsensical meaning
9 is an operation of making pertinent/explicit an area of commonsense already present in the culture.
10 Thus, when the cultural analysis works in this way it functions as the mere descriptor of the implicit
11 linkages that are already active within commonsense. In other words, the analysis does not model
12 the cultural dynamics and its determinants; rather, it is enacted by the latter. Smeslund defined this
13 form of confusion between explanans and explanandum as pseudo-empiricism. As a result, the
14 cultural analysis falls into the subtle trap of what I propose to call *the coachman fly effect*. As is
15 well known, the fable of the coachman fly tells the story of a fly buzzing around the head of the
16 horse, and due to this position, had the illusion of guiding the horse. The illusion, we know, lies in
17 this: being over the head of the horse was the effect, rather than the cause of the horse's movement.
18 Similarly, the cultural analyst-fly ends up being driven by the cultural dynamics-horse, rather than
19 (epistemically) driving it.

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22 The coachman fly illusion fostered by the faith in induction is endemic to contemporary
23 psychology². However, reading the knowledge building as acts of induction is even more
24 problematic in the case of qualitative case analyses. This is so for several reasons, two of which I
25 focus on below.

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28 First, the procedures of investigation through which case analyses are carried out are usually left
29 highly implicit; therefore they are less inspectable and reproducible from observer to observer. As a
30 result, it is hard to set the boundary – and this is ultimately what knowledge consists of - between
31 the constructive role played by the analyst's standpoint and the constraints that the world places on
32 this role. For instance, how Pond was recruited, and why just him, when he was met and recorded,
33 how long the actions identified lasted, are aspects, along with many others, that are left in the
34 background. Needless to say, many of these procedural aspects are left in the background in studies
35 based on population too; yet in these cases more procedural details have to be provided, since
36 population studies require a more complex socio-organizational structure; moreover, and above all,
37 the dependency of data and interpretation on the contingency of the procedures is less relevant in
38 the case of studies based on population, because, by definition, they are aimed at a higher level of
39 generalization.

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42 Second, the inductive generalization is a probabilistic inference – its force and reliability is based on
43 the redundancy of the expected occurrences – as has been said above, Peirce defined inductive
44 generalization as “the formation of a habit”: the greater the redundancy, the stronger the habit. Thus,
45 the reliability of inductive generalization depends on the criterion according to which a certain
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53 ² Incidentally, I make the hypothesis that the contemporary appeal of neurosciences lies in the fact that it
54 provides an antidote to this illusion, supplying an external explicative source for psychological phenomena,
55 conceived of as not depending on commonsense. However, this is not necessarily so, given that the
56 insistence on the positivist view of data as self-contained vectors of information also leaves neuroscience
57 investigation at the mercy of commonsense (Gergen, 2011).
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3 chain of similar events may be recognized as a form of redundancy. Statistics provide studies based
4 on population with clear rules for making such a choice (the level of statistical significance is the
5 best known among them, though it is not the only one). Such rules may be questionable for
6 theoretical, methodological and technical reasons (e.g. Molenaar, 2004; Molenaar & Valsiner,
7 2005/2009), but one has to recognize that they are such simply because they are clearly defined and
8 are therefore public - namely foreign to the analyst's desire and thus able to be adopted in order to
9 make science a collective enterprise. Despite what one might think, qualitative case analysts still
10 base their inferences on some form of esteem of the extent of probability of the detected redundancy.
11 In this case, however, the rule is left implicit, relying on the analyst's way of observing, that is, on
12 their desire. Consider the following statement by Cameron and colleagues (2014):
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17 “Visual communication plays an important part in the lives Pond and his father, both in
18 private and public contexts, providing a partial overlap between their domestic-and
19 workspaces. For this family art is part of a universal language shared between
20 individuals and wide-ranging ages, abilities, interests, language and social and cultural
21 backgrounds, which we demonstrate with what follows.” (p X)
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25 This statement is followed by the reference to a set of occurrences (e.g. Pond's willingness to take
26 on responsibilities at home despite not being asked to do so), provided in order to support the
27 statements. Here two generalization are involved: the first is the one that leads analysts to treat the
28 redundancy of single occurrences as instances of the class, (i.e. the analysts observe that a certain
29 number of times Pond carried out domestic tasks without being asked to do so and consider this
30 enough redundancy to conclude that it represents a general class of occurrence that is active beyond
31 the detected occurrences). Here the point is not whether or not this inference is valid, but that the
32 criterion according to which it has been performed is not specified – after what level of redundancy
33 did the authors consider themselves confident of having detected a redundancy? Did they set this
34 level before or after collecting the data? The same can be said at the higher level of generalization:
35 according to what criterion was the set of similar data (i.e. Pond's willingness to help his father in
36 housework, the “co-ordinated well sensitive interactions with his father [in the context of the
37 drawing activity]”; “the profound feeling of social isolation” and so forth) generalized?
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39 Once case studies have left the rule implicit, therefore treating the generalization as a matter of
40 induction, rather than abduction, they can hardly escape from the criticism that the inference is
41 performed in terms of *commonsensical prototypization*, namely as the result of considering the
42 patterns of occurrences as the prototype of a cultural canon. Let me go back to the following
43 statement by Cameron and colleagues (2014):
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49 “These observational data suggest that the parent's sensitivity to the son's attitudes
50 and talent may facilitate the son's general understanding of himself and of his
51 external reality, through the mediation of a congenial context” (p. X)
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54 Now, “sensitivity”, “attitude”, “talent”, “general understanding of himself” are commonsensical
55 categories, rather than concepts whose meaning depends on their being rooted in a theoretical
56 framework. And consequently, as has been said above, they are inherently interconnected with each
57 other according to a normative cultural canon (i.e. the canon of the promoting role the good parent
58 plays towards their offspring). Thus, there is no independent data shedding empirical light on such a
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3 linkage, in so doing working as a source of knowledge of the cultural dynamics at stake; rather, it is
4 this cultural dynamics, a generalized meaning deeply embedded within common sense, that
5 provides a way of giving meaning to the phenomenical elements occurring within the case and to
6 their reciprocal linkage (i.e. the parent's attitude as a way of fostering the son's development). In
7 other words, rather than saying that the "observational data suggest that", it would better to invert
8 explanandum and explanans as follows: "the cultural canon of the parent-offspring relationship
9 makes up just the data that has been observed and in so doing enabling them to be considered an
10 instance of the canon itself". Common sense comes before and constitutes the understanding, rather
11 than understanding being a way of knowing the constitutive semiotic power of commonsense.

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13 Even when the generalization is not grounded on common sense, but on theory, this is done in a
14 way that weakens the heuristic power of the analysis. This is true when the results of the case
15 analysis have to be generalized across the case (intra-case generalization) and beyond it (ecological
16 generalization). Indeed, at these higher levels of generalization, commonsense may give way to
17 theory. Yet the theory is used in an *extensional* way. What I mean by this term is the fact that the
18 pocket of understanding concerning the case is generalized by means of the fact that it is recognized
19 as a specimen of the theoretical class that establishes the rules of how the phenomenon at stake
20 works. Thus, the term "extensional" indicates that the understanding of the particular is carried out
21 by treating it (more or less explicitly) as a prototypical instance of the universal defined by the
22 theory. In other words, the particular of the local understanding is universalized. Also in this case,
23 the reference to Cameron et al (2014)'s analysis is helpful. Consider the following sequential
24 statements:
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31 "It has been argued that people who share a culture share similar ways of infusing
32 meaning into sounds (language), movement (dance), and lines (drawings) (Geertz, 1983).
33 Pond, by using visual symbols, joins with others who share the same 'imaginative
34 universe' or 'worlds of possibility' (...). This paper draws attention to the need to reaffirm
35 or reconsider the place and value of symbolic activity, namely drawing, in Pond's daily-
36 life and further to speculate on the potentials of identifying and promoting artistic
37 creativity as a source of strength for vulnerable youth" (Cameron et al, 2014, p X).
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41 Now, the extensional use of theory lies in this: it is the first statement that grounds the following
42 two. The latter do not work as the empirical support of the theory; rather, they are universalized as
43 instances of how the theory states that the world functions. In other words, the authors can assert the
44 function of drawing in Pond's development (intra-analysis generalization) as well as the
45 promotional role of artistic creativity for vulnerable youth (ecological generalization), because these
46 concepts are part of the theoretical framework (i.e. the neo-Vygotskian view of the developmental
47 function of inter-subjective mediated activity), rather than vice-versa. In the final analysis, the case
48 study is treated as a source of exemplification of the theory, rather than a source of its construction.
49 Here lies the sense of my considering an extensional use of the theory, where this use is a rather
50 reductive way of knowledge building. Indeed, insofar as the understanding of the case is
51 generalized through the extensional use of the theory, it does not concur to the development of the
52 theory; rather, it is the theory that is used for completing it or, as has been said above, to
53 universalizing it. In other words, the information is transferred from the theory to the case, rather
54 than vice versa. And this enables the case to be generalizes, but at the cost of preventing the latter
55 from serve as the empirical source of the epistemic challenges to theory thanks to which knowledge
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3 develops through accommodation. And therefore, analysis cannot but look for and find in the case
4 what the theory already knows.
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6 **Abduction leads to abstractive generalization**

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8 As underlined above, to consider case analyses in terms of abductive inference is not an ontological
9 statement, but a methodological choice, motivated by the possibility of deploying a more powerful
10 and reliable system of analysis than the one provided by viewing the investigation in terms of
11 inductive generalization. The arguments put forward so far should have clarified what I consider the
12 plusses of the abductive framework. They can be summarized in two basic advantages. On the one
13 hand, a “hygienic” function, namely the chance of avoiding a trap associated with the inductive
14 approach. I refer to the chance of making explicit - therefore subject to analysis, revision, and
15 development – the framework of the analysis (i.e. the general rule), and in so doing facing up to the
16 tendency of the theorization of human affairs to trip up on commonsense (Salvatore, forthcoming,
17 a). On the other hand, a promotional aspect – namely the possibility of grounding on the dialectics
18 between local understanding and universal rule that entails an old-fashioned innovative paradigm of
19 investigation. This can rescue the complementarity between idiographic and nomothetic dimensions,
20 namely the mode of *generalizing through the particular*, rather than in spite of it. In the final
21 analysis, abduction provides a way of making psychology, and in particular cultural psychology, *the*
22 *science of the contingent* (Salvatore, forthcoming, b), namely the science of what happens within a
23 spatial-temporal environment, as the particular, unrepeatable instantiation of a universal, a-temporal
24 and a-spatial rule (Salvatore, 2011; Salvatore & Valsiner, 2010). This is so because from the logics
25 of abductive inference one can draw a specific form of generalization, which I propose to call:
26 *abstractive generalization*. In what follows the distinctive characteristics of abstractive
27 generalization are outlined.
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30 First, it is worth repeating that abductive generalization starts from data and produces as output the
31 understanding of the case, namely the comprehension of how/why it works the way it works; in
32 other words, abduction is aimed at building a local model of the particular, contingent phenomenon.
33 The central point to underline here is the *local* nature of the model – it means that the understanding
34 is idiosyncratic, focused of the peculiar quality of the case; it is the way of making sense of the
35 combination of the occurrences that makes the case unique, contingent, different from any other.
36 This is where the basic difference lies compared to inductive generalization. Being focused on the
37 detection of redundancy, induction searches for what the occurrences have in common among
38 themselves and across cases. In contrast, abduction focuses on the difference between the
39 occurrences, in order to model the reason (fact A) whose inference makes such difference “a matter
40 of course”, to use Peirce’s expression. From this derives a peculiar role played by the general theory
41 compared to cases. *The local model is grounded on the general theory* – as observed above, any
42 understanding of the local case requires a background knowledge for the sake of performing the
43 operation of pertinentization, patterning and reconstruction comprising abductive inference. Yet, the
44 general theory does not play - as it were – a *predicative function* over the case; rather it performs an
45 interpretative function, that is, it anchors but does not sustain the understanding of the local case. In
46 other words, there is not a direct projection of general knowledge on the local phenomenon as a
47 result of the fact that the occurrences of the latter have been categorized as specimen of the general
48 class (as in the case of the extensional use of the theory). In other words, the abductive use of the
49 theory is different from the direct application of the theory’s content to the case – that is: given that
50 occurrence *a* is part of class *A*, then *a* is/holds/has “*A-ness*”. In the case of abduction, the general
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theory plays an interpretative role, namely it grounds the operation of modelling the idiosyncratic, particular pattern of co-occurrences and reconstructing the mechanism enabling such a pattern to acquire meaning. It does so by working as background knowledge channelling the three operations that make up abductive inference (pertinentization, patterning, reconstructing).

The interpretative role of general theory implies that in order to be used for abduction, the conceptual content of the general theory must not speak directly about the empirical content of the case. Rather, the theory is required to comprise concepts that are placed at a more abstract level than the one detecting the empirical content of the case. This is so for both logical and methodological reasons. From a logical standpoint, the very fact that contingent occurrences have to be understood implies that such occurrence may not be the content of the theory, otherwise the occurrence would not be contingent and unique. From a methodological standpoint, the understanding of the case is a matter of identification of the local web of interconnections between the occurrences, as it is instantiated in the field contingency. As has been said above, this means that occurrences have no invariant psychological meaning, since their meaning is defined by the local field pattern they help to constitute. As a result, in order to understand the contingent pattern, a theory is required that does not define the meaning of the occurrence once and for all, but is able to ground the exploration of the different potential meanings that the occurrence may acquire locally³.

The empiricist view of contemporary psychology has led to the dominance of data-driven theories, consisting of the mere generalization of the relations among variables, as detected by means of empirical investigation. For instance, the theory that states the relevance of the therapeutic alliance in psychotherapy is the output of a series of empirical analysis that have found a systematic association between the level of therapeutic alliance between therapist and patient and the effectiveness of the psychotherapy (Salvatore, 2011). In sum, data-driven theory is a form of acceptance of what has been found by the empirical investigation; as such, it cannot but have the same content as the empirical investigation from which it derives. On the other hand, if one takes into account that empirical demonstration of the core notion of the theory of relativity – the dependency of time on speed – arrived several decades after the theory, then one can realize how the data-driven construction of theories is not the only way of proceeding. Indeed, psychology has not always been empiricist. Consider for instance the Piagetian notions of assimilation and accommodation. They are very generalized concepts that cannot be considered derived from empirical analyses. Rather, these super-ordered concepts sustain an abstract, comprehensive developmental theory that enables analysts to interpret infinite contingencies, in any psychological and socio-psychological domain. Thus, Piagetian developmental theory is not derived from empirical data, and it does not directly concern empirical occurrences – that is, no occurrence is an instance of assimilation or accommodation in itself. Instead, Piagetian notions lend themselves to being used for the sake of interpreting any phenomenical occurrence in terms of the role they play

3. For instance, consider the case characterized by the occurrences: a, b, b, a, b, b, b, a, b, b, b, b, a. The empirical content of such a process is unique, thus it could not be generalized if such content were taken as the object of analysis. In contrast, the pattern characterizing the relationship a-b could be analyzed beyond (but not independently from) its empirical content – i.e. in terms of the tendency of the second element of the dyad (b) to increase its incidence through time. Now, this model represents an abstract map of the case, a representation of it devoid of empirical content. On the other hand, “giving up” the reference to the empirical makes it possible to develop a generalization among different cases through abstraction – for instance it could be argued that a case highlighting the pattern m, n, n, m, n, n, m, n, n, n, n, m, in spite of the different empirical content, follows the same model as the former case.

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3 in the dynamics modelled by the theory (i.e. the equilibration dynamics). Thus, the Piagetian theory
4 works as an interpretative framework abductively grounding the 4 levels of generalization discussed
5 above and even beyond: it enables the attribution of meaning to local empirical occurrences (instant
6 generalization), their way of interconnecting with each other (intra-analysis generalization) and so
7 forth, up to transference of knowledge through different domains of investigation (i.e. what one
8 could define the *trans-ecological generalization*, namely the use of the notions of
9 assimilation/accommodation as a theoretical paradigm unifying the theory of the ontogenesis of
10 mental function, the psychotherapy process [Stiles, 2002], the dynamics of social and organizational
11 innovation, and so forth) (for an interpretation of some Piagetian empirical studies as instances of
12 abductive reasoning, see Salvatore & Valsiner, 2011). Cultural psychology provides several
13 examples of this logic of intensional theory construction, namely of theory-driven conceptualization.
14 Consider notions like *mediation*, *sign*, *field*, *sensemaking* – none of them has a specific, invariant
15 empirical content and that is precisely why they can be used for grounding the interpretation of an
16 infinite set of phenomena. The very notion of culture cannot but be considered in this way. Culture
17 is not an empirical object, namely a word referring to a piece of the world whose qualities, once
18 described by means of empirical investigation, are translated into a theory. This is evident due to the
19 very fact of the large amount of definitions the concept has. Indeed, culture is an interpretative,
20 theoretical concept, thanks to which a huge amount of phenomenical occurrences can be interpreted
21 in their interconnections and therefore acquire their local, field-dependent scientific meaning.
22 Therefore, the competition among the different definitions is not to be played in terms to their
23 correspondence with the “real thing” they refer to, but in terms of the definitions’ capacity of
24 empowering the understanding of human affairs.

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26 This leads to recognize the profile of what I mean by abstractive generalization. Notions like
27 Piagetian concepts, as well as mediation, sensemaking, culture are generalized categories. Yet, as
28 should be clear, they are not so in the sense that the classes that they denote are very extended,
29 namely they hold a great many specimens. Rather, they are generalized concepts in the sense that
30 they are very abstract, highly intensional concepts: they model a very selective theoretical focus
31 according to and in terms of which any empirical occurrence is abstracted - namely the aspect of the
32 phenomenon that the theory considers pertinent is foregrounded while the rest of it is put in the
33 background (as to the notion of abstraction in terms of pertinentization, see Buhler, 1934/1990).
34 Thus, thanks to this abstractive capacity, the theory is able to transform the phenomenon into the
35 theoretical object, providing a conceptual framework for its understanding.

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37 It is worth highlighting how such transformation leads the theory to carry out the same function of
38 generalization performed by the predicative use of the theory (see above, this paragraph). Yet, in the
39 case of abstractive generalization, the theory does not provide “predicates” to the empirical
40 occurrences, because its concepts are more abstract than the empirical occurrences and therefore
41 they may not apply directly to the phenomena in terms of their attributes (i.e. as “predicates”). On
42 the contrary, the abstract concept provides a way of looking at and understanding the occurrences.
43 For instance, the law of gravity concerns the falling of bodies. When the physicist sees an apple
44 falling and thinks that it is a body, in so doing she is not predicating the apple – i.e. she is not
45 stating that “this apple has the quality of being a falling body”, as if to be a falling body would be
46 one of the qualities an apple may have, as colour, shape and so forth. Indeed, the falling body is not
47 a quality that can be attributed to certain pieces of the world. Rather, it is a way of
48 seeing/interpreting the phenomenical occurrences (in this case, the apple) and in so doing, of
49 transforming it into the conceptual object of the theory – In sum, when the physicist thinks of an
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3 apple as a falling object, her reasoning is like the following: “insofar as I consider the apple falling
4 just and only in its aspect of being a falling body, I can understand what it is happening, because the
5 apple is transformed into the object of my theory”.

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7 To conclude, this is what abstractive generalization consists of – *in the theory’s capacity to*
8 *interpret phenomenal occurrences through the encompassing distancing between theory and*
9 *phenomena*. Where the oxymoron highlights the only seemingly paradoxical logical and
10 methodological tenet that states that theory has to take a step back from the data in order to
11 understand them.

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13 In the final analysis, the peculiarity of the abductive form of generalization depends on the
14 hermeneutic function of the general theory. Indeed, according to such a function, abductive
15 generalization concerns the capacity of the general theory to ground the building of local models
16 that are increasingly capable of making “surprising” co-occurrences “matter of course”. This means
17 that according to abductive logic, the advance of knowledge is a matter of enabling the general
18 theory to generate local understandings of more and more heterogeneous phenomena. It is in this
19 sense that abductive generalization is abstractive: the progressive increase in the general theory’s
20 interpretative power, namely the increasing capacity of the general theory to comprehend more and
21 more heterogeneous phenomena is performed by and consist of its progressive abstraction, namely
22 its progressive capability of grasping the fundamental rule(s) governing the way contingencies can
23 be transformed into theoretical objects and as such understood.

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25 In sum, abductive, abstractive generalization outlines a view of the advancement of knowledge that
26 follows a radically different path compared to the vision of scientific progress in terms of
27 accumulation of evidence. The development of knowledge is a matter of reduction to the essential
28 theory grounding the local understanding of human affairs, rather than the never-ending storage of
29 pockets of understanding each of which concerns a piece of reality assumed to be endowed with
30 ontological autonomy compared to others

31 32 33 34 35 36 **Two methodological tenets for the abductive case analysis**

37 In this final paragraph I draw two methodological tenets from the discussion on abstractive
38 generalization proposed above.

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40 First, I propose the distinction between *dynamics* and *process* as the way of framing the “general
41 rule-local model” dialectics characterizing the abductive approach to case analysis (Salvatore, 2011).
42 Due to its abstract form, to its being void of contingent empirical reference, the general theory has
43 to concern the mapping of *dynamics*, namely the detection of the invariant way of working of a
44 certain very general class of phenomena (e.g. human affairs), operating regardless of time and space.
45 As such, the dynamics can be detected in terms of a few general, abstract rules (Salvatore &
46 Venuleo, 2013). The *process* is the local, contingent way of working of universal dynamics,
47 resulting from how the latter is instantiated within the contingent fields of human exchange.
48 Therefore, while there is one dynamics, there are many processes each corresponding to the field
49 conditions of human exchanges provided by the cultural system. Such field conditions do not
50 modify the dynamics, but establish the way the latter instantiates itself in terms of a specific way of
51 functioning, namely, in a process. In sum, the same dynamics makes up many processes, due to the
52 variety of field conditions mediating its instantiation. Accordingly, abstractive generalization is the
53 interpretation/modeling of the local process in terms of the dynamics, namely as an instantiation of
54 the latter, as defined by the general theory.
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3 For instance, take the notion of sensemaking as the basic concept cultural psychology is grounded
4 on (Valsiner, in press). Insofar as sensemaking is considered the stuff of human affairs, it has to be
5 seen as the dynamics shaping every event of human life, no matter when and where and who it
6 concerns. In sum, the very fact of speaking of sensemaking in terms of basic human dynamics
7 means attributing a universal, invariant form of functioning to it, namely the form that makes such
8 dynamics what it is, distinct from what it is not. Only on this condition can one compare – let's say
9 - two processes of communication, considering them as specimens of the same class of phenomena
10 (namely as instantiation of the same universal dynamics). In the final analysis, the universal form of
11 functioning is the invariant background according to which differences can be detected. It is worth
12 repeating that the dynamics of sensemaking is an abstract form, void of empirical reference: it does
13 not correspond to a unique condition of the world, to a peculiar pattern of phenomenical
14 occurrences. One does not see dynamics of sensemaking, but human exchange and events that lend
15 themselves to be subject to abstractive generalization in reason of their interpretation in terms of
16 sensemaking. The dynamics of sensemaking instantiates itself always through and in the terms of
17 the local, idiosyncratic conditions of a given socio-symbolic field. Therefore, the dynamics of
18 sensemaking has to be considered as the source of an infinite set of ways of working, resulting from
19 the infinite field conditions (namely, the symbolic structures and constraints characterizing every
20 cultural context of human exchange) mediating the instantiation of the universal form.

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22 The analogy with physics helps to clarify this point. Take gravitational acceleration. It is an
23 example of what I mention as a universal, invariant dynamics. Now, even though (or rather, thanks
24 to the fact that) the dynamics is invariant, the processes it makes up are very different with each
25 other, due to the variety of field conditions involved. The trajectory of a bullet, the flight of a bird,
26 the falling of stones, the orbit of a planet and so forth, are all processes instantiating the same
27 universal dynamics according to the different field conditions associated with their functioning.
28 And due to their contingency to field conditions, processes have to be studied on the grounds of the
29 general theory, but at the same time locally, namely in terms of the field conditions shaping their
30 way of functioning. This is what disciplines like ballistics, astronomy and hydraulics do, as domains
31 of knowledge addressing specific fields. And this is, as I have proposed here, the mission of the
32 case analyses – the study of the contingent aimed at modelling the process resulting from the
33 instantiation of the dynamics of sensemaking within and through the field of human exchange under
34 investigation.

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36 The notion of system is another useful example – a very abstract concept that enables an infinite set
37 of occurrences to be collected regardless of their empirical content, taken together due to their
38 conceptual modelization in terms of structural linkages among parts and boundaries
39 separating/connecting inner and outer environment. In sum, unlike the extensional rule, according
40 to which the class is defined in terms of the specimens that share certain empirical qualities, the
41 intensional rule qualifies the class in terms of the salience of a conceptual tenet: the class is the set
42 of occurrences that can be interpreted in terms of that conceptual tenet – which means that the
43 intensional criterion of similarities among specimens is the model of their functioning (i.e. the
44 dynamics), rather than their empirical content (cf footnote 3).

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46 Second, abductive-oriented analysis benefits from the increasing variability (both within and
47 between cases). Indeed, abductive analysis is validated in terms of its capacity to encompass the
48 *boundary variability*, namely the data that challenge the current theoretical assumptions, therefore
49 forcing the investigator to accommodate the theory in order to make it able to ground the local
50 understanding (Salvatore & Valsiner, 2010). Here one can see the basic difference with the
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3 inductive approach— what the latter considers a source of noise preventing the identification of
4 regularities, the abductive approach conceives of as the main road to knowledge building. Different
5 dimensions of variability can be involved to make the local phenomenon under investigation a
6 challenge to the hermeneutic capacity of the general theory. In what follows I focus on 5 main
7 dimensions of intra-case variability (which however can easily be re-interpreted in terms of inter-
8 case variability too).

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10 A first source of variability concerns instruments and procedures of data retrieval. The more
11 variable the types of data, the better it is. Indeed, when more than one type of data is involved a
12 more abstract model has to be built than the one required for understanding one type data. For
13 instance, Cameron and colleagues (2014) based mainly on three types of data: film of “one day in
14 the life”, interviews and sketchbook. Thanks to such a variety of sources, their model of the case
15 was more generalized than it would have been if they had adopted just one source of data. Further
16 formats that they could have used – e.g. the representation of Pond by significant others; the way
17 Pond faces critical moments and so forth – would have further increased the possibility of
18 abstractive generalization.

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20 A second source of variability concerns the domains of investigation. Cameron and colleagues
21 (2014)’s analysis is focused on the relation between Pond and his father and on the meditational
22 role played by drawing (however, they refer to other papers devoted to other themes – e.g.
23 emotional security; cf. p. X). Consequently, the model of the case was necessarily specific to such a
24 domain, lacking the further level of abstractive generalization that the need to include processes
25 concerning different phenomenical domains would have allowed. Imagine for instance that the way
26 Pond engages with other significant adults (e.g. teachers) as well as with peers had been studied too.
27 This would not only have provided more data but it would also have produced a set of variability
28 supporting abstractive generalization. Indeed, by doing so one could have understood better what, in
29 the pattern recognized by the authors, was worth considering a structural, invariant component of
30 the process at stake and what was instead to be considered contingent to a certain relationship. In
31 the final analysis, *abstractive generalization consists exactly of this distinction*. For instance, it
32 would have been interesting to study if and how the interest in drawing is specific to the
33 intersubjective context of the Pond-father relationship and/or if it acquires a different content and
34 modality in other significant relationships that Ponds engages in. And this would have provided the
35 chance to understand it better, for instance regards the recognition of the basic process of regulation,
36 which in certain circumstances (i.e. in the context of the Pond-father relationship) leads Pond to
37 draw while in others it leads Pond to other forms of activity. In so doing, a more abstract level of
38 generalization would have been reached – the level where a certain variability (interest in drawing
39 in certain contexts vs interest in other actions in other contexts) would have been encompassed in a
40 unique understanding focused on the same process of regulation. In the final analysis, this is another
41 way of defining abstractive generalization: *the reconstruction of the invariant process sourcing the*
42 *variability of the phenomenical occurrences*.

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44 A third source of variability is time. The broader the temporal window, the higher the chance of
45 modeling the case in terms of developmental trajectories - namely as invariant source of continuous
46 changes over time (Laura-Grotto, Salvatore, Gennaro & Gelo, 2009). Needless to say, since time is
47 not considered, it is impossible to understand if and to what extent the occurrences of the case could
48 be further interpreted as depending on the sequential chain in which they are immersed, namely as
49 part and parcel of a dynamic gestalt unfolding over time (for a discussion of this aspect, though
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3 focused on the analysis of the psychotherapy process, see Salvatore Tschacher, 2012; for a
4 methodology of case analysis focused on the detection of the temporal trajectories, see Sato)

5 A fourth source of variability concerns the *parameters* of the case – to use the terminology of
6 Dynamic System Theory. The parameters are the contextual conditions that may affect the way the
7 case works. Pond's recent displacement is an example of a parameter: a factor/event that perturbs
8 the condition of stability of the system under investigation – for example by introducing a further
9 adjustment task – and thus triggering a reaction of the system aimed at restoring the condition of
10 stability. Thus, the variability of the parameters (whether it is induced by the researcher or happens
11 without his/her intervention) enables the case study to extend the investigation to the boundaries of
12 the system's functioning. For instance, it would have been interesting to study what would happen
13 in the situation of conflict between Pond and his father, or when the father stopped being supportive
14 with Pond and assumed a different attitude (normative, avoidant, and the like).

15 Finally, the *absence* is a strategic dimension of variability that can significantly enlarge the scope of
16 the study. The analysis should not be confined to modeling the presence of the expected
17 occurrences, but also their absence, as well as the presence of unexpected occurrences. In so doing,
18 the model is compelled to be general enough to be able to explain not only why process X occurs,
19 but also why other processes (Y, Z...) that could have occurred, did not. In other words, by
20 considering the absent and unexpected occurrences as data, the general theory is enabled to provide
21 a generalized understanding of the case, explaining not only the process at stake, but also the fact
22 that this particular process comes about instead of others. For instance, data concerning
23 circumstances in which Pond showed lack of interest in draw, or did not collaborate with his father
24 would have been food for thought, because they would have challenged the model in its capacity to
25 provide a deeper, more abstract understanding of the case, including its dark side too.

26 In the final analysis, all these sources of variability are ways of challenging the analysis to find a
27 more and more comprehensive understanding of the case, namely a model that is abstract enough to
28 detecting the invariant mechanism sourcing the heterogeneous phenomenical occurrences – as well
29 as the absence of the ones that there could have been but are not.

30 31 32 33 34 35 36 37 38 39 **Conclusion**

40 In this paper I have proposed abstractive, intensional generalization grounded on abductive
41 inference as an alternative to inductive, extensional generalization to provide the methodological
42 framework for empirical cultural psychology.

43 Abstractive generalization is aimed at generalizing the theory's capacity to produce a local model of
44 data. Thus, the occurrences the case is constituted of are treated as events that call for a contingent
45 understanding. The relevant term here is *contingent*, as opposed to *universal*. In the case of
46 inductive generalization, the understanding consists of the projection of the set of occurrences upon
47 a certain class of similar occurrences, thanks to which the set is given the meaning (the predicates,
48 in the terms adopted above) of the class. In contrast, abstractive generalization fosters a form of
49 understanding consisting of the definition of a contingent class encompassing the set of occurrences
50 (as well as the set of absent occurrences) in a whole gestalt that makes sense, namely that enables us
51 to understand the co-presence and co-absence of occurrences. The contingent class is not a
52 universal. Rather, it is a model of the pattern of co-occurrences that is unique, specific, contingent
53 to the case. On the other hand, it can be defined only on the grounds of the background universal
54 knowledge provided by the general theory, which is validated in this very capacity to operate at the
55 service of local understanding.
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I have drawn two methodological tenets from such a view. On the one hand, I have proposed the distinction between dynamics and process, in order to clarify how the bridge between general theory and local model of contingency can be constructed. On the other hand, I have underlined the centrality, for abductive investigation, of focusing on variability. Variability challenges the theory to find abstract, comprehensive understanding, in so doing compelling it to develop in order to acquire more and more heuristic capacity.

Needless to say, my proposals are far from conclusive. They have to be seen as a way of promoting the methodological discussion in the field of cultural psychology in order to make the empirical investigation a lever in the process of knowledge building. Data cannot substitute theory, but theory can use data to grow.

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55 these issues he has designed and managed various scientific projects and published several volumes
56 and more than 170 articles in Italian and international Journals.
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