1 TO 3: FROM THE MONAD TO THE TRIAD
A UNITIZING AND CODING SYSTEM FOR THE INFERENCE FIELDS OF CAUSAL EXPLANATIONS

VALERIA UGAZIO
LISA FELLIN
FRANCESCA COLCIAGO
ROBERTO PENNACCHIO
ATTÀ NEGRI
UNIVERSITY OF BERGAMO

Inspired by systemic psychotherapies, the article introduces a unitizing and coding system for causal attributions. It focuses on one dimension: the inference field of causal explanations up to and including the triad, so far ignored by attributional studies. A five categories coding system from monadic to triadic explanations is provided and made possible by a unitizing system characterized by a contextual approach. This takes into account links between single explicative units through which the overall explanation is articulated. A detailed unitizing and coding system guide with examples taken from a study carried out by the authors is provided. Suitable also for complex written texts, the 1 to 3 is highly reliable. Joint application with multidimensional coding systems is discussed.

Key words: Breadth of inference field; Causal explanations; Coding system; Systemic psychotherapies; Triad.

Correspondence concerning this article should be addressed to Valeria Ugazio, Dipartimento di Scienze della Persona, Università degli Studi di Bergamo, Piazza S. Agostino 2, 24129 Bergamo (BG), Italy. E-mail: valeria.ugazio@unibg.it

INTRODUCTION

The article provides a unitizing and coding system for causal attributions. Most traditional studies in attribution research have focused on experimental conditions which encourage participants to summarize, simplify or reduce their own attributions within a set of options imposed by the researcher (Chu & Shaw, 2005).[1] More recently many researchers have preferred to allow participants to reply freely to "why-questions" (Fletcher, 1983; Islam & Hewstone, 1993; McGill, 1989; Orvis, Kelley, & Butler, 1976; Peterson, Schulman, Castellon, & Seligman, 1992), or have traced causal explanations in "spontaneous" contexts such as natural conversations, literary texts, newspapers, personal diaries or letters (Malle, 2007; Weiner, 1985).

Within the framework of these new research paradigms, which are endowed with greater ecological validity, a variety of systems for coding causal attributions has been devised (Chu & Shaw, 2005; Miller, 1984; Peterson et al., 1992). One of the most interesting of these is Malle's "F.Ex: Coding scheme for people's folk explanations of behavior" (1998/2007), which operationalizes the main ideas of the model of the folk theory of mind and behavior, developed by

Malle himself in 2004. Based on the concept of intentionality and validated by many studies, this innovative framework overcomes many of the limits of traditional attribution theories.

So, why introduce a new unitizing and coding scheme when valid and reliable ones already exist? The reason is quite simple: as far as we know, despite the numerous studies on attributive processes (Fiske & Taylor, 1991; Forsterling, 2001; Gilbert, 1998; Hastorf, Schneider, & Polefka, 1970; Kelley & Michela, 1980; Shaver, 1975; Weary, Stanley, & Harvey, 1989) no one has ever sought to analyze the "breadth of the inference field of causal explanations" variable, for which the 1 to 3 coding system has been designed. Our central hypothesis is that when people explain an event or behavior, not only do they specify dispositional traits or attitudes (internal causes) or consider situations in a holistic and undifferentiated way (external causes); they may also widen and articulate their own inference field through personal explanations that include two, three or even more actors.

For more than fifty years now an entire area of clinical psychology — namely, systemic psychotherapy — has resorted to triadic explicative schemes, making the transition to the triad a defining feature of its approach. In 1967 Watzlawick, Beavin, and Jackson stated that "a phenomenon remains unexplainable as long as the range of observation is not wide enough to include the context in which the phenomenon occurs" (p. 20), and in 1969 Jay Haley identified the triangle as the preferred unit of analysis in emerging systemic psychotherapy. This therapeutic model puts paid to the idea of the individual isolated from context. To answer "why" a person or a couple behave in a certain way, systemic therapists widened the inference field from the individual or the dyad to the wider relational world and some of them, in tune with the "Milan Approach", focused their attention on explicative schemes — the so-called systemic hypotheses — which involve at least three members of the individual's relational context (Ricci & Selvini Palazzoli, 1984; Selvini Palazzoli, Boscolo, Cecchin, & Prata, 1980; Ugazio, 1985; Zuk, 1969, 1971). For example, a family therapist may read the anorexia of an adolescent daughter as a means through which she helps her mother draw her absent husband's attention to the family. Alternatively, the unconsummated marriage of a young couple might be read as an attempt to give their parents more time to accept their marriage and ensuing separation from their respective families.

Systemic hypotheses and their use in therapy are based on the implicit and unverified assumption that triadic thinking is extraneous to common sense but can be introduced by the therapist through structured interventions such as reframing or other specific therapeutic techniques. Ten years ago, Fivaz-Depeursinge and Corboz-Warnery (1999) proved that we are all precociously capable of complex triadic interactions. In fact, during what has been defined as "The Lausanne Triadic Play," they demonstrated that as early as at three months of age some infants are capable of gazing alternately at their parents and that at nine months all children perform complex triadic interactions. As Stern (1999, 2008) pointed out, the results of this fascinating study turned on its head the traditional developmental conception according to which children evolve from the dyad to the triad, and suggested that many developmental issues needed to be reappraised within triadic frameworks. The complexity of the overall situation is not reducible to the sum of dyads but is made up of relational configurations in which three or even more individuals take part.

Fivaz-Depeursinge and Corboz-Warnery's (1999) results raised new questions for attribution studies as well. Is the triadic competence of ordinary people limited to tacit behavior? In other words, is it a prerogative of implicit knowledge only or of explicit knowledge as well? Hence, do

ordinary people, and not only systemic therapists, use explanations of events that widen the inference field to include as many as three or more players? These questions are at the core of the study (Ugazio, Fellin, Colciago, Pennacchio, & Negri, 2007, 2008) for which this manual was created. Indeed, answering these questions required a new coding system because instruments to make codification of the inference fields possible are lacking. Also "systemic therapists-turned-researchers" have not conducted any sysattemic research into their clients' inference fields.

The only exception to this is Friedlander's (1995) Cognitive Constructions Coding System (CCCS). As far as can be discerned, one of the four dimensions explored by this instrument — intrapersonal-interpersonal — can be assimilated into what our instrument called the breadth of the inference field (Coulehan, Friedlander, & Heatherington, 1998; Friedlander & Heatherington, 1998). However, even if the two instruments have points of contact they nevertheless remain distinct, also because their subject matter and the purposes for which they were created are different. The CCCS gauges the definitions of the problem given by the client: its objective is to explore how such definitions change during the therapeutic process. Instead, the 1 to 3 manual explores the inference fields of causal attributions: the study for which it was built aimed to assess whether ordinary people used triadic explicative schemes and whether it was possible to increase their use by manipulating the stimulus situation in which the event in need of explanation was presented.

To date the 1 to 3 manual has been applied to texts produced by university students who were asked to explain why a first-class medical student dropped out with just five exams to go before graduating. It is a typically baffling situation designed to stimulate attributive effort, since it shatters expectations and raises doubts about premises and facts taken for granted. All the examples given in the manual were drawn from these texts, but the 1 to 3 manual can be applied to many different written works.

In brief, the unitizing and coding system that we are proposing allows analysis of the breadth of the inference fields of causal explanations up to and including the triad, so far ignored by studies on attribution theory.

A Three-Step Contextual Approach

In order to analyze the inference fields up to and including the triad, a *contextual* approach is required. Unlike the more common *analytic* approach, this takes into account the links between the single explicative units through which the overall explanation is articulated. Like the analytic one, the contextual approach proposed here takes the whole narrative produced by the participant to make sense of an event or behavior and unitizes it into minimum text units with an explicative meaning. However, this is just the first step in the 1 to 3 contextual approach.

In order to avoid methodological reductionisms (Chu & Shaw, 2005) — which exclude the possibility of finding complex explanations, such as triadic ones — the unitizing phase is followed by a process of reassembling.

The unitizing-reassembling process that characterizes the 1 to 3 contextual approach involves three steps which identify:

a. minimum text units with an explicative meaning. These units link a possible cause or reason to an event or behavior. We called them "attributions" and they are to be distinguished from the more complex units;

b. causal chains made up of attributions linked to one another through the same pattern of semantic coherence. We called these semantically coherent causal chains "explanations";
c. causal strings made up of attributions linked to one another through two or more patterns of semantic coherence. These patterns make sense of the same event or behavior and are connected to one another, although each can stands alone. We called these causal strings "explicative paths." With this expression we indicated each global construction (of varying width) given by participants in order to explain an event or their own or someone else's behavior. These paths belong to a super-ordinate level and are generally multiple, i.e., they are made up of a number of attributions and/or explanations. However, the explicative path sometimes coincides with a single explanation or even a single attribution.

For the specific purposes of our study, each explicative path, besides making sense of the same event, must refer to the same protagonist. Although they had the same narrative structure, the stimulus situations in our study may involve just the protagonist or up to a triad of actors. It was thus important for us to distinguish those of our participants' explicative paths which referred to the main character from those which regarded the other actors. However, when these two types of paths turned out to be semantically and/or syntactically linked to one another, we considered them jointly in the coding phase and indicateed that the coding referred to more than one explicative path. This rule that each explicative path must refer to the same protagonist may not be necessary for other research purposes.

What in 1 to 3 we called explanations, and most of the explicative paths, are multiple-cause explanations. As Antaki (1985) pointed out, people do not always resort to a single attribution to make sense of an event or behavior (*single-cause explanations*); on the contrary, they make use of multiple interrelated attributions while explaining complex events in natural contexts. Triadic and polyadic inference fields (for which this system has been designed) imply causal chains made up of at least two attributions; therefore they can never be found in single-cause explanations.

Figure 1 shows the three steps of the contextual approach and Figure 2 exemplifies them.[2] We can see that the multiple explicative path in the last example in Figure 2 features two explanations {[A (1)] and [B (2,3,4)]} that do not constitute a triadic explanation, if considered separately. A triadic explanation clearly emerges when we consider the multiple explicative path, at a superordinate level, where the explanations concerning the parents ("have stopped providing for her" and "because they do not approve of her decision to live with him") are linked and where it is clear that their position lies behind their daughter's decision to pull out of university.

GUIDE TO THE 1 TO 3 UNITIZING AND CODING SYSTEM

First Phase: Unitizing

After transcribing the text into a file, the coders start unitizing it. First they identify the individual attributions on the basis of criteria mentioned in the literature (Buchanan & Seligman, 1995; Malle, 2007; Peterson & Seligman, 1984) and merged by us into a *contextual causality* criterion.

FIGURE 1
Attribution, explanation and (multiple) explicative path: three steps of the contextual approach.

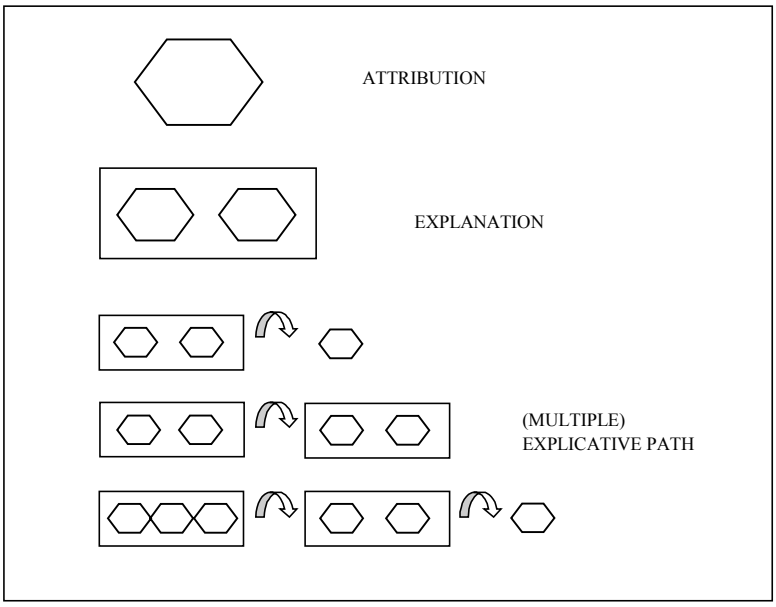
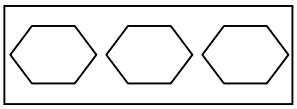


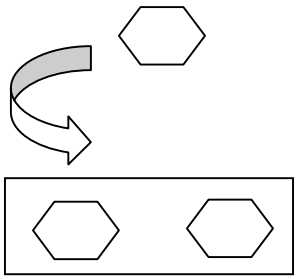
FIGURE 2
The three-step contextual approach: some examples.[3]

Example of an attribution equivalent to a single-cause explanation		
	Why has Sara/Marco pulled out of university?[a] Sara pulled out of Medicine because she realized she does not want to become a doctor	[A (1)]
A single attribution exhausts the whole explicative path.		
Example of an explanation equivalent to a multiple-cause explanation		
	Why has Sara pulled out of university? Sara dropped out of university because her priority now is to move and live with her boyfriend[A (1)]; for this reason she has to start working [A (2)] to share their future expenses [A (3)]	[A (1,2,3)]
Attributions are linked through a single pattern of semantic coherence.		

(*figure continues*)

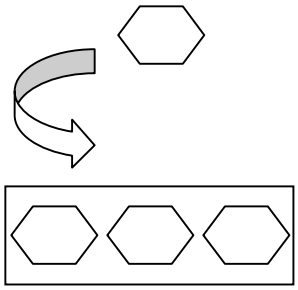
Figure 2 (continued)

Example of a multiple explicative path equivalent to a multiple-cause explanation made up of one attribution and a two-attribution explanation

	Why has Sara pulled out of university? Sara pulled out of university as she had realized that she chose Medicine just to please her mother [A (1)] and because she had decided to do voluntary work in Africa [B (2)], fulfilling a dream she has been cherishing for many years [B (3)]	{[A (1)] and [B (2,3)]}

Two of the three attributions [B (2,3)] are linked by the same pattern of semantic coherence, thus constituting an explanation; whereas the first attribution (identified by the letter A) is self-explanatory, although it is linked to the other ones.

Example of a multiple explicative path made up of an attribution and an explanation made up of three attributions

	Why has Sara pulled out of university? Sara pulled out of university because she wants to move in with her boyfriend at once [A (1)] and she wants to start working immediately [B (2)] as her parents have stopped providing for her [B (3)] because they do not approve of her decision to live with him [B (4)]	{[A (1)] and [B (2,3,4)]}

This explicative path consists of four attributions. Three of these, being linked through the same pattern of semantic coherence, form an explanation [B (2,3,4)]; whereas the first attribution is semantically autonomous, although it is linked to the other ones [A (1)].

[a] Stimulus situation in our study. We used the feminine Italian name Sara for the female protagonist and the masculine Italian name Marco for the male protagonist.

Next, all the possible links between the attributions are identified through syntactic rules summed up in the *explicative chaining* criterion. A third criterion (*semantic coherence* criterion) distinguishes attributions and explanations with the same pattern of semantic coherence from other ones that, although connected, show a pattern with a different meaning. The proposed procedure has a dual aim: to ensure sufficiently high levels of inter-rater agreement in identifying the single attributions which can be coded and, at the same time, to preserve the causal links in the overall explicative path.

Contextual Causality Criterion

This criterion enables identification of the individual attributions with the aid of two types of markers:

- **Classical markers**. These identify all attributions introduced by:

a) "because," "since," "as," "for," "due to," "for the reason," followed by verbs in the explicit indicative form.

Example: Why has Marco/Sara pulled out of university?

I. Sara decided to drop out of university because she has been offered a good job.

II. Marco decided to drop out of university **due to** a serious illness.

b) the infinitive, past participle or gerund (-ing form), which can introduce causal dependent (or subordinate) clauses.

Example: Why has Marco/Sara pulled out of university?

I. Marco decided to drop out of university, **influenced** by bad company.

II. **Being** a responsible and mature woman, Sara does not want to give up her baby.

- **Implicit markers**. These identify attributions introduced by linguistic elements that are not strictly causal but can assume an explicative function in the given context.[4] Examples are:

a) "and," "that," "who," "to," "in order to," which often introduce subordinate clauses (final, relative and consecutive ones).

Example: Why has Marco/Sara pulled out of university?

I. She gave up studying **in order not to** become what she doesn't want to be.

II. She started to study medicine **to** please her mother, **who** is a doctor.

III. Sara is pregnant. **And** she has had to make a choice — she dropped out of university.

b) verbal expressions or prototypical verbs that indicate an insight or redefinition of the past (e.g., "she realized/understood"), an active positioning (e.g., "she decided that…/chose to") or a passive positioning (e.g., "she discovered").

Example: Why has Marco/Sara pulled out of university?

I. She **realized that** it was not what she wanted for her future.

II. He **understood that** he was unhappy.

III. She **came to the conclusion that** probably she would never use her degree.

IV. He **decided** to find a job instead.

V. She **discovered that** she was pregnant.

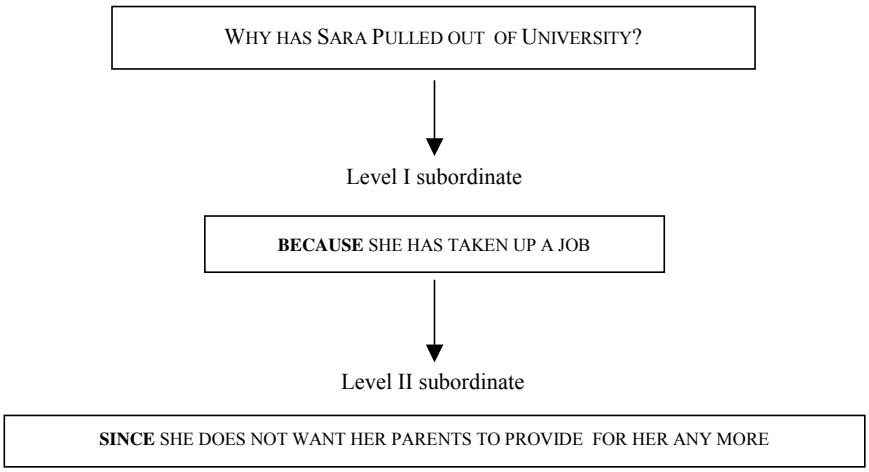
Next, the types of links between individual attributions are specified through rules summed up in the explicative chaining criterion.

Explicative Chaining Criterion

This criterion introduces the next two steps, to identify the explanations and the explicative paths through the coordinate and subordinate clause links[5] that each attribution shares with the others.

- **Subordination**: the coders consider two attributions as subordinate when only one causally specifies the other and not vice versa (presence of a hierarchical order). This relation is signaled by the presence of traditional morpho-syntactical markers in the text (see the first point of the contextual causality criterion) or by the presence of implicit markers (see the second point of the contextual causality criterion). They then infer which level depends on the other by mutual semantic exclusion.

Example: "Sara pulled out of university **because** she has taken up a job, **since** she does not want her parents to provide for her any more."

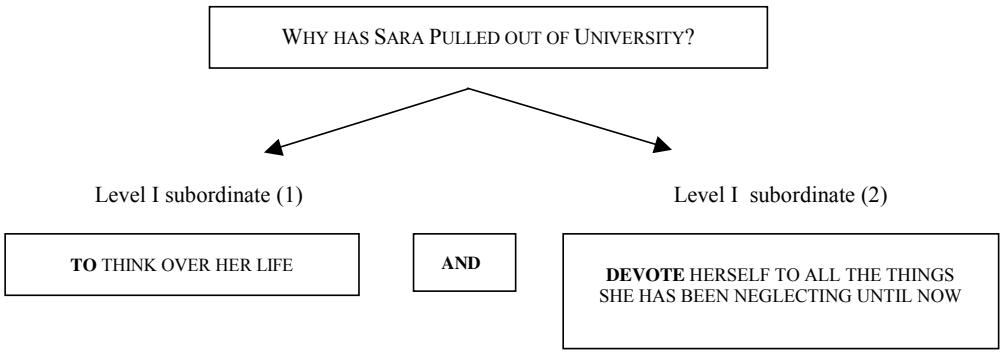


It is clear that Sara pulled out of university because she has taken up a job (Level I subordinate), since she does not want her parents to provide for her any more (Level II subordinate). If we inverted the position of the two levels we would not be able to make any sense of the statement: "She does not want her parents to provide for her any more because she has taken up a job."

Grading the subordinate attributions (first-, second-, third-level, etc.) makes it possible to determine the reading order of the attributive periphrases, which does not always coincide with the actual sequence of the original text.

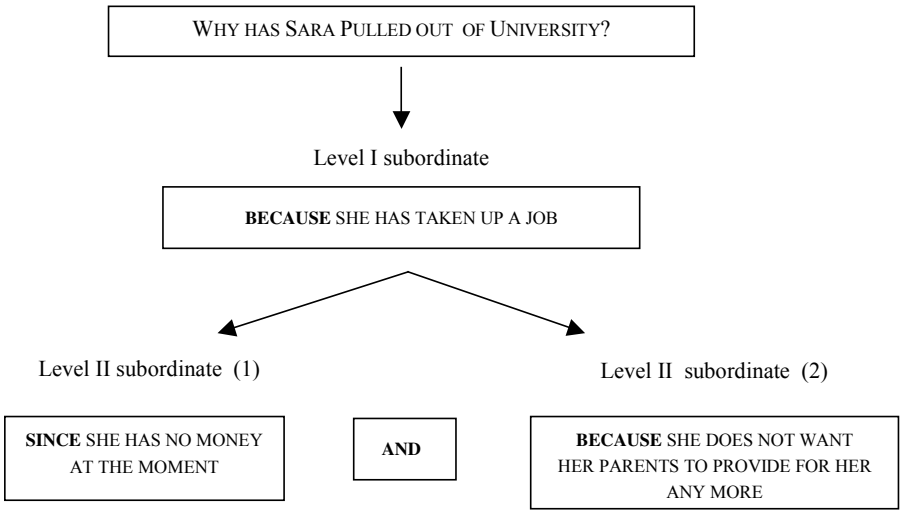
- **Coordination**: the coders consider two attributions as coordinated when they are connected by a link that does not express any explicative hierarchy: neither of the two attributions causally specifies the other. They are linked through traditional conjunctions such as "and," "but" or "while," or in some cases through punctuation.[6]

Example: "Sara pulled out of university to think over her life **and** devote herself to all the things she has been neglecting until now."

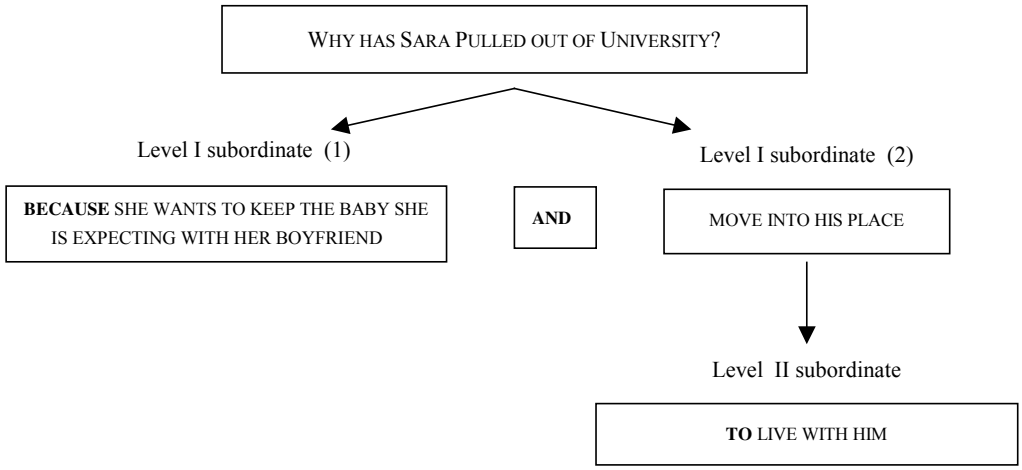


It is obvious that Sara has dropped out of university for two separate reasons: neither of the two attributions (1 and 2) causally specifies the other, they are coordinated between them.[7]

In the following example the coordination is between both Level II subordinates (1 and 2): "Sara dropped out of university because she has taken up a job, since she has no money at the moment **and** because she does not want her parents to provide for her any more."



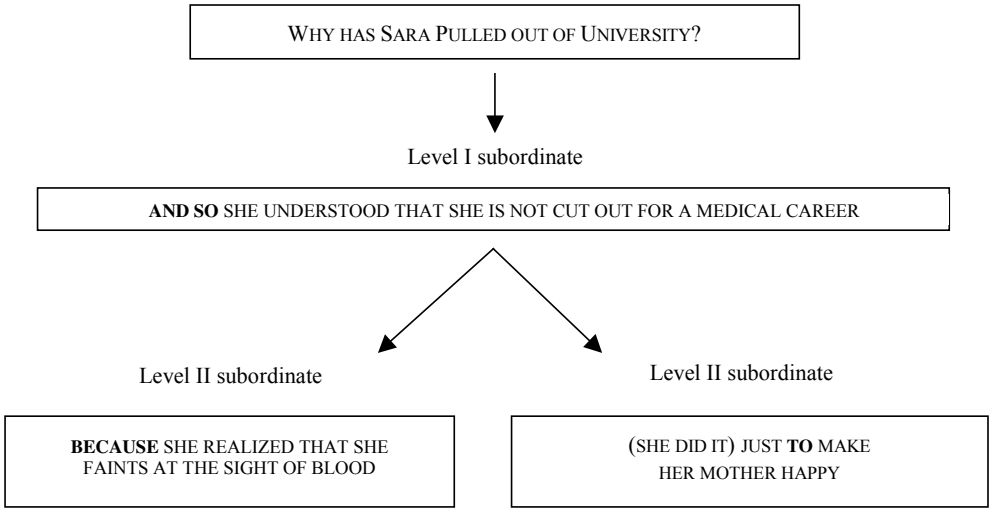
Sometimes an attribution is subordinate to only one attribution of a previous level as in the following example: "Sara pulled out of university **because** she wants to keep the baby she is expecting with her boyfriend **and** move into his place **to** live with him."



In this case the attribution "to live with him" causally depends on the Level I subordinate (2) "move into his place" and not on Level I subordinate (1) "because she wants to keep the baby she is expecting with her boyfriend."

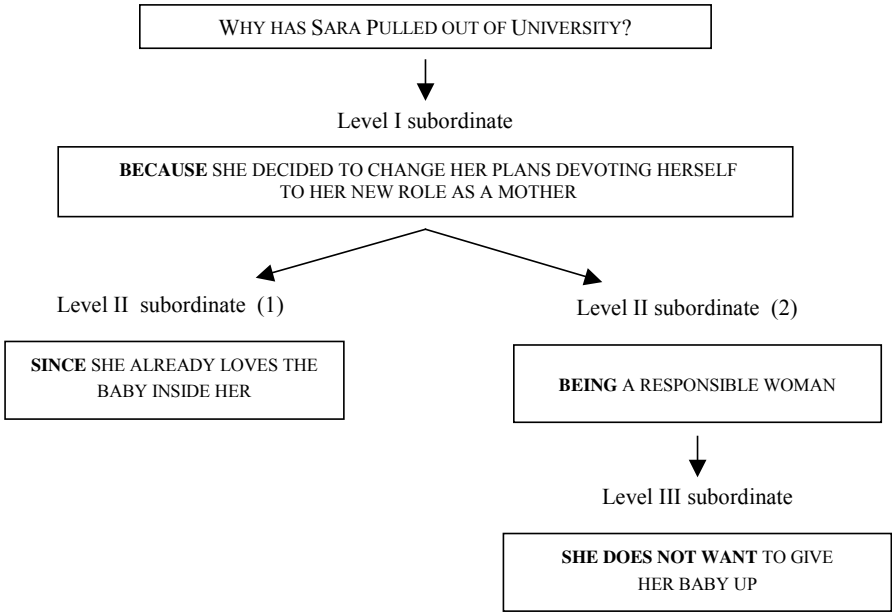
Some attributions, as in the following two examples, although coordinated do not have a semantic relation between them, and so they belong to different explanations or explicative paths.

Example: "Sara pulled out of university **because** she realized that she faints at the sight of blood **and so** she understood that she is not cut out for a medical career. She did it just **to** make her mother happy."



Sara pulled out of university because she understood she is not cut out for a medical career (Level I subordinate) and this insight depends on the fact that she faints at the sight of blood (Level II subordinate). The fact the Sara had started studying Medicine just to make her mother happy is not causally connected with her awareness that she faints at the sight of blood. It does not have any semantic relation with this attribution.

Example: "Sara pulled out of university **because** she decided to change her plans, devoting herself to her new role as a mother, **since** she already loves the baby inside her. **Being** a responsible woman, **she does not want** to give her baby up just to carry on with her studies."



In this brief story two explanations, originating from the level I subordinate, are presented. They are not semantically connected; the next attribution causally depends only on the second level II subordinate (2).

Semantic Coherence Criterion

The explicative chaining criterion enables the coders to identify the whole explicative path and to distinguish attributions that are syntactically interrelated from those that have no coordination or subordination links. However, this criterion does not enable the coders to tell when two explanations or an explanation and an attribution are linked in meaning, even if they are not joined through syntactical links of coordination and subordination. The introduction of a semantic coherence criterion allows for this distinction, charging the coder with the task of understanding the whole meaning of each explanation.

Example: "Marco pulled out of university because he decided to take up a good job offer [A (1)]. He chose Medicine just to make his mother happy [B (2)]." Although there were no syntactical links of coordination and subordination, the two attributions {[A (1)] and [B (2)]} are semantically linked, thus constituting a single explicative path.

Exclusion Criteria

Redundancy: when an event or the behavior is repeated, the coders ignore it.

Example: "Marco pulled out of university because he realized that he is not cut out for a medical career. (…) Due to a very interesting job offer **he decided to leave the faculty**." The periphrasis "decided to leave the faculty" is redundant.

Repetition: when an attribution already mentioned in another passage is repeated, the coders consider only the first one.

Example: "Sara dropped out of university because she realized that she had wasted her time, that **she had already blown too much time on books**." The strings "she had wasted her time" and "she had already blown too much time on books" are semantically equivalent, therefore the second is ignored.

Redefinition: when there are attributions in the text that reframe or specify the meaning of a previous level, the coders consider only the reframed attributions.

Example: "Sara pulled out of university because **she decided to change her plans**, devoting herself to her new role as a mother." The first attribution is ignored.

Application of Unitizing Criteria: Two Examples[8]

Two examples of the unitizing phase are shown below.

Example I

ORIGINAL TEXT

Sara pulled out of university due to a serious illness that made her lose the will to study and, above all, she lost all hope for her future.

CONTEXTUAL CAUSALITY

Sara has pulled out of university {**due to** a serious illness / **that** made her lose the will to study **/ and,** above all, she lost all hope for her future.}

EXPLICATIVE CHAINING

Level I subordinates: that made her lose the will to study (1); and, above all, she lost all hope for her future (2)
Level I: (1) and (2) are semantically connected between them
Level II subordinate to (1) and (2): due to a serious illness (3)

SEMANTIC COHERENCE

{[A (1,2,3)]}

Example II

ORIGINAL TEXT

Probably Sara realized that she was not doing what she wanted with her life, but only as her mother wished. Her father is happy because he has always known that his daughter never wanted to study Medicine and he is happy that she has finally made her own choice without being influenced by others.

CONTEXTUAL CAUSALITY

{Probably Sara **realized that** she was not doing what she wanted with her life, / **but** only as her mother wished.} **//** Her father is happy {**because** he has always known that his daughter never wanted to study Medicine / **and** he is happy that she has finally made her own choice *without being influenced by others.*}

EXPLICATIVE CHAINING

Level I subordinate: probably Sara realized that she was not doing what she wanted with her life (1)
Level II subordinate: but only as her mother wished (2)
2nd CHARACTER
Level I subordinates: because he has always known that his daughter never wanted to study Medicine (1); and [...] that she has finally made her own choice (2) *rep*
Level I: (1) and (2) are semantically connected between them

SEMANTIC COHERENCE

{[A (1,2)]} and 2nd C {[A (1,2)]}

Applying unitizing criteria to simple stories such as ours is relatively straightforward; however their application could be more discretional when narratives are more complex.

Second Phase: Coding

After unitizing the text, the breadth of the inference field variable of the subject's explicative path is coded. The explicative path corresponds to the third step, which may sometimes coincide with a single attribution and/or a single explanation.

Using the following categories as guidelines, the explicative paths of each character in the story are coded.

Two or more explicative paths with different protagonists, when syntactically and/or semantically linked, are called "inter-connected explicative paths." They are identified by the symbol $\sum$.

Coding Categories

Monadic. The explanation of the event is sought in the protagonist who acts without considering to others ("Marco pulled out of university because he felt that it was not the right path for him / he decided to do voluntary work in developing countries").

Unidirectional dyadic. The explanation involves two characters, only one of whom has an active influence on the unexpected event. The protagonist may be cast in the active role ("Marco dropped Medicine so that he could move to Brazil to forget his ex-girlfriend") or a "passive" one ("Sara took up Medicine because she was forced to do so by her father").

Bidirectional dyadic. In addition to the protagonist the explanation involves a second character who actively contributes to the unexpected event and/or causal attribution ("Sara pulled out of university because the guy she was in love with asked her to go and live with him in England / she discovered that she was pregnant, talked to her boyfriend and both of them decided to keep the baby").

Triadic. The explanation involves three or more characters but only partially links them ("Marco fell in love with an English girl and left university in order to join her. He had already been thinking about dropping university before he met her and had also talked to his father about it"). The father is included only marginally in the attributive effort, which focuses mainly on the Marco-girlfriend dyad.

"Systemic" triadic. The explanation involves three or more actors, linking them in a circular gestalt ("To get back at his mother, Marco dropped university and went to work with his father, who had always wanted his son to follow in his footsteps").

Coding Examples

Example I

ORIGINAL TEXT

Sara pulled out of university because she accepted a very good job offer, knowing that thanks to this choice her future will improve.

CONTEXTUAL CAUSALITY

Sara pulled out of university {**because** she received a very good job offer, / **knowing** that thanks to this choice her future will improve.}

EXPLICATIVE CHAINING

Level I subordinate: because she received a very good job offer (1)
Level II subordinate: knowing that thanks to this choice her future will improve (2)

SEMANTIC COHERENCE

{[A (1,2)]}

CODING

MONADIC

Example II

ORIGINAL TEXT

Marco met a friend he had not seen in a long time and who told him about his experience as a volunteer assistant to children with AIDS. He is struck by his friend's sense of purpose and decided to take off with him.

CONTEXTUAL CAUSALITY

Marco met a friend he had not seen in a long time and {**who** told him about his experience as a volunteer assistant to children with AIDS. **/** He was struck by his friend's sense of purpose **/ and decided to** take off with him}.

EXPLICATIVE CHAINING

Level I subordinate: decided to take off with him (1)
Level II subordinate: (because) he was struck by his friend's sense of purpose (2)
Level III subordinate: who told him about his experience as a volunteer assistant […] (3)

SEMANTIC COHERENCE

{[A (1,2,3)]}

CODING

UNIDIRECTIONAL DYADIC

Example III

ORIGINAL TEXT

Sara suddenly decided to pull out of university after a journey to the USA because, being fascinated by that world, she decided to move to New York and become a singer, which is what she had always dreamt of. In fact, she took up Medicine because her mother, a doctor herself, forced her to enroll at a faculty which did not correspond to her dreams. Therefore, after spending one night in the New York clubs, she decided to follow her dreams, leaving her past behind.

CONTEXTUAL CAUSALITY

Sara suddenly decided to pull out of university {**because** after a journey to the USA, **being** fascinated by that world, **/** she decided to move to New York **/ and** become a singer, **/ which** is what she had always dreamt of. **/** In fact, she took up medicine **because** her mother, / (**being**) a doctor herself, / forced her to enroll at a faculty which did not correspond to her dreams.} Therefore, after spending one night in the New York clubs, *she decided to follow her dreams, leaving her past behind*.

EXPLICATIVE CHAINING

Level I subordinates: she decided to move to New York (1); she took up Medicine because her mother forced her to enroll at a faculty which did not correspond to her dream (2)
Level I: (1) and (2) are not semantically connected between them
Level II subordinates to Level I subordinate (1): being fascinated by that world (3); and become a singer (4)
Level II subordinate to Level I subordinate (2): (being) a doctor herself (5)
Level II: (3) and (4) are semantically connected between them and not semantically connected to (5)
Level III subordinate to Level II subordinate (4): which is what she had always dreamt of (6)
rep.

SEMANTIC COHERENCE

{[A (1,2)] and [B (1,3,4)]} and {[C (5,6)]}

CODING

BIDIRECTIONAL DYADIC

Example IV

ORIGINAL TEXT

Marco had only recently realized that he is not cut out for a medical career and he understood that he chose that faculty just to make his mother happy and that he has never listened to his father, who has always told him to fulfill his own ambitions.

(*example continues*)

Example IV (continued)

CONTEXTUAL CAUSALITY

Marco only recently **realized that** he is not cut out for a medical career **/ and he understood that** he chose that faculty just to make his mother happy **/ and that** he has never listened to his father, who has always told him to fulfill his own ambitions.}

EXPLICATIVE CHAINING

Level I subordinates: Marco realized […] that he is not cut out for a medical career (1); and he understood that he chose that faculty just to make his mother happy […] (2); and that he has never listened to his father, who has always told him to fulfill his own ambitions (3)
Level I: (1), (2) and (3) are semantically connected between them.

SEMANTIC COHERENCE

{[A (1,2,3)]}

CODING

TRIADIC

Example V

ORIGINAL TEXT

Marco decided to pull out of university to work with his father, considering this choice the best one for his future and also because he wants to get back at his mother (who is in conflict with her husband), because she forced him to study Medicine.

CONTEXTUAL CAUSALITY

Marco decided to pull out of university {**to** work with his father, **/ considering** this choice the best one for his future / **and also because** he wants to get back at his mother (who is in conflict with her husband), **/ because** she forced him to study Medicine.}

EXPLICATIVE CHAINING

Level I subordinate: to work with his father (1)
Level II subordinate: considering this choice the best one for his future (2); and also because he wants to get back at his mother (who is in conflict with her husband) (3)
Level II subordinates: (2) and (3) are not semantically connected between them
Level III subordinate to Level II subordinate (3): because she forced him to study Medicine (4)

SEMANTIC COHERENCE

{[A (1,2)] and [B (1,3,4)]}

CODING

SYSTEMIC TRIADIC

Example VI

ORIGINAL TEXT

Marco pulled out of university because he realized his family is in a difficult financial situation: he wants to do his best to help. His mother weeps because she feels guilty about not having supported her son's studies.

CONTEXTUAL CAUSALITY

Marco pulled out of university {**because** he realized his family is in a difficult financial situation / : he wants to do his best to help.} **//** His mother weeps {**because** she feels guilty **/ about** not having supported her son's studies.}

EXPLICATIVE CHAINING

Level I subordinate: he wants to do his best to help (1)
Level II subordinate: because he realized his family is in a difficult financial situation (2)
2nd CHARACTER
Level I subordinate: because she feels guilty (1)
Level II subordinate: about not having supported her son's studies (2)

SEMANTIC COHERENCE

{[A (1,2)]} and 2nd C {[A (1,2)]}

CODING

1nd CHARACTER: *UNIDIRECTIONAL DYADIC*
2nd CHARACTER: *BIDIRECTIONAL DYADIC*

Example VII

ORIGINAL TEXT

Sara pulled out of university because she doesn't really want to become a doctor: she was in fact influenced by her mother to choose that course of studies. For this reason, she decided to move abroad and start her own life. Her mother is obviously desperate, whereas her father is happy that his daughter has made her own choice.

CONTEXTUAL CAUSALITY

Sara pulled out of university {**because** she doesn't really want to become a doctor: **/ in fact**, she was influenced by her mother to choose that course of studies. **/ She decided to** move abroad **/ and** start her own life.} **//** **Her mother is obviously desperate,**// whereas her father is happy {**that** his daughter has made her own choice.}

(*example continues*)

Example VII (continued)

EXPLICATIVE CHAINING
Level I subordinate: she decided to move abroad (1) Level II subordinate: and start her own life (2) Level III subordinate: because she doesn't really want to become a doctor (3) Level IV subordinate: she was in fact influenced by her mother (4) **redund.** 2nd CHARACTER Level I subordinate: that his daughter has made her own choice […] (1)
SEMANTIC COHERENCE
{[A (1,2,3,4)]} and 2nd C {[A (1)]}
CODING
1nd CHARACTER: *UNIDIRECTIONAL DYADIC* 2nd CHARACTER: *UNIDIRECTIONAL DYADIC* ∑ *TRIADIC*

The last example shows an interconnected explicative path featuring two different protagonists: Sara and her father. The reference to the mother, besides having no explicative content, is redundant to the task and therefore it has not been coded. Note that when the two explicative paths are considered as separate, they give rise to a unidirectional dyadic inference field, whereas if linked as explicative interconnected paths they produce a triadic inference field.

APPLICATION AND RELIABILITY

The manual was applied to texts written by 400 university students to explain an unexpected event with which they could readily associate: the sudden decision of an otherwise model student to drop out. The event in question was presented through four stimulus situations that manipulated the "breadth of evoked relational context" variable. In the first stimulus situation, the event is without contextualization: "*Sara is a model student reading Medicine and needs to pass only five more exams before graduating. From one day to the next she pulls out of university*." In the second situation, the occurrence is contextualized in a dyad: "Sara is a model student reading Medicine and needs to pass only five more exams before graduating. From one day to the next she pulls out of university *and tells her mother, who bursts into tears*." The third stimulus situation unfolds in a triad: "Sara is a model student reading Medicine and needs to pass only five more exams before graduating. From one day to the next she pulls out of university *and tells her parents: her mother bursts into tears and her father tries to console his wife*."

Finally, in the fourth stimulus situation the unexpected outcome is in a triad with players who exhibit opposite and contradictory behavior patterns: "Sara is a model student reading Medicine and needs to pass only five more exams before graduating. From one day to the next she pulls out of university and tells her parents: her mother bursts into tears, *while her father seems pleased*."

Each of these four situations was presented to a group of 100 students made up of 50 males and 50 females. In each group there were 48 arts students and 52 sciences students. Participants were gender matched with the main character of the story (Marco/Sara). The length of the texts produced averaged 97.11 words (*DS* = 59.43, min. 20-max. 377); each participant produced on average 3.76 attributions. Both the unitizing and coding of the texts were carried out by three of the authors of this article. Before tackling the students' texts, the authors practiced on other texts obtained in a preliminary phase until they reached an agreement rate of 80% as regards identification of the individual codable attributions and an agreement rate of 75% on coding of the breadth of the inference field. Subsequently, they independently unitized the 400 texts written by the participants. Instances of unitizing disagreement were fewer than 10% and were resolved by majority decision. For the more difficult cases (twelve), the consensus procedure was applied by means of group discussion, which also included the other two authors of this article. After unitizing the texts, the first three authors carried out the coding, reaching an inter-rater agreement (measured using Cohen's kappa coefficient) of .87 for all the attributions contained in the 400 texts, and of .84 for the attribution with the broadest inference field in each story.

The results of the study (Ugazio et al., 2008) showed that the participants were more prone to framing their explanations within an interpersonal context than traditional attribution studies seem to suggest. It is true: they committed the error — expression of the individualism peculiar to Western culture — called "fundamental attribution error" (Ross, 1977; Ross & Nisbett, 1991). Monadic explanations prevailed over all the others, but only 31.2% of the participants told a story consisting of intra-psychic explanations only. All the others constructed stories with explanations that included at least one other character in the cast in addition to the protagonist. The most frequent explanations were those with a dyadic inference field. The participants who supplied a pattern of attributions including a triadic one amounted to 15.3%, by no means a negligible figure. However, very few participants gave systemic triadic explanations (5.2%). It also emerged that the evoked relational context influenced significantly the breadth of the inference field of causal explanations: the broader the contextualization of the unexpected event, the greater the likelihood that the participants would provide dyadic and triadic explanations. The participants were stimulated above all by the enigmatic stimulus situation presenting them with a disorienting dissonance: although one can presume that both parents are equally concerned for their child's wellbeing, their reactions to the unexpected outcome are contradictory. It was precisely those participants presented with this stimulus situation who showed the highest probability of producing triadic explanations. These results have interesting implications not only for systemic psychotherapies,[9] but also for our understanding of attribution processes. They demonstrate that the inference field has a broad range of variability and is altered according to the context in which the attribution occurs.

CONCLUSION

The 1 to 3 manual makes the empirical study of the breadth of the inference field of causal explanations possible. Made significant by systemic thinking, this dimension has been ignored by traditional research on causal attribution, which was content with the binary distinction between person and situation. Nor have "systemic therapists-turned-researchers" have conducted any systematic study into how their clients widen or narrow the inference field in order to explain their

problems and their emotional and relational world. They have in fact considered the widening of the inference field as a distinctive feature of their approach, rather than as a characteristic of meaning-making processes. As far as we know, Leeds Attributional Coding System (LACS) by Stratton, Munton, Hanks, Heard, and Davidson (1988), and Friedlander's (1995) CCCS are the only coding systems developed in the systemic field. The former examines five dimensions of causal attributions that do not concern the inference fields. The latter explores three dimensions likewise unrelated to the inference fields and a fourth — labeled as "intrapersonal-interpersonal" — which is similar to the 1 to 3 variable. However, this "intrapersonal-interpersonal" dimension refers to the breadth of the observational field of the clients' description of the problem and not to causal attributions as such. Moreover, the CCCS focuses solely on the number of people coming into play, unlike the 1 to 3 manual, which also allows for differentiation between the characters' positionings.

The major strength of the 1 to 3 is its reliability. Despite being applied to written texts on which no prior limit was imposed in terms of length or wealth of detail, it achieves high reliability rates ($k > .80$). What in our opinion makes the 1 to 3 reliable is the unitizing procedure prior to text coding.

We used the 1 to 3 to analyze 400 texts whose average length was, as we have seen, 97.11 words. These brief texts are nevertheless longer than those normally analyzed in causal attribution studies. Moreover, this coding system can be used to analyze spontaneous causal attributions in texts of any length, such as literary works, autobiographical stories, transcribed interviews, conversations or discourse of various types. We are currently testing its applicability to transcriptions of individual and family therapy sessions. The strong motivation of both clients and therapists to explore episodes construed by the former as puzzling, and to investigate the reasons for their behavior, attitudes and emotions (and those of the people close to them), makes this type of conversation particularly suitable in studying participants' inferential abilities. It does indeed call into play a series of complex multiple-cause attributional processes.

Its focus on only one dimension is the distinguishing feature of the 1 to 3. Consequently, it may be used combined with other multi-dimensional coding systems, the choice of which will depend on the researcher's specific aims. We are currently interested in exploring in greater depth the processes that alter the breadth of the inference field. Our study (Ugazio et al., 2007, 2008) demonstrates that the breadth of the inference field is sensitive to the context in which the event in need of explanation is presented: the broader the context of the event, the greater the breadth of the inference field used by the participants. What we are now studying is how ordinary people — as well as therapists and clients — adjust the breadth of the inference field when their goals are finding meaning or managing social interactions. For this reason we are applying the 1 to 3 with Malle's F.Ex, which operationalizes the basic concepts of the model of the folk theory. This framework, in which our variable can be inserted,[10] provides a particularly suitable theoretical background for our research purposes. At the core of Malle's model is intentionality, precisely what we wish to explore in order to achieve a better understanding of the breadth of the inference field as used in both daily life and the therapeutic process.

ACKNOWLEDGMENTS

We would like to thank Guillem Feixas, Robert Neimeyer, Harry Procter, and Carlos Sluzki for their valuable input.

NOTES

1. See also the critiques by Malle, Knobe, O'Laughlin, Pearce, and Nelson (2000) and Malle (2004) of those studies in which participants and/or coders are asked to use rating scales to assess a given explanation within well known dimensions such as person/situation or stable/unstable.
2. Figure 1 shows only certain types of explicative path as each could be formed by an indeterminate number of attributions and/or explanations.
3. These examples show a parallel with Antaki's distinction (1985) between single-cause explanations and multiple-cause explanations.
4. In actual fact, implicit markers imply a traditional marker. Similar functions are performed by punctuation. For example, in the expression "Sara dropped out of university: she is exhausted" it is clear that the colon is used instead of "because."
5. We refer to the hierarchical relations of subordination and coordination that characterize sentence analysis. The construction of the explicative chaining reflects the linguistic structure.
6. As pointed out in footnote 4, punctuation can have a subordinating function too.
7. The two attributions are connected through a transitive link because, if we inverted the positions of the two levels, the meaning of the participant's narrative would be unchanged.
8. The next examples will show the three unitizing criteria with the help of the following graphic devices:
- standard underlining: highlights the content of the attribution;
- 65% black: a marker applied to the non-attributional text;
- **/**: marks the end of a level;
- **//**: marks a shift of an explicative process to a different character;
- **…**: redundant units are placed between double asterisks;
- *…*: reframed or repeated units are placed between single asterisks;
- **bold, double underlining:** subordinating traditional markers;
- **bold, dotted underlining:** subordinating implicit markers;
- **bold, dashed underlining:** coordinating implicit markers;
- (…): introduces a causal marker that was implicit in the text or that, more commonly, was expressed through punctuation;
- {…}: curly brackets delimit the beginning and the end of the explicative path.
9. We have discussed these implications in the aforementioned articles (Ugazio et al., 2008).
10. In our opinion, the breadth of the inference field variable may be included among the psychological processes that guide the construction of explanations, equivalent to the second layer of Malle's model of the folk theory.

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