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Article

Uses and Abuses of the Four Aristotelian Causes in Psychology

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ABSTRACT

A comprehensive understanding of any phenomenon, according to Aristotle, requires an integrated consideration of the four causes that determine it: material, formal, efficient, and final. This Aristotelian conception of causality has been employed by authors from various scientific disciplines, including psychology. The present article reviews Aristotle's original conception of the four causes and its application to the study of human behavior, personality, and psychological disorders. The contributions of different authors are critically examined, and their strengths and weaknesses are highlighted. Finally, a radically human alternative is proposed, unifying the four causes at a psychological meeting point that takes into account the interaction between the individual and their context at an anthropic scale. This approach aims to overcome mechanistic reductionism and traditional dualism, offering a comprehensive perspective that integrates the biological, social, and historical dimensions in explaining human behavior and suffering.

Usos y Abusos de las Cuatro Causas Aristotélicas en Psicología

Palabras clave
Aristóteles
Causalidad
Conducta
Personalidad
Psicopatología

RESUMEN

Una comprensión completa de cualquier fenómeno requiere, según Aristóteles, considerar de manera integrada las cuatro causas que lo determinan: material, formal, eficiente y final. Esta concepción aristotélica de causalidad ha sido utilizada por autores de diversas disciplinas científicas, incluida la Psicología. El presente artículo revisa la concepción aristotélica original de las cuatro causas y su aplicación al estudio de la conducta humana, la personalidad y los trastornos psicológicos. Se examinan críticamente las aportaciones de diferentes autores, destacando debilidades y puntos fuertes. Finalmente, se propone una alternativa radicalmente humana que unifica las cuatro causas en un punto de encuentro psicológico, considerando la interacción del individuo con su contexto a escala antrópica. Este enfoque busca superar reduccionismos mecanicistas y dualismos tradicionales, ofreciendo una visión comprensiva que integre lo biológico, social e histórico en la explicación de la conducta y el sufrimiento humano.

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Diversity of opinion about a work of art shows that the work is new, complex, and vital. (...) What art really reflects is the spectator, not life. Cultivated minds are those who find beautiful meanings in beautiful things. For these there is hope."
Oscar Wilde

Throughout history, different conceptual issues have traversed the field of psychology as a discipline that attempts to answer the question of why we humans do what we do. These positions have given rise to a plurality of approaches that have prevented the establishment of a common basis on which a unitary and cohesive discipline can develop.

The notion of causality has varied throughout history, defining which events are relevant for answering why a phenomenon occurs. Aristotle proposed that we can explain the "why" of things based on four aspects and, therefore, there are four causes: material, formal, efficient, and final. In order to fully understand things, it is necessary to address all four causes, as they are complementary forms. This approach has been used in fields as disparate as genetics (McAinsh & Marston, 2022), relational biology (Hofmeyr, 2018), and psychiatry (Singh & Singh, 2016), among others (Sfendoni-Mentzou, 2001).

According to the location of the causes of behavior, psychological theories can be classified as intrapsychic (internal to the subject), environmentalist (external to the subject), or interactionist (both) (Chiesa, 1994). These three categories derive from the Cartesian division *res extensa* (mechanical model of the reflex, efficient causality characteristic of the body) *vs res cogitans* (model of the will, final causality characteristic of the mind). The false dichotomy mind/environment, specified in psychology as inheritance/learning, has led to another false dichotomy, in which it is understood that different scientific fields use different forms of causality (efficient *vs*. final). According to this perspective, the natural sciences study efficient causes, due to the physical-contiguous relations maintained by the events of their field, and psychology studies final causes, due to their temporal or "distant" relations (Fuentes Ortega, 2019).

This article reviews the four Aristotelian causes and their application in psychology, seeking a point of convergence between the different proposals. In the first part, Aristotle's original approach is presented, defining its main characteristics. Next, the article explores how various authors have applied these causes to psychology. The points of agreement and disagreement are analyzed, as well as their closeness to the original conception. In the third part, the application of the causes to psychological problems is analyzed. Finally, an alternative proposal is put forward to serve as a psychological meeting point.

The Concept of Causality in Aristotle

Aristotle presents the concept of causation in *Physics* (2007a) and *Metaphysics* (2007b), on the premise that, although things are essentially dynamic and subject to change, they nonetheless possess real existence. Therefore, he attempts to seek a fundamental knowledge of why they exist, of their cause.

Material Cause

The material cause is the determinant that explains what a thing is made of. However, this determination is somewhat limited, since the matter from which a thing is made is, by itself, not something determinate (Aristotle, 2007c). In other words, matter is potentiality; it determines only indirectly, insofar as it provides the possibility for certain forms. In the classic example, the material cause of a statue would be marble or bronze, which is the matter of which the statue is made, and with which the efficient cause interacts (Aristotle, 2007a).

Although there is a tendency to equate material cause with physical substrate, Aristotle's original conception does not necessarily imply this. For Aristotle, the material cause is what is necessary for certain things to exist—the premises or conditions that can take on certain forms (Aristotle, 2007b). It is, therefore, the subject of change (Aristotle, 2007a)—indeterminate matter. In this sense, the material cause of a phenomenon could be its physical, psychological, or social/institutional substrate, following the threefold division[1] of philosophical materialism (Bueno, 1972).

It is important to point out that, for Aristotle, matter, being potentiality, is only knowable insofar as it relates to the forms that determine it and allow it to be defined (Aristotle, 2007b). In this sense, just as the sculptor works with blocks of marble and not with molecules of $CaCO_3$, objects are only knowable as matter determined by specific forms at the human scale.

Formal Case

The formal cause is the determinant that explains the form of an object, what it is in its essential nature. The form is the reason why that matter is something specific (Aristotle, 2007b). In the classic example, the formal cause of the statue would be its figure (*e.g.*, the statue of Hera), the result of the efficient cause. Furthermore, every finite form (the statue) is, in turn, the matter for higher forms (such as a temple); it is the "second substance" of a "first substance" (Aristotle, 2007b).

Therefore, the formal cause—form or structure—is that by virtue of which matter can be said to be something determinate. A statue is marble with a form and, therefore, a statue must be a statue of something (e.g., of Hera), which necessarily implies an end or purpose. That is, the formal cause is entelechy, the final state in which an object has achieved its end or purpose.

In this sense, the notion of form is necessarily related to function or purpose. In Aristotle's classic examples, the entity of an axe would be "being an axe," which implies chopping wood. If that capacity is removed, it is no longer "an axe," except in name. If the eye were an animal, its soul would be sight, and the ocular structure would be the matter of sight, so if sight were removed, it would no longer be an eye (Aristotle, 2007b), as in the case of a sculpted or painted eye (like the pipe in Magritte's famous painting).

From the example of the eye, among others, we can deduce the inseparability of body and soul, since the end of the body is the soul, understood as the specific form of the organized body, which has the potential for life (Aristotle, 2007c). Each entelechy, therefore, would occur in the appropriate matter, in a particular body with potentiality (and not in another, nor in a different life history or

1 The physical category, which includes corporeal-physical things given in space and time (M1), encompasses both objects at the human scale and subatomic entities (the domains of biology, physics, or chemistry). The psychological category, characteristic of the operations of subjects given in time (M2), includes human behaviors. The abstract category, which refers to things not given in their own time or space (M3), would include ideas and abstract objects (such as mathematics, scientific concepts, and ideas), as well as supra-individual entities (institutions such as language, norms, and cultural practices).

context). Therefore, the form would be the set of elements that constitute a given entity insofar as they are suitable for the relevant functions, that is, for its end (Aristotle, 2007c).

Efficient Cause

While the first two causes would be sufficient to explain immutable objects, objects subject to change would require two more causes to account for such changes. The first of these is the efficient or moving cause, which explains what initiates movement—how something came to be what it is now (the determinant of the actualization of potentiality). In the classic example, the efficient cause of the statue would be the sculptor who creates it, the one who sets the matter in motion or change and actualizes its potentiality, giving it *form* (Aristotle, 2007a).

The efficient cause most closely aligns with the modern concept of causation, understood as chains of cause and effect, or as paratactic or physically contiguous relationships (Bueno, 1978; Chiesa, 1994; Rorty, 1982). Its application in the psychology of logical positivism led to the adoption of a mechanistic scheme of human behavior, based on efficient causality through the Pavlovian S-R (stimulus-response) scheme (reactions or cognitive processes). These chains necessarily rely on the physics/biology of the individual, implicitly accepting the dualistic mind/body distinction discussed previously (Moore, 2013; Pérez-Álvarez, 2021).

Final Cause

The second cause that accounts for change is the final cause. This cause explains the purpose for which something is made or the goal of the change—its function. In the classic example, the final cause of the statue would be to adorn a temple (Aristotle, 2007a). It is important to remember the relationship between the formal and final causes. Considering that the form of an event or object is its essence, and that its essence is composed of the set of functions it fulfills, the formal and final causes form an interdependent pair (for example, if it did not have the form of Hera, it would not serve its purpose for the temple).

It has often been suggested that the final cause reverses the arrow of time, by implying that the "effect" occurs before the "cause." In this sense, the statue is made before it adorns the temple. However, given certain prior conditions (a block of marble) and a change toward later conditions (a statue), the change stops when the need for that change has been satisfied—that is, when the change has fulfilled its function (decoration). The issue becomes clearer if we consider changes (such as the construction of the statue) not as isolated acts but as processes extended over time. That is, the cause of constructing a statue is to adorn the temple. Therefore, the final cause precedes the actual existence of the statue itself (Table 1).

Proposals for the Application of the Four Causes in Psychology

Howard Rachlin

Howard Rachlin has focused on describing efficient and final causes, understanding that the proper level for psychology is the organism-as-a-whole behaving in its environment (Rachlin, 1992, 1995).

Rachlin clearly distances himself from methodological behaviorisms (including cognitivism), rejecting them as mechanistic. The efficient cause of behavior would be the set of environmental stimuli and internal mechanisms that precede a specific act (Table 1). To arrive at this definition, he draws from Skinner, who saw the behavior-reinforcer contingency as the efficient cause of subsequent increases in response rate (Skinner, 1938).

However, by drawing an equivalence between reinforcement history and soul, Rachlin considers reinforcement history to be a final cause. Thus, he extends the concept of reinforcement from an individual operant to a temporal pattern of behaviors through which reinforcement contingencies are understood. The final cause of behaviors would be the patterns of behaviors extended over time in which those behaviors are embedded (Rachlin, 1992). These patterns allow us to understand the reasons for behaviors, given that reinforcement contingencies often do not operate on specific behaviors; ("An individual lever press has no cause in exactly the same sense in which an individual event has no probability"; Rachlin, 1992, p. 1379).

On the other hand, if we were to consider a discrete operant (at the molecular level), the organism's reinforcement history up to that point would form part of the conditions that precede the operant, since antecedents, from a psychological point of view, do not only refer to physical variables. A person does not move themselves, but is moved, in a psychological sense, by their past history (which explains the current behavior-reinforcer contingency). The soul in Aristotle, as habit or patterns of behavior, is the form that human nature takes, the habits oriented toward virtue, the final cause of what it means to be human.

Thus understood, the Skinnerian conception includes, more or less explicitly, the teleological notion of patterns extended over time. The very notion of personality as a *locus* where past and present converge (Skinner, 1974) is in line with Rachlin's assertion about probability. In addition, the relevance of classes on the simple operant (Cuvo, 2000; Skinner, 1935) and the very concept of reinforcement history imply the notion of the operant as a sample from an extended behavioral repertoire that can only be understood in light of the organism's life history (Skinner, 1950). In turn, the efficient cause as the initiating cause of movement does not exclude a temporal extension (Kantor, 1975; Skinner, 1953). Thus, the efficient cause of the statue was not the individual blows of the chisel on the marble but the sculptor, whose activity involves an extended pattern of chisel blows. In this sense, the operant in a Skinner box can be seen as behavior reduced to its minimum expression, a situation analogous to the vacuum in physics, which does not occur in natural situations.

Rachlin criticizes cognitive-behavioral therapists for their focus on antecedents (efficient causes) and their neglect of consequences (Rachlin, 1992). Although we agree with the critique of the search for "internal mechanisms" in terms of efficient causality, it is important to note that the very concept of consequence implies a context, a situation. Consequences are such with respect to a movement, to a behavior that, therefore, involves efficient causality. Both causalities are not replaceable but co-determinant, as long as they maintain the same explanatory level. Following the classic

Table 1
Applications of the Four Causes to the Psychological Field

Author	Material (hûlē/ὕλη)	Formal (eîdos/εἶδος)	Efficient (kinoûn/κινοῦν)	Final (télos/τέλος)
		BEING		
Aristotle (2007a, 2007b)	Potentiality. That which, by itself, is not something determinate. Necessary substrate with the potentiality to take form. Subject of change. Knowable matter.	Entelechy. That by virtue of which matter can already be said to be something determinate. Pattern, structure, or essence of things, which makes a thing what it is and not something else.	Moving agent. The source that causes change and explains how something came to be what it is now.	That for which change occurs. Its function or purpose.
		BEHAVIOR (molecular)		
Rachlin (1992)	Physiological substrate and internal mechanisms.	n. a.	Environmental stimuli or internal psychological mechanisms that immediately precede the act. The *how*.	Patterns of behaviors extended over time, within which the act is embedded. *The why*. Utility functions. The sum of overt behaviors.
Killeen (2001, 2004)	Physiological substrate or internal mechanism.	Logical maps describing the change (learning models).	Triggers or sufficient /necessary initial conditions (conditioning parameters).	Function or final condition of change (adaptation to environmental changes).
Pérez-Álvarez (2009)	Organism as a whole.	Model as an action on which behavior is based.	Agent.	Function, in the teleological sense.
Ribes-Iñesta (2015)	Mediator of the interaction. Opportunity to respond according to the given circumstance in each field of contingencies.	Contingency structure. Effective relationship of actions within the field of contingencies.	Functional detachment.	Criterion for adjustment between what is possible and what is achieved. Degree of actualization of potentiality.
Martínez-Loredo	Life experiences involving being-in-the-world. Organism's relations with its physical environment.	Contingency structure. The essence of the behavior, involving a context in which action occurs and the consequences of those actions.	Contextual conditions in which behavior occurs and which evoke it.	Effects of actions on the world. Consequences involving contexts and behaviors, linking *eidos* with *telos*.
		PSYCHOLOGICAL DISORDERS		
Pérez-Álvarez (2003)	Life problems.	Diagnostic categories. Content of disorders.	Subjects in extra-clinical, clinical, and research contexts.	Meaning. Function in the context of the person.
ADHD. Killeen et al. (2012)	Proximal: physiological substrate. Distal: genetic and epigenetic conditions.	Proximal: diagnostic categories. Distal: explanatory theories.	Proximal: immediate antecedents of symptoms. Distal: mechanisms of the organism that make it susceptible.	Proximal: function. Distal: evolutionary utility.
ADHD. Pérez-Alvarez (2017)	Behaviors that define the disorder.	Diagnostic categories.	Social practices that shape behaviors into disorders. Families, schools, and clinicians.	Functions they fulfill for different institutions, harmonizing their interests.
Schizophrenia. Pérez-Álvarez et al. (2008)	Crisis of common sense and the consequent social dislocation it causes. Pre-reflective consciousness.	Schizoid personality as a model of insanity.	Patients and clinicians, both influenced by cultural factors such as the Western conception of insanity.	Problem-solving style. Alarm to recognize crisis situations and request help.
Addictive disorders. Tucker et al. (2023)	n. a.	n. a.	Environmental events or internal psychological mechanisms that immediately precede the act.	Temporally extended patterns of behavior. Rates of behaviors/reinforcement.
		PERSON/ALITY (molar)		
Pérez-Álvarez and García-Montes (2006)	Plasticity of the organism. Organism not strictly bound to its corporeality.	Functional totality of the organism. *Psykhé*, constituted in the socio-institutional environment in which they live.	Educational actions and social practices leading to becoming a person responsible for their own actions.	Personal ends, coordinated with the effects of their actions, in a circular sense where such consequences rebound on the person.
Martínez-Loredo	Contingency structure (involving basic behavior repertoires). Knowable matter of life. Relational behaviors with oneself (speaker as own listener, bidirectional operants).	Language as relational networks, narratives that organize identity. Dimensions of the self (content, process, and context). Relational context.	Social institutions, culture as the ecological niche unique to human beings. Human beings are born into an inherently social environment. Functional context.	Values. Effective action on the world. *Eudaimonia.*
		PERSONALITY DISORDERS		
Ruiz Sánchez et al. (2024)	Relational behaviors with self and others.	Preclinical or social form: antecedent and consequent contingencies. Clinical form: diagnostic categories in clusters.	The person themselves with their lifestyle over time. Intersubjective relationships between concrete persons.	Avoiding or defending oneself from bad life situations or obtaining resources from others in a dysfunctional manner.
Martínez-Loredo	Language. Dimensions of self.	Preclinical or social form: networks of relationships. Clinical form: idem.	idem	idem

example, the sculptor may be one or another and, in that physicalist sense, efficient causality is of little relevance for a psychologist. However, at the phenomenological, human level, one can speak of the characteristics that a sculptor must have (efficient cause), regardless of *which* sculptor it is (material cause), that is, the form of the efficient cause. Finally, if the molecular/molar distinction is applied, one could speak, on the one hand, of simple or operant behavior (as isolated events localized in time), and on the other, of extended behavioral patterns or of the person as a broader unit of meaning. In this sense, efficient and final causes could be different for each level (for Aristotle, every finite form is the matter of higher forms).

Peter R. Killeen

Killeen (2001) draws from a critique of Skinner's supposed emphasis on efficient causality in psychology and the opposition to the use of other causes due to considering them "theorizations" (formal), "neuro-reductions" (material), or "propositional" (final) (Killeen, 2001, p. 3). However, we believe that Killeen's critique of Skinner does not correspond to reality and that it is limited to consider Skinner's statement "the study of the variables on which the probability of response is a function" (Skinner, 1950, p. 199) only in terms of efficient causality. In fact, Skinner proposes a purely Aristotelian approach, since when he talks about the function of behavior, he necessarily introduces a teleological dimension (a final causality), insofar as that function refers to the effects that behavior has in its context. In turn, this finalistic dimension requires a certain form—that is, an organization or structure that makes this function possible, which implies a formal cause. Hence, his critique of psychological theories can be understood as a critique of explanations that abstract behavior from its concrete form and function, operating at another level of observation and analysis outside psychology (Skinner, 1950). Thus, neurological, mentalist, or conceptual theories do not explain behavior but only add intermediate steps that require explanation.

According to Killeen, the material cause of behavior would be the biological substrates and the "internal" or covert mechanisms (Killeen, 2004). However, their exclusive use would not only be reductionist but would also establish an improper relationship with the form of the object it seeks to explain (Table 1).

The formal cause of behavior would be formal language (e.g., logical maps, differential equations) that serves as a transition model between initial and final conditions (in psychology, associative or computational conditioning models, the three-term contingency). From our point of view, the author falls into the error of considering the Aristotelian form as a mere description of the "physical" or "topographical" form. The formal cause in Aristotle is that by virtue of which matter gains meaning in light of its purpose (e.g., the formal cause of the statue is Hera, represented by her polos, regardless of the specific "physical" form). The formal and final causes are closely related and, therefore, we must seek the former in a structure that enables the realization of the latter, and not in a mere topographical representation or description of an event.

For his part, Killeen considers the efficient cause to be the triggering events that produce an effect or the initial conditions for the change of state to occur (e.g., the parameters that promote or affect conditioning; Killeen, 2004). This definition of efficient causes seems foreign to his level of analysis, reducing them to their material parts[2]. Considering the efficient cause as the initial conditions of change is to consider the marble block as the efficient cause of the statue. Considering the efficient cause simply as a trigger (such as the sculptor's chisel blows) is reductionist (e.g., the efficient cause of a child is the father, not the mere spatiotemporal contiguity between a sperm and an egg as parameters of fertilization). In fact, as Skinner notes in the article cited by Killeen, "most operants are emitted in the absence of relevant stimuli" (Skinner, 1950, p. 196).

Finally, the final cause is defined as the final condition that requires an evolutionary explanation in terms of adaptability to a changing environment that selects the most appropriate behaviors. Correctly, and in line with the nonspecificity of material causality, the author points out that the same final cause does not imply the same material cause. Moreover, events efficiently related to the effect are so by virtue of their prior relation to their final causality, in line with Rachlin (1992). Different topographies may satisfy the same function or, existentially, a person may face different life problems in the same way.

Marino Pérez-Álvarez

Pérez-Álvarez (2006; 2009) critiques Killeen's proposal by offering an alternative. Instead of the physiological substrate as the material basis of behavior, Pérez-Álvarez proposes the "organism-as-a-whole" as the malleable matter from which behavior is formed, defined by its functional capacity to act (potentiality). For Aristotle, potentiality always derives from a previous act, and in this sense, the capacity to act must stem from prior practice. Matter must exist at an anthropic scale, as a sculptor shapes a block of marble, not fragments or atoms of that material.

Considering the potential nature of matter, Pérez-Álvarez also includes the reinforcement history as a material cause of behavior—the shaping of behavior in a teleological sense (Rachlin, 1992)—which he understands similarly to Aristotle's concept of the soul (see Table 1). However, for Aristotle, the soul was the form(al) (cause) of the human being, conceived as living activity, as act, which is neither body nor can occur without it (Aristotle, 2007c). Reinforcement history cannot be assimilated to the soul, since it precisely limits behavioral possibilities, actualizing potentiality into a specific form.

According to Pérez-Álvarez, a more Aristotelian conception would be to consider as the formal cause the model that the behavioral agent follows or is based on, rather than the model the scientist uses to analyze behavior. In this sense, the formal cause would not be any internal representation or formal analogy of behavior but the very activity on which it is based: models that, as objective forms, establish the conditions of possibility for future behavior.

Here, Pérez-Álvarez contradicts his own position regarding the material cause. Furthermore, considering the formal cause as an objective form contradicts the Aristotelian conception of form as

2 The material parts would be those that, composing a whole, do not allow its reconstruction because the form of the whole from which it comes from has already been lost (*e.g.*, the sand from which a vase is made). Formal parts would be those that, composing a whole, allow its reconstruction because they still preserve the formal texture of the whole from which they come (*e.g.*, pieces or parts of the vase).

essence. The form of behavior raises the question of its essence—what constitutes good behavior.

Related to the above, Pérez-Álvarez argues that the efficient cause is not so much the antecedent event(s) but rather the instructor or educator (Pérez-Álvarez, 2009), with the individual being the efficient cause of their own behavior. However, the author contradicts himself, as he also states that the potential for one's own behavior derives from the context in which it occurs (Pérez-Álvarez, 2009). The individual cannot move themselves but is instead an effect of the actions and education of others (Pérez-Álvarez, 2015). To address this possible *causa sui*, one could understand the agent—already included in the conception of the organism-as-a-whole—as the material cause of behavior. The potential actions of this organism would be the matter susceptible to acquiring certain forms. The entity that would realize these forms could be the antecedent-behavior contingency, including not only the specific events that parathetically[3] precede the person's action but, from a molar perspective, the learning or life history, or, if you will, the context.

As for the final cause, there seems to be a consensus, although it specified that one should rather consider function as the behavior-reinforcer contingency at the ontogenetic level (Pérez-Álvarez, 2009).

Pérez-Álvarez (2015) and Pérez-Álvarez & García-Montes (2006) extend the application of the Aristotelian causality of behavior to the person(ality). To do so, they draw from the Skinnerian conception of personality as a *locus* of behavior—a point of convergence for past variables (reinforcement history) and present variables (contingencies) on which behavior depends. This locus or context is primarily given by language, in which contents are expressed (Pérez-Álvarez & García-Montes, 2006). The material cause of personality, therefore, would be the organism not as a biological entity but as the lived experience of the body. The formal cause would be the functional totality of the organism, socio-institutionally formed. The efficient cause of personality would lie in educational actions and social practices that shape the person responsible for their actions to achieve personal goals (final cause), through the effects of their actions that feed back onto the person (Pérez-Álvarez, 2015). Despite the laudable effort to extend the four causes to personality as a whole, we believe that this proposal is much more ambiguous and underdeveloped.

Emilio Ribes-Iñesta

According to Ribes-Iñesta (2015), the material cause of behavior is the mediator of interaction—the medium of contact that provides the organism with the opportunity to respond to a given circumstance within each field of contingencies (see Table 1). In this sense, the contingent relationship between antecedents (as context) and behaviors corresponds to Aristotelian potentiality, as it does not refer to any specific behavior. However, for the opportunity to respond to a circumstance to reach the phenomenological level of the person, the material cause must be specified in the conventional medium of contact mediated by language (as opposed to physicochemical or ecological; Ribes-Iñesta, 2007). Therefore, it is necessary to distinguish between the material cause of the organism's behavior at the molecular level (discrete operants) and the material cause of the person(ality) at the molar level. A possible reformulation of this approach (implicitly suggested by the author; Ribes-Iñesta, 2007, 2015) would be to consider the contingency of occurrence as the material cause of behavior when analyzed at the molar level. The material cause would not be limited to the immediate physical medium of contact but would encompass the dynamic relationship between the organism and its surrounding world. The contingency of occurrence describes the potentiality for action—that which enables an organism to act actively in a given situation, not as a mechanical reaction but as part of a structure of opportunities and demands in the environment. In this way, the dualism of organism/environment is avoided, as behavior is understood as the mutual implication of the two terms (i.e., behavior as the expression of a disposition of the organism to respond and a configuration of the environment that evokes the response). On the other hand, the conventional medium of contact, which is exclusively human, articulated through language, and inclusive of the other media of contact mentioned above, would be the material cause of the person(ality) (Ribes-Iñesta, 2007).

The formal cause of behavior would be the contingent structure, not as a formal representation of behavior but as the effective relationship of the individual's actions within the field of contingencies. Along with material causality, the formal cause determines the initial moments of an episode, establishing the functional possibilities based on existing contingencies of occurrence and the boundaries of the field (Ribes-Iñesta, 2015).

The functional detachment of behavior would be its efficient cause, not as an agent responsible for a unidirectional effect but as the occasion to actualize the organism's potentiality (Ribes-Iñesta, 2015). Functional detachment describes how this interaction becomes autonomous or distances itself from strictly biological relationships (parathetical relationships between the physicochemical properties of objects and the organism's reactivity in a specific physical situation).

The distinction between functional detachment and contingency of function is, in our opinion, unclear in its relation to the four causes. While functional detachment describes the change in the relationship between functions, the contingency of function acts as a label describing such change (the updating of the contingency of occurrence). In fact, the author himself seems to contradict himself by understanding, on the one hand, functional detachment as the *updating* of the mediator of interaction (from contingencies of occurrence to contingencies of function) and on the other hand as the process that would explain this updating of the contingency of occurrence to that of function (as the *occasion* to update potentiality) (Ribes-Iñesta, 2015).

According to the Theory of Behavior (Ribes-Iñesta, 2018), psychological behavior requires the existence of biological or social behavior; thus, psychology does not have its own substance. This assertion raises the question of to what extent would it then be possible to apply the concept of cause (especially material and formal) to a phenomenon that has no entity of its own, but rather arises from the use of language and is characterized by transitions between biological-ecological and historical-social means. If psychological behavior is defined by the transition between ecological and social environments, it would only occur from the beginning of functional detachment until it ends. Therefore,

3 Parathetical relations are proximal, physical-contiguous relations, as opposed to apothetic, distal, temporal relations.

functional detachment would be the characteristic of the psychological and not its efficient cause.

Lastly, the final cause would be the criterion of adjustment between what is possible and what is realized—the degree to which potentiality is actualized. However, this conception of final causality as a result, rather than as the objective of the event under analysis, essentially departs from the teleological connotation that final causality has in Aristotle.

Applications of the Four Causes to Psychological Problems

As interactive entities[4] (Hacking, 1996; Khalidi, 2009), human behavior and psychological problems are influenced by the practices that operate on them. Psychology and psychiatry not only describe, but also prescribe ways of acting (Foulkes & Andrews, 2023; Pérez-Álvarez & González-Pardo, 2007; Pérez-Álvarez et al., 2008), generating a psychologized society in which psychological terms permeate all areas of human life (Shrier, 2024).

Pérez-Álvarez has applied the four Aristotelian causes not only to human behavior but also to psychological disorders, seeking to understand how these *have become* real (Pérez-Álvarez, 2003; Pérez-Álvarez et al., 2008). The material cause would be life problems (conflicts, frustrations, changes) and the behaviors that constitute attempts to solve them. The formal cause would be the diagnostic categories, as shifting models of incorrect behaviors that these problems take on in modern society (Table 1).

The efficient cause would be both the medical/research professionals and the patients, immersed in a hyper-reflexive society[5] and permeated by the medical model of illness. Life's problems thus undergo a double elaboration. Like an apprentice sculptor, the client presents their experiences to the clinician in terms of symptoms, although still without a defined form. The professional carries out the "second elaboration" that will shape the client's material, highlighting some characteristics over others and producing a final form, either dissolving its psychological density (depathologizing it) or increasing it (pathologizing it) (Pérez-Álvarez, 2003). The final cause would be the function these behaviors serve as attempts to solve problems within the person's context, beyond the molecular functional analysis of present situations.

Despite the interesting nature of this proposal, it raises certain doubts and contradictions. On the one hand, the material cause is conceptualized in some places as life issues, in others as the behaviors that have become problematic in their functioning, and elsewhere it is mentioned that the biographical context gives content (form) to the behavior, which would imply that these matters of life are efficient causes. Furthermore, the author attempts to articulate the phenomenological-existential approach with behavior analysis, relating the Aristotelian pairs "matter/form" to the existential binomial "disorder/existential concern", and the pairs "topography/function" from behavior analysis. Thus, disorders would be understood not only as dysfunctional behavior patterns (topography), but as culturally instituted forms expressing life problems (matter) in a given biographical and normative context. The content and meaning of symptoms would thus be mediated by their function within the fabric of the subject's personal and social life. However, this attempt would imply identifying the material cause of psychological problems with the disorders themselves (instead of the formal cause) or with the topography of behavior (in its physical dimensions), rather than with the aforementioned life problems.

The author also suggests that the determination of the content of the disorder (material cause) depends on the conceptual system of the clinician, which would imply that there are as many material causes as there are systems. It seems more reasonable to think that psychological disorders will have a material cause described in different terms depending on the approach, raising the question of which description is most accurate. Beyond this global conception of psychological disorders, various authors have applied the four causes to specific problems.

Attention Deficit and Hyperactivity Disorder (ADHD)

Killeen et al. (2012) applied the Aristotelian causes to ADHD, dividing them in turn into distal and proximal, which, from our point of view, diverges from the original Aristotelian conception. Thus, proximal material causes (neurophysiological substrate, brain dynamics, or neuromodulatory systems) would explain the symptoms while distal ones (genetic and epigenetic conditions) would explain the disorder. The formal cause of the disorder is identified in the formal diagnostic criteria (proximal) and in the explanatory theories of the disorder (distal). This framework, therefore, would mean that the phenomenon itself (the problems included in the disorder) would have as many formal causes as there are explanatory theories.

On the other hand, the proximal efficient cause would be the immediate antecedents of the symptoms, whereas the distal efficient cause would be the "mechanisms" of the organism that make it susceptible to the symptoms. One might question the meaning of speaking of distal efficient causes, as well as the distinction between these and proximal material causes. The proximal final cause would be the positive and negative reinforcement of inattentive and hyperactivity behaviors, while the distal final cause would be the evolutionary utility of these behaviors.

Critiquing the circular reasoning of Killeen's proposal, Pérez-Álvarez (2017) highlights that the problems to be explained are inattention and hyperactivity, not ADHD or neurological substrates. Material and formal causes would come first, being interdependent with each other.

According to Pérez-Álvarez, the material cause of ADHD would be the very behaviors by which the disorder is defined. This would be the material that ultimately takes the form of a disorder through the effect of certain efficient causes "guided" by a final cause. These behaviors begin to become problematic when they disrupt the person's relationship with themselves or their environment. In this sense, Pérez-Álvarez's proposal remains at the anthropic scale, while Killeen's commits the mereological fallacy of breaking down the problem into sub-agential parts.

The formal cause would be the diagnosis, but, in this case, not as an entity in itself but as an objectification of a process of selection,

4 Natural entities are a type of reality characterized by being fixed, indifferent to the classifications, interpretations, and knowledge we have of them (i.e., neurons, a stone, a planet, neurotransmitters, etc.). Interactive entities are susceptible to being influenced by the classifications, interpretations, and knowledge we have about them. Human beings and all their operations fall into this category.

5 Hyper-reflexivity refers to excessive self-awareness, whether of a private event (e.g., a thought or emotion) or of one's own body. This awareness is excessive insofar as it disturbs and distances the person from contact with the world; when it loses its function of solving life's problems and becomes a problem in itself. In this sense, social institutions (educational, media, and especially those related to psychology, among others) foster self-reflexivity and rumination.

definition, and magnification of certain behaviors over others, which become "symptoms of". Like Killeen, Pérez-Álvarez includes explanatory theories, which guide the process of creating diagnoses.

On the other hand, the efficient cause would be the set of social practices through which these behaviors are shaped into diagnostic categories. The "sculptors" in this case would be first the families and schools and then the clinicians, who believe they are describing an objective reality while actually engaging in a discriminative process based on the forms (diagnoses) they know. The final cause would be the set of functions that problematic behaviors serve for the different institutions (school, families, pharmaceutical industry), extending beyond mere reinforcement processes (Table 1).

Schizophrenia

Based on the situated (contextual) and linguistically constructed nature of human beings, Pérez-Álvarez et al. (2008) suggest that the way in which one handles problems and their biological conditions is what usually gives such conditions their psychiatric meaning.

The material cause of schizophrenia could be pre-reflexive consciousness (Fuchs, 2010; Parnas & Sandsten, 2024; Pérez-Álvarez, García-Montes, & Sass 2010, Pérez-Álvarez, García-Montes et al., 2016). Alterations in this normally tacit, taken-for-granted sense of being a subject of consciousness (Parnas & Henriksen, 2014) would produce a crisis of common sense, with its consequent social dislocation: the disorder of ipseity that we call schizophrenia (Pérez-Álvarez et al., 2011). The formal cause would be the experiences of oneself that are current in the culture of reference. The authors consider the schizoid personality of modern society as the model (form) upon which schizophrenia is categorized.

The efficient cause would be both patients and clinicians, both influenced by cultural factors such as the Western conception of insanity, who play a significant role in the course of schizophrenia as a chronic and debilitating illness. The final cause of schizophrenia would be related both to a problem-solving style (*e.g.,* delusions in response to hallucinatory experiences) and to the alarm it generates, which allows for the recognition of extreme situations and the seeking of help in response to them (Table 1).

Addictive Behaviors

Based on the application of matching law to behavior patterns extended over time and Rachlin's (1992) philosophy of teleological behaviorism, several authors have studied how discrete choices can produce coherent patterns of behavior, even when they seem irrational (*e.g.,* problematic substance use) (Vuchinich et al., 2023). Tucker et al. (2023) distinguish only efficient and final causes for molecular acts of consumption.

The efficient causes are the environmental conditions in which the episode occurs. However, the authors also include "operations of private mechanisms that partially cause choices" (Tucker, 2023, p. 7), such as those measured by delay discounting or demand tests. This proposal, although on the right track, eliminates the anthropic scale of analysis due to its parathetic conception, falling into the same mereological fallacy as Killeen. Moreover, resolving this external-internal duality necessarily leads to explanatory reductionism (*i.e.,* biological bases of such "internal mechanisms").

The final cause would be the set of molar environment-behavior relations that describe patterns of engagement in different activities over time (Table 1). In other words, whereas analyzing the efficient causes of a consumption episode would require focusing on the immediate antecedents of that consumption, to understand addictive behaviors one would have to analyze the variables that consistently covary with behavioral patterns—that is, the rates of different behaviors in relation to the rates of occurrence of various environmental events (Tucker et al., 2023).

It is important here to recall the criticisms of Rachlin's proposal regarding the use of the efficient/final cause pair as alternative explanations, as well as the inclusion of the temporal dimension only in the final cause, forgetting that the antecedents (efficient cause) are such due to a history of previous reinforcement. The molecular/molar distinction as behavior/person would lead to proposing different efficient and final causes depending on the level analyzed. Thus, the rates of differential reinforcement in a particular situation could be seen as the efficient cause of the "choice" to consume (vs. not consume). In contrast, molar reinforcement rates (*e.g.,* values) could be seen as the final cause of non-consumption behavior. The asynchrony between molecular/molar reinforcement rates could explain short-term abstinence that is not maintained over time (Martínez-Loredo, 2023).

Personality Disorders

Regarding personality disorders, Ruiz Sánchez et al. (2024) made a proposal based on the generic framework of Pérez-Álvarez (Pérez-Álvarez, 2003).

For these authors, the material cause of personality disorders would be relational behaviors with oneself and with others, which take on a preclinical/social form as antecedent and consequent contingencies, and a clinical form as diagnostic categories grouped into clusters. On the other hand, efficient causality is found in the person themselves, specifically in their lifestyle and the intersubjective relationships with specific others. This conception of efficient causality falls into the same limitations previously noted with respect to the "agent" as the efficient cause of behavior. Moreover, it partially overlaps with the proposed material causality. The final cause is located in the functionality of these behaviors, such as the avoidance/defense against adverse life situations or the problematic acquisition of resources (Table 1).

From Materiality to Finality: A Psychological Meeting Point

Having explored the different applications of the four Aristotelian causes to behavior, personality, and psychological disorders, it is worth making a synthesis (Table 1) while maintaining the fundamental premise: for a comprehensive explanation of the phenomenon, all four causes must be used, all of them at the anthropic scale. Thus, the efficient cause of behavior cannot be found in biological substrates or in supposed "internal" psychological mechanisms that fragment the behaving person. At most, these subagential parts—substrates indirectly related to the caused object—could be material parts of behavior. However, since material causes do not, by definition, maintain the formal structure of the object and yet "internal" mechanisms are described in psychological terms, cognitive mechanisms cannot be material

causes of behavior, unless they are interpreted as biological mechanisms. The alternative is to consider them as psychological processes at the same level as any other behavior, being therefore objects of explanation and not explanatory subjects.

The Four Causes of Behavior

Given all of the above, the material cause of behavior, including psychopathology, would be life experiences (the actions and reactions of organisms). These involve an indivisible being-in-the-world: a relationship of an organism as a whole with its environment that serves as a base or indeterminate necessary substrate (thus, as potentiality), although it is presented at the anthropic scale (and is, therefore, knowable matter).

The formal cause would be the contingency structure, as a structure of possibility (*vs*. necessity) of the organism's relationships with its environment. For Aristotle, the demonstrative (scientific) syllogism reproduces in its own formal structure (premise-middle term-conclusion) the material structure of causation (Aristotle, 2007d). In this case, the contingency structure (antecedent-behavior-consequence or A-B-C), under certain conditions of temporal asynchrony between its consequences, could favor the maintenance of behaviors that we classify as problematic. Within this structure—which allows certain events to be given behavioral meaning—social patterns, normative models, and culturally mediated action schemes can also be integrated. In behaviors with a high verbal component and dependent on socialization processes, these elements do not contradict the contingency structure but are articulated within it, maintaining the A-B-C form. Their presence does not distort the function of this structure as a formal cause but rather enriches it. In the absence of such a form, we would probably be dealing with social phenomena of another order, not strictly psychological.

For Aristotle, the soul is the form of the body, which in turn has as its end the soul, as the vital principle that organizes and actualizes its structure. But the body is situated in the world and, therefore, behavior would be co-formed by life experiences (body-in-the-world, with its actions and reactions) and the recurrent contingency structure. Thus, if behavior is stripped of its structure (its relationship with the environment), it will cease to have the form of behavior and will become a "process" or "mental mechanism" in a vacuum, and a body-*on*-the-world, inert.

The efficient cause, the beginning of the "movement" under study, would be, more than the antecedent conditions in a parathetic sense, the relationship between *some* of these conditions and the behavior under explanation (antecedent-behavior relationships, which can take different "forms" such as models, rules, social norms, in short, the life history of the person). In other words, they would be specific events that, derived from life experience, configure that functional relationship between antecedents and behavior (as a matter specified in the history of "learning" or "life"). Contrary to common understanding, (operant) behavior would not be controlled or determined (teleologically) by its consequences, but is under (efficient) control of the existing conditions that signal the contingency relationship between a behavior and its consequences. In this sense, the culture that normalizes the forms and situations of distress based on certain models, and that takes the form of scientific and social studies and discourses, could be seen as efficient causes of psychopathology.

As has been agreed upon in most of the proposals, the final causality (the purpose of the movement, the "for what"), would be specified in the relationships between behaviors and their consequences. These consequences involve contexts and effective actions in the world, relating the *eidos* with the *telos*.

As can be seen, the four causes of psychological problems are simply specifications of the causes of generic behavior. Thus, a radically phenomenological, human point of view is proposed. This point of view allows for the integration of perspectives on a foundation given at the anthropic scale in order to understand not only behavior in all its aspects but also human suffering.

The Four Causes of Person(ality)

Attempting to explain human behavior from a molecular point of view, focused on the functional analysis of the immediate situation, is limited. An individual's circumstances have an extended temporal dimension that requires a molar analysis that attends to the broader context (metacontingencies, rules, existential concerns).

In this sense, a psychological reinterpretation of the difference between explanation (*Erklären*) and understanding (*Verstehen*), proposed by Karl Jaspers (Jaspers, 1913), becomes pertinent. This reinterpretation could facilitate the integration between existential approaches and behavior analysis. Thus, while functional analysis would clarify the matter/form pair, explaining behavior, narrative analysis would allow the identification of the meaning of actions, making it possible to understand them. We would be dealing with an analysis of the person(ality) rather than of the behavior, understanding that the latter constitutes the former. Consequently, psychological disorders or problems could be reconceptualized as disorders or problems of the person(ality) (Pérez-Álvarez & García-Montes, 2024).

Following the Aristotelian approach that every finite form is, in turn, the matter of higher forms, the contingency structure could be understood as the material cause of personality. Personality would be made of relationships, of life experiences already *in the form* of behavioral patterns extended over time that emerge without direct "learning" (Johnson & Street, 2023; Rehfeldt & Root, 2005).

Language, as networks of relationships and as narratives that organize the sense of agency or identity, would constitute the formal cause of personality. Like an alloy, the hylomorphism of the person as a (biological) human (verbal, relational) being implies not only the existence of an organism-as-a-whole that acts, but also that of language as a structuring tool (Pérez-Álvarez & García-Montes, 2006). From the perspective of Relational Frame Theory (Hayes et al., 2001), this network of symbolic relations forms a relational context that structures the subjective experience and articulates functions of the person (self as content, process, and context). Just as behavior was shaped by experiences+contingency structure, personality would be made up of contingency structure+language, which would give the experience a human texture.

Relationships with others and with oneself (as speaker and listener) would be both the form of the person and the material cause of the psychopathology of the person(ality), a new form enabled by language. The paradox is that, although language frees us from the natural contingencies of the here and now, it is also the condition of possibility for disorders (Fuchs, 2010). Complementing Ruiz Sánchez et al. (2024), the formal cause of personality

problems would be the networks of relationships with oneself and others, verbally mediated, which resonate in the intra- and interpersonal dimensions of the dimensional approaches to personality disorders.

In turn, the efficient cause of personality would be social institutions, culture as the ecological niche unique to the person, to the human *being* (functional context). The final cause would be given by values, which give meaning to life experiences through effective action upon the world. Following the Aristotelian analogy about what confers "axe-ness" to an axe, one could ask what makes a person a *person* and, therefore, what is their personality. Since the identity between *eidos* and *telos* implies that breaking the form nullifies the function, it is evident that behavior must always be relational and social. Without language, life experiences could not be articulated in values, as patterns extended over time. We would speak of psychopathology when a person becomes trapped in life situations that *debase* their behaviors, disconnecting them from their essence (purposes and values) and controlling them through the avoidance of suffering.

Conclusions

In this article, the four Aristotelian causes and their application to human behavior and psychological disorders have been reviewed as discussed by various authors. After identifying certain limitations, an alternative approach is proposed which, although grounded in the work of these authors, goes beyond their perspectives. This proposal situates the four causes of behavior and its disorders within a phenomenological framework, thereby avoiding reductionism. The approach is radically psychological and humanistic, conceived as a meeting point among different systems of psychotherapy.

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