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ORIGINAL RESEARCH

Processes and events as rigid embodiments

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Abstract

Monists and pluralists disagree concerning how many ordinary objects there are in a single situation. For instance, pluralists argue that a statue and the clay it is made of have different properties, and thereby are different. The standard monist's response is to hold that there is just a single object, and that, under the description "being a statue", this object is, e.g., aesthetically valuable, and that, under the description "being a piece of clay", it is not aesthetically valuable. However, Fine provided an ontological reading of the expression "an object under a description": the theory of rigid embodiments. The debate between monists and pluralists reduplicates in the domain of ordinary occurrences, like walks and conferences. Specifically, they disagree whether an occurrence in progress (also called "process") like John's walk that is happening at t_n is identical to some completed occurrence (also called "event") like John's walk that happened between, e.g., t_1 and t_n. Under the adoption of the pluralist's position, the article aims to provide a novel theory of ordinary occurrences that develops the ontological reading of "under a description" to account for occurrences in progress and completed occurrences. As a first result, we formulate a theory according to which both occurrences in progress and completed occurrences are rigid embodiments. As a second result, we argue that the suggested theory is explanatorily powerful to the extent it solves two puzzles that we call "the Puzzle from the Completion of a Process" and "the Metaphysical-cum-Semantical Puzzle".

Keywords Process · Event · Object · Rigid embodiment · Identity

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1 Introduction

Monists and pluralists disagree concerning how many ordinary objects (such as chairs, trees, persons) there are in a given situation. For instance, they disagree whether the statue and the clay it is made of at time *t* are identical. A pivotal argument in this debate derives from an application of the Leibniz's Law: pluralists hold that the statue and the clay at *t* have different properties and thereby are different. For instance, the statue is aesthetically valuable at *t*, the clay is not.[1] The standard response provided by the monist is that this application of the Leibniz's Law is unsound. There is just one single object in the situation, this object can be conceived under different descriptions, and under some description – e.g., being a statue – the object is aesthetically valuable, under some other description – e.g., being a piece of clay – the object is not aesthetically valuable. In short, according to the monist, the envisaged situation is opaque.[2]

Consider again the standard monist's strategy. They conceive an ordinary object under a description: namely, an object *qua* statue, where the expression "an object qua statue" only has a semantic import. In Anscombe's words: "there aren't such objects as an *A qua B*, though an *A* may, *qua B*, receive such and such a salary and, *qua C*, such and such a salary"[3]. However, contrary to Anscombe and the other monists' intentions, Kit Fine (1982, 1999, 2008, 2022) developed a theory according to which the expression "an object *x* qua statue" has an ontological import: the nature of, at least some, ordinary objects include an intensional or conceptual element.[4] Fine's overall theory goes under the label "theory of embodiments", and it is constituted by two theories: the theory of rigid embodiments and the theory of variable embodiments. In this article, we are only interested in the theory of rigid embodiments that provides the ontological account of "an object *x* under a description "*P*"". According to this theory, a rigid embodiment, namely a *qua-object*, is a new object *y* originating from the base object *x* and the feature expressed by "*P*" possessed by the base object *x*. Qua-object *y* is different from base object *x*. For a rigid embodiment to exist, the base object *x* must possess the feature expressed by the description "*P*". We may elucidate the notion of rigid embodiment by providing Fine's (1999, pp. 67–68) example: "An airline passenger, for example, is not the same as the person who is the passenger since, in counting the passengers who pass through an airport on a given weekend, we may legitimately count the same person several times. This therefore suggests that we should take an airline passenger to be someone under the description of being flown on such and such a flight".[5]

[1] Fine (2003).

[2] Anscombe (1957), Lewis (1971).

[3] Anscombe (1979, p. 219).

[4] This need not mean that the intensional or conceptual element is a constituent of the thing – it may be only part of its nature. See, e.g., Koslicki (2008, 2018), Sattig (2015), Evnine (2016) for other views according to which the identity of ordinary objects have an intensional element.

[5] Fine, 1999, pp.67–68.

The debate between monists and pluralists reduplicates in the domain of ordinary occurrences, such as walks, wars, conferences.[6] The objective of this article is to provide a pluralist account of ordinary occurrences in which the notion of rigid embodiment plays a key role. In order to specify the objective, we first introduce the relevant debate. Suppose to observe a tennis ball x that is floating on a river. The situation can be described in two ways. First, there is a movement of the tennis ball x that starts from riverbank a at time t_1 and ends at a point b, in the middle of the river, at time t_2. However, the movement of the ball x points towards the other riverbank c. So, we may describe the situation by also saying that there is a movement of the ball x directed towards the riverbank c that is happening at time t_2. These occurrences, namely the movement of the tennis ball x that starts from riverbank a at time t_1 and ends at a point b at time t_2 and the movement of the ball x directed towards the riverbank c that starts from a at t_1 and is happening at time t_2, are temporally and spatially co-located, have the same participants, and seem to involve (or include) the same occurrences.[7] Thus, it makes sense to raise the following question: is the movement of ball x from a at time t_1 to b at time t_2 the same as its movement towards the riverbank c that starts from a at t_1 and is happening at time t_2?[8] Pluralists may point out that these occurrences have different features and thereby are different. For instance, there is a clear sense in which the first movement – the movement from a at t_1 to b at t_2 – is completed (it is an occurrence from here to there), while the second movement – the movement directed towards the riverbank c that is happening at time t_2 – is not completed, instead it is in progress, or going on at t_2. The two movements have different features, and thus are different. Further, the two occurrences belong to different categories. One category is just made of occurrences that are completed,

[6] While some scholars (e.g., Simons, 1987) use the term "occurrent", we prefer using the term "occurrence" that it is employed by, e.g., Stout (2018a), since we shall adopt a version of Stout's conception of processes and events in this article ("There are two ways to think about occurrences: either as ongoing processes or as completed events." (Stout, 2018a, p.1). Clearly, nothing substantive turns out from this terminological choice.

[7] As the main text stresses, our focus will be on countable occurrences in progress, like *John's walk that was happening yesterday*, and countable occurrences that are completed, like *John's walk that happened yesterday*. To anticipate, this conception of occurrences is a version of Stout's conception (1997, 2016, 2018a, b) of processes and events. Besides being one of the main conceptions in the literature, one of the reasons why we assume Stout's conception in this article is that the metaphysical account of processes and events we propose builds upon Fine's (2022) metaphysical account of acts, and Fine (2022) endorses Stout's conception. However, there is another conception of processes in the literature: the mass-conception of processes. According to this conception (e.g., Mourelatos, 1978; Bach, 1986; Crowther, 2011; Steward, 2013), processes are picked out by stuff-expressions like "some running" or "some walking" and events by count-expressions like "run" or "walk". In this article, we do not focus on the debate concerning the mass-conception of processes. What the relations are between Stout's conception and the mass-conception of processes is not something that we will address in this article, letting it for future work.

[8] Fine (1982, 2022) adopts a similar methodological strategy to discuss the identity of acts. Similarly to the Finean strategy, the fact that the movement of ball x from a at time t_1 to b at time t_2 and the movement of the ball x directed towards the riverbank c that starts from a at t_1 and is happening at time t_2 share relevant features grounds the previous identity-question and the consequent debate between pluralists – who hold that the occurrences in question are different – and monists – who hold that these occurrences are identical.

with a beginning and an end. The other category is just made of occurrences that are in progress, that go on at a time.

According to monists, this conclusion is too hasty. An available explanation, based on the fundamental works of Anscombe (1957, 1979) and Davidson (1971), is that, in the envisaged situation, there is just one occurrence, conceived under different descriptions. The intuitive idea may be as follows. First, there is a description "movement of the ball from riverbank *a* to point *b*" that the occurrence *o* completely satisfies at t_2. However, there is also a different description "movement of the ball from riverbank *a* directed towards riverbank *c*" that occurrence *o* only partially satisfies at t_2 – in other words, the occurrence *o* satisfies some but not all conditions involved in the relevant description. Given this idea, the fact that an occurrence is completed or in progress is relative to *how* the description through which it is conceived is satisfied. However, as for the debate about ordinary objects, the expression "a thing under a description" does have two readings. The previous semantic understanding, and the ontological understanding, in turn captured in terms of rigid embodiments.

The first goal of the article is to develop the idea that a completed occurrence has its associated description completely satisfied, while an occurrence in progress has its associated description only partially satisfied, and it aims to develop this idea under the adoption of a pluralist stance. The result will be a novel theory of ordinary occurrences, according to which these occurrences are rigid embodiments. Specifically, completed occurrences are rigid embodiments such that their base satisfies all the argument positions of the complex property given by the relevant description, occurrences in progress are rigid embodiments such that their base satisfies some, but not all the argument positions of the complex property given by that description. The second goal of the article is to show that the resulting theory is explanatorily powerful to the extent that it solves two issues involving the notions of completed occurrence and occurrence in progress. First, at least some occurrence in progress may come to completion. For instance, a tennis match that is happening at some time comes to completion when one of the two players will win two sets. What are the truth-conditions of sentences like: "the *same* occurrence that is happening at t_i (namely, an occurrence in progress) comes to completion at a later time t_m"? Second, if an occurrence happened by a certain time, then there seems to be a time at which *it* – viz., that occurrence – was happening at a previous time. For instance, if John's walk occurred between t_1 and t_n, then it seems that there was a time at which this occurrence was happening – namely, it was in progress. How can a completed occurrence be distinct from an occurrence in progress, and yet be identical to it? While the results of this article do not provide direct arguments for the pluralist stance, they show that this stance is a viable option to the extent that there is a metaphysical theory that underpins it.

Before moving on, some cautions should be stated. First, our interest only focuses on *ordinary occurrences* – such as hurricane, stabbings, passionate kisses, walks, and the like. While we suggest a metaphysical account for these *ordinary occurrences*, we are happy to concede that there may be a category of non-ordinary occurrences that are not explained by the suggested theory. Second, the *traditional debate* between monists and pluralists over occurrences focused on a different topic, such as whether a kiss and a passionate kiss are the same, or whether or not an act of killing

is the same as an act of shooting.[9] The two debates, the traditional one and the debate over completed occurrences and occurrences in progress are different. In this article, we assume the pluralist position for both debates as our starting points. It is relevant that Fine (2022) provides an account of the traditional debate by considering acts as rigid embodiments. In a sense, our proposal builds upon Fine's recent outputs. Third, some readers will find almost irresistible to identify occurrences in progress with processes and completed occurrences with events. However, one must be careful with these terms. The reason is that the focus of this article is not the conception of processes and events according to which processes are stuff-like entities and are picked out by stuff-expressions, like "some running", and events are countable entities that are constituted by these "massy" processes in the same way a gold ring is constituted by some gold (e.g., Mourelatos, 1978; Galton and Mizoguchi, 2009; Crowther, 2011; Hornsby, 2012; Steward, 2013).[10] Our focus is on countable occurrences, both those in progress and those that are completed. There seems to be countable occurrences in progress: I may attend *two* tennis matches that are *happening* at the same time.[11] Such countable occurrences are the focus of the article, whose goal is to provide a metaphysical account of these entities under a pluralist stance. Specifically, our conception of occurrences in progress and completed occurrences is a version of Stout's (1997, 2016, 2018a, b) conception of processes and events that we will examine in Sect. 2. One of the motivations why we assume a version of Stout's conception is that the metaphysical account to be developed builds upon Fine's (2022) account of act, and Fine (2022) also endorses Stout's conception. Given these provisos, for easiness of exposition, we stipulate to call occurrences in progress, or going on, at a time "processes" and completed occurrences "events".[12]

The article is structured as follows. In Sect. 2, we discuss Stout's conception of processes and events. In Sect. 3, we introduce Fine's theory of rigid embodiments. In Sect. 4, we elaborate our account of processes and events. In Sect. 5, we address two concerns against this theory. In Sect. 6, we argue that it solves two issues discussed in Sect. 2, and thus it is explanatorily powerful. In Sect. 7, we examine the results achieved in the article.

[9] For the monist's position, see, e.g., Anscombe (1957, 1979), Quine (1969), and Davidson (1967, 1971). For the pluralist's position, see, e.g., Goldman (1970), Kim (1976), Fine (2022).

[10] We leave it open that, if this debate about "massy processes" is viable, then it may integrate the conception of occurrences in progress and completed occurrences that is the focus of this article.

[11] Further, one may claim: "a tennis match that is happening right now". However, mass-expressions cannot take the indefinite article: "Both Hobbits and water do not take the indefinite article. Neither 'a water' (when not understood in the kind sense or with an implicit partitioning e.g., 'bottle of') nor 'a Hobbits' are grammatical." (Steen, 2022). The occurrences that are the focus of this article are countable.

[12] In this article, we do not take issue with another problem, called "the imperfective paradox" (see Dowty (1979), Parsons (1990), Landman (1992), Zucchi (2021).

2 Processes and events

The conception of ordinary processes and events we are interested in is a version of Stout's distinction (1997, 2016, 2018a, 2018b) between processes and events. As we understand it, this distinction does not provide a metaphysical theory of processes and events. Instead, it has to be underpinned by a specific metaphysical account.[13] For the aim of this article, we stipulate non-ambiguous ways of referring to processes and events. First, we fix that perfect gerundial nominals, like "John's crossing of the street", and derived nominals, like "John's walk", pick out events. Second, we stipulate that nominals that pick out processes are obtained by plugging expressions like "on going", "in progress", or "happening at time *t*" into nominals for events. Consider, for instance, the following nominals: "John's on-going walk", "John's crossing of the street that is happening at *t*", or "John's walk that is in progress at *t*". To be clear, we do not use the previous expressions of natural language in their ordinary meaning, but as technical expressions that allow us to unambiguously speak about processes and events. So, it is not problematic that the technical uses of such expressions may be at odds with the ordinary language uses in some cases. With these stipulations in hand, let us introduce Stout's distinction.

According to Stout (1997, 2016, 2018a, b), a process is an *on-going* occurrence – namely, it is a thing that is/was/will be happening at a certain time. It is also a countable occurrence. Examples include John's walk to the station that is happening at *t*. Moreover, as Stout claims, on-going processes may be happening not only at a moment of time, but over an interval of time, such as "the ongoing process of my giving a lecture this morning […] that was happening for a certain period of time".[14] Further, Stout holds that a process is an occurrence that is always going on and never comes to completion (we shall soon come back to this issue).[15] Finally, according to Stout, processes are the ontological correlates of sentences containing predications with a progressive aspect.[16] An example of a sentence with a progressive aspect is "John was playing a tennis match at *t*". A sentence with a progressive aspect

[13] Such a distinction may be underpinned by different metaphysical accounts. For instance, Stout (1997, 2016, 2018a) holds that his processes persist by enduring – viz., by being wholly present at each moment at which they exist –, while events persist by perduring – viz., by being temporally extended and having different temporal parts at different moments of time. Stout's metaphysical theory has been criticized by, e.g., Steward (2013) and Baratella (2020). Fine (2022) suggests that processes are variable embodiments whose manifestations are events. Fine's theory of processes as variable embodiments has been examined by Baratella (2023). Moreover, Fine's theory of variable embodiments has been criticized by, e.g., Koslicki (2008). Baratella (2023b) investigates the nature of the principle of a variable embodiment.

[14] Stout, 2018a, p.1.

[15] See Stout (1997, p.20; 2018b, p.212).

[16] While some philosophers take the imperfective aspect to be the right aspect to be focused on in these cases (e.g., Steward, 2013), Stout prefers to focus on the progressive aspect to exclude descriptions of habitual behavior, like "I go fishing on Sundays" (Stout, 2016, footnote 18; 2018a, footnote 1). However, it seems to us that predications with a progressive aspect can also describe habitual performances, like "Mary was baking cakes in those days". Moreover, there are also predications with an imperfective aspect not marked by the progressive form that seem to describe on-going occurrences, like "John pushed the cart for hours". For the aims of this article, we follow Stout, and we focus on the class of predications marked by a progressive aspect that intuitively describe on-going occurrences. But we acknowledge that processes may be also described by imperfective predications not marked by the progressive form.

describes some occurrence that has started, is still going on at a certain time, but is not yet finished at that time. According to Stout's conception of events, an event is an occurrence that happened or will happen. Specifically, a Stoutian event is a completed occurrence with a beginning and an end. Examples include John's walk to the station that happened yesterday. Moreover, Stout holds that events are the ontological correlates of sentences with a perfective aspect, such as "John wrote a letter in ten minutes", that describes an occurrence that is a completed whole.

It is crucial to stress that we do not take Stout's distinction to entail that processes and events are different entities.[17] That processes and events are different entities is an additional thesis: namely, the pluralist stance that we assumed as a starting point of this work. We shall call the view resulting from Stout's distinction plus the pluralist stance "Stout's ontological distinction". This resulting view must address two issues that threaten to make it inconsistent, and that we now examine.

2.1 The puzzle from the completion of a process

Stout (e.g., 1997, p.20) speaks of processes that may reach their end, or that may come to completion at a given time. Consider, for example, John's ongoing walk to the station that comes to completion at time t_n. What is a process that comes to completion at time t_n? First, as Stout (1997, p.20) holds, processes that may come to completion at a certain time are *accomplishment processes*, namely processes that are individuated by sentences that contain an accomplishment verb phrase – where accomplishment verb phrases have a culmination built in (e.g., "smoke a cigarette").[18] However, this specification does not fully settle the previous question. Further understanding of such a kind of process can be achieved by considering the truth-conditions of sentence (1):

(1) The *same* process p that is going on at t_i comes to completion at the later time t_n.

The truth-conditions of sentence (1) must account for the meaning of "the same". In particular, one cannot rule out from the beginning that "the same" in (1) signifies numerical identity. This situation cries for an explanation. For, a process that comes to completion at a time t_n is not in progress at t_n. But processes are occurrences in progress. Thus, if "the same" in (1) signifies numerical identity, it seems that we have a contradiction in Stout's distinction. Thus, any theory that aims to underpin Stout's distinction must account for the truth-conditions of (1) and the nature of processes that come to completion. Someone may think that this puzzle only concerns Stout's ontological distinction – namely, Stout's distinction plus the adoption of the pluralist stance – and that the monist has a ready answer. Indeed, one may think that a process that comes to completion at t_n is an event. However, if "the same" in (1) signifies numerical identity, an event that ends at t_n will be identical to a process that is in

[17] This remark suggests us to speak of the adoption of a version of Stout's distinction. We do not exclude that there are some understanding of this distinction that entails that processes and events are different entities.

[18] See Stout (1997) and Mourelatos (1978). In this article, we only focus on processes that are picked out by *standard* accomplishment verb phrases as those considered by Mourelatos (1978) – viz., we don't take into consideration verb phrases like "count for more than one hundred" whose status is not clear.

progress at t_i. But, for the monist, a process that is in progress at t_i is identical to an event that ends at t_i. Given the standard assumption of perdurantism for events, a contradiction seems to strike back. Summing up, any metaphysical account that aims to underpin Stout's distinction must account for the truth-conditions of (1).

2.2 The metaphysical-cum-semantic puzzle

There is another puzzle that threatens to make Stout's ontological distinction between processes and events inconsistent. We derive this puzzle from some arguments provided by Steward (2013, pp. 783–787), and we call it "The Metaphysical-cum-Semantic Puzzle".[19] First, consider a non-instantaneous event that happened over a period of time – e.g., John's run to the station that happened by t_5. Steward suggests (2013, p. 784) that there was a time before t_5, let us say t_3, during which that event was happening. In general, Steward (2013, p. 784) claims that the following principle seems to hold:

(*Metaphysical-cum-Semantic Principle*) If an event *e* has happened by *t*, and *e* was not instantaneous, then *e* must have been happening at some time prior to *t*.

As a premise of the puzzle, we *ordinarily* hold that the first and the third occurrence of "*e*" refer to the same entity. Then, since only processes can be happening, any non-instantaneous event *e*, included John's completed run to the station, was also a process while it was happening. In other words, it seems that the same thing has a process-character while it is happening and an event-character once it has happened. But here the puzzle comes: how can an event, that is a completed occurrence, have the features of processes – viz., being an ongoing occurrence that was happening at some time? Not only this puzzle seems to imply that events and processes do not belong to entirely distinct metaphysical categories. It also threatens to make Stout's ontological distinction inconsistent. Thus, a metaphysical theory that aims to account for Stout's ontological distinction must solve this puzzle.

It is worth examining why an intuitive reply fails. The intuitive strategy claims that once perdurance theory is adopted for both processes and events, the puzzle disappears. Specifically, once *Metaphysical-cum-Semantic Principle* is interpreted within perdurance theory, there is no puzzle that threatens Stout's ontological distinction:

(*Metaphysical-cum-Semantic Perdurance Principle*) If an event *e* has happened by *t*, and *e* was not instantaneous, then there must have been a time *t** prior to *t* such that the temporal part of *e* at *t** was happening at *t**.

This strategy fails. Indeed, a temporal part at *t** of an event *e* is a completed occurrence that happened (or will happen). In other words, such a temporal part is an event. However, according to the *Metaphysical-cum-Semantic Perdurance Principle*, this temporal part must be something that was happening – namely, an ongoing occurrence that was happening at *t**. Then, the puzzle strikes back: how can an event, that

[19] Stout (2016, pp. 52–53) suggests a way to solve this puzzle that is different from the solution formulated here.

is a completed occurrence, have the features of a process – namely, being an ongoing occurrence that was happening at some time? Hence, the adoption of perdurance theory alone is not a way out from the puzzle. *Metaphysical-cum-Semantic Perdurance Principle* continues to hold and to generate the puzzle. Some different strategy must be sought in order to solve this problem. In the following sections, we shall formulate a metaphysical theory of processes and events that solves these two puzzles.

3 The theory of embodiments

In order to provide our metaphysical theory of processes and events, we first introduce Fine's theory of embodiments. The theory of embodiments is called to account for how an entity is capable of having the parts it does, and the ways it has the parts it does.[20] Specifically, as Fine (1999) claims, a ham sandwich possesses its parts timelessly – viz., it makes no sense to ask for how long the ham sandwich possesses the slices of bread that are its parts. However, a car has its parts temporarily – it does make sense to ask for how long the tires have been part of the car. The theory of embodiments is specified in two theories. The theory of rigid embodiments that deals with things that have their parts timelessly, and the theory of variable embodiments that accounts for the variation over time of an entity. While Fine (1999, 2008) formulates his theory of embodiments primarily to account for the nature of ordinary objects, he (1982, 2022) also provided an account of acts and events in terms of his theory of rigid embodiments.[21]

3.1 The theory of rigid embodiments

According to the theory of rigid embodiments, a rigid embodiment is a *sui generis* kind of whole composed by some entities a, b, c, … that are modified or stuck together by a property or relation R they jointly possess. The relation R enters into the rigid embodiment by preserving its predicative role, and it is this feature of R that allows it to modify or stuck together the entities a, b, c, … Let us designate a rigid embodiment by the term "a, b, c, …/R". Neither a rigid embodiment is identical to the mereological sum of a, b, c, …, nor is it identical to the mereological sum of a, b, c, … and R. Indeed, such mereological sums may exist even though the entities a, b, c, … are not related by R. Instead, it is key for a rigid embodiment to exist that a, b, c, … are related by R. As a consequence, the operation of composition for rigid embodiment signified by "/" is different than, and not reducible to, the standard operation of fusion "+". Further, it is a key feature of a rigid embodiment

[20] For a formal semantics for Fine's theory of embodiments, see Jacinto and Cotnoir (2019).

[21] Fine's theory of embodiments has been employed to account for other kinds of entity. A version of Fine's theory of embodiments is used to model groups in Uzquiano (2018). Further, his theory of embodiments is employed to model intentional collectives in Brouwer et al. (2021). Moreover, processes are accounted for in terms of variable embodiments in Guarino (2017) and Fine (2022). However, the theory of variable embodiments has been criticized in Koslicki (2008, 2018) and Evnine (2016). For some concerns about this theory, see also Baratella (2023a, 2023b). This is one of the reasons why we formulate an account of processes in terms of rigid embodiments.

a, b, c, …/R that it cannot vary its constitution – viz., a, b, c, … and R – over time without ceasing to exist. Following Fine (1999), let us call the entities a, b, c, … the "matter" or "base" of the rigid embodiment, and the relation R "the principle of the rigid embodiment". Fine formulates several principles fixing what a rigid embodiment is. In what follows, we only provide some of them relevant for our investigation – those stated in (Fine, 2008, p.112) plus his principle of identity from (Fine, 1999).

(*Existence*) The rigid embodiment m/F exists iff m and F exist and m has F at some time.

(*Identity*) The rigid embodiment m/F and the rigid embodiment a/P are the same iff $m=a$ and $F=P$.

(*Part*) The thing x is part of m/F iff $x=m$ or $x=F$ or x is a part of m or x is a part of F.

(*Temporality*) The rigid embodiment m/F exists at time t iff m/F exists, m exists at t and m has F at t.

We clarify the previous principles by considering a ham sandwich, which Fine (1999) takes it to be a rigid embodiment. For the theory of rigid embodiments, the ham sandwich is constituted by two slices of bread, a and b, a slice of ham c, that are amalgamated together by the relation R "being between and in contact with and with" holding between c, and a and b, respectively. By (*Existence*), the ham sandwich $<c, a, b>/R$ exists just in case c, a, b exist, R exists, and R holds for c, a, b (in the right order) at some time. By (*Identity*), a rigid embodiment m/F is identical to $<c, a, b>/R$ iff the bases and the principles are the same. Further, by (*Part*), both c, a, b and R are part of $<c, a, b>/R$. Thus, the relation R is also part of the ham sandwich $<c, a, b>/R$. Hence, as Fine claims (1999, p.73), a rigid embodiment is also constituted by an intensional or conceptual element. Finally, by (*Temporality*), the rigid embodiment $<c, a, b>/R$ exists exactly when the ham sandwich exists – namely, when all c, a, b exist and have R (in the right order).[22]

[22] It is worth noticing that a rigid embodiment a/P is different from the state of affairs a's being P. For instance, Tom *qua* the President is different from Tom's being the President. In order for there to be the rigid embodiment Tom *qua* the President, Tom has to have the property of *being the president* (given *Existence*) – so there must be the state of affairs Tom's being the President. But this is not enough: Tom and the property *being the President* must be composed through the operation of composition of rigid embodiment signified by "/" – and this operation of composition is not in play in the constitution of the state of affairs Tom's being the President. As Fine (1982, p.100) claims "the property is integral to the resulting object; it is part of the total package"; see also (Fine, 1999, p.65). Further, the state of affairs Tom's being the President and the rigid embodiment Tom *qua* the President have different properties. For instance, Tom's being the President doesn't have the property of Tom of *being 1.80 m height* (see, e.g., Armstrong, 1997; Betti, 2015). However, since Tom also has the property of *being 1.80 m height*, the rigid embodiment Tom *qua* the President has the property of *being 1.80 m height* (see, e.g., Fine, 1982, p.100; 2022, p.18).

4 Processes and events as rigid embodiments

One goal of the article is to formulate a metaphysical theory of ordinary processes and events (we shall drop the specification "ordinary" henceforth) that takes as its starting point the pluralist stance and that develops the ontological reading of the idea according to which processes and events are occurrences under a description. Further, this theory provides a metaphysical underpinning of Stout's ontological distinction. The theory is subject to some initial assumptions and restrictions. First, we make the plausible assumption that a process cannot be an occurrence that happens only at moment of time. A process – namely, an occurrence in progress – is an occurrence that needs time to unfold. Second, the theory we formulate only focuses on occurrences that are constituted by other occurrences. For instances, it focuses on walks that are composed by steps and steps by other bodily movements. We do not exclude that also events like John's being seated for two hours are composed by other events. For instance, this event may be composed by events of the same kind – namely, shorter events of John's being seated. Finally, as methodological premise, we present the theory through a reader-friendly formulation. First, we provide an informal idea of the proposed metaphysical account of processes and events. Further, we go on by considering (ordinary) events, and then we introduce theoretical elements needed to account for the nature of processes and events step by step.

According to the ontological reading of a thing under a description, a thing under a description is a rigid embodiment composed of a base-thing and a property or a relation given by the description, where the operation of composition is the operation of rigid embodiment. Further, given the aforementioned restriction according to which we only focus on occurrences that are intuitively constituted by other occurrences, the account to be developed takes the processes and events we are interested in to be temporally extended and composed of other events.[23] In particular, processes and events are occurrences under a description (given the ontological reading) – namely, processes and events are rigid embodiments composed of a sum of events and a complex property identifying an event kind K. The rough, informal idea is that a process, such as John's on-going walk to the station over an interval $[t_i, t_j]$, is a rigid embodiment composed of the sum of a plurality of John's steps and a complex property given by the kind walk to the station. The steps that are parts of the sum satisfy some, but not all the argument positions of the given complex property. An event, like John's walk to the station, is a rigid embodiment composed of the sum of a plurality of John's steps and a complex property given by the kind walk to the station – where the events that are parts of the sum satisfy all the argument positions of the complex property. Moreover, since events and processes are rigid embodiments, they have their parts atemporally. A further tenet of the theory is that processes exactly located at different times are different. For instance, Mary's on-going walk to the station at t_2 and her on-going walk to the station at t_3 are different. Indeed, these processes are conceived as rigid embodiments with different bases, and so, given the principle of identity of rigid embodiment, they are different.

[23] These other events need not to be temporally extended or composed of other events. See below.

Let us start introducing the suggested account by focusing on the traditional dispute between monists and pluralists. This traditional dispute concerns whether the same plurality of events may give rise to different events. The pluralists answer in the affirmative. Consider, for instance, a plurality of John's steps. This plurality of steps can be described both as John's walk over an interval of time and as John's walk to the station.[24] Are there two different events? Monists and pluralists disagree on whether these cases describe one or two events.[25] In this article, we shall assume the pluralist stance also concerning the traditional dispute, and we shall show how the suggested theory underpins both pluralist stances.

Consider the previous plurality of John's steps. The first step of the theory consists in admitting the mereological sum of these steps – namely, we allow the existence of sums of pluralities of events, and that, if there is a sum of a plurality, this sum is unique (namely, the mereology adopted is extensional). For the sake of simplicity, we adopt *General Extensional Mereology* in this article, according to which any plurality of things gives rise to the corresponding sum.[26] For instance, if we suppose that John's steps are e_1, e_2, and e_3, their sum is $[e_1, e_2, e_3]$, where the symbol "[…]" indicates the mereological sum at stake. As a shorthand, call these sums of events "coarse-events". According to the proposed account, coarse-events are not events.[27] We make the standard assumption that any event has a unique exact temporal and spatial location in any world it exists.[28] So, if e_j is exactly temporally located at R, and it is exactly temporally located at S, then $R{=}S$. As a first consequence, events exactly temporally located at different periods of time are different. As a second consequence, the events composing a coarse-event have temporal and spatial relations among them. As a third consequence, coarse-events exactly temporally located at different periods of time are different. Finally, coarse-events cannot yet account for the supposed difference between John's walk and John's walk to the station. This is the place where further elements of the theory must be introduced.

Events are of certain kinds, exactly like objects are of certain kinds. For instance, John's walk is of the kind *walk*, while John's walk to the station is of the kind *walk to the station*. Now, a kind K is uniquely associated with a criterion of application that states under what conditions it is true to say that there is an entity of the kind K.[29] In order to clarify what a criterion of application is, let us consider a complex thing of a certain kind K. This entity has parts of certain kinds K_1, K_2, K_3, … that have certain properties and stand into certain relations. This complex of kind-properties, properties and relations creates a structure – namely, a complex property. This structure is

[24] Note that someone can walk to the station simply unintentionally.

[25] Monists include Quine (1969), Davidson (1967), Anscombe (1979). Pluralists include Kim (1976), and Fine (2022).

[26] For an introduction to mereology, see Simons (1987), Varzi (2019) and Cotnoir and Varzi (2021).

[27] Indeed, according to the metaphysical theory to be developed, an event is a rigid embodiment that has a coarse-event as its base.

[28] This assumption is generally accepted by, e.g., Quinton (1979), Simons (1987), Bennett (1988), Meyer (2013). Further, it is a consequence of the thesis that events persist by perduring – according to Lewis' definition of perdurance (1986, p.202).

[29] See Dummett (1973), Savellos (1992).

given by the criterion of application for kind *K*. For instance, the kind *walk to the station* has a criterion of application that provides a structure that requires that there are occurrences of the kind *step*, these occurrences have certain temporal, spatial, causal relations, and the last occurrence has the property, e.g., *being partially located at the station*. If all these properties and relations are satisfied, then there is a walk to the station. Now, consider again the coarse-event $[e_1, e_2, e_3]$ composed by John's steps e_1, e_2, and e_3. It has the structure *P* given by the criterion of application for the kind *walk to the station*. In other words, its parts are of the kinds, have the properties, and enter into the relations that make the structure *P* up. Thus, generalizing, a coarse-event has or satisfies a certain structure *P* just in case its parts are of the kind, have the properties and relations making *P* up. An observation is needed. The properties of a structure may also involve the participants and the time-location of the events that are parts of a coarse-event. For instance, the structure for the kind *walk to the station* contains properties like *being a step of* (*[participant]*) as well as *being a step temporally located at* (*[time]*).

A second crucial step of the account is to allow that a coarse-event $[e_i, e_j]$ may partially or completely satisfy the structure given by a criterion of application. For instance, consider the coarse-event $[e_1, e_2]$ made up by the first two steps taken by John, e_1, e_2. This coarse-event has parts that satisfy some but not all the argument positions of the properties and relations that make up the structure *P* of the kind *walk to the station* – namely, it lacks an event as part that satisfies the complex property in the structure *P* of *being a step that touches the station*. So, coarse-event $[e_1, e_2]$ partially satisfies the structure *P*. However, the coarse-event $[e_1, e_2, e_3]$ completely satisfies the structure *P*: the parts of the coarse-event satisfy all the argument positions of the properties and relations making structure *P* up. To subsume these cases under a unique label and to highlight this situation, we introduce the relation of *realization* that applies to coarse-events in its first argument position and to structures given by criteria of application in its second argument position, and we define this relation as follows: a coarse-event $[e_1, e_2, e_3]$ (partially or completely) realizes a structure *P* iff its parts satisfies just some or all the argument positions of the properties and relations making structure *P* up.

A third step of the theory is to specify the criterion of application *I* for a kind *K* in such a way that the resulting criterion identifies at most one event in any world. For instance, we can specify the criterion of application for *walk to a station* in such a way that it involves only John, only a specific station, and a specific starting time. The revised criterion expresses a structure that can be completely realized just by one coarse-event $[e_1, e_2, e_3]$ in the actual world. Following a standard terminology employed by, e.g., Fine (1999, 2008, 2022), Koslicki (2008), Sattig (2015), and Evnine (2016), we call the complex properties expressed by these specific criteria of application "forms". For instance, a form for the kind *walk to a station* is (roughly) something like: *being John's first step at* t_1, *being John's n-step at* t_n, *being John's* $n+1$ *step at* t_{n+1} *and being located at the King's Cross Station*. It is worth noticing that each property of the form is saturated in its argument positions for, e.g., participant and time. In particular, the form fixes a specific starting time – namely, time t_1 in the example. Now, recall that criteria of application provide structures, including forms, made of properties and relations whose argument positions are to be fulfilled or sat-

isfied by the events composing coarse-events. Moreover, a coarse-event can realize different forms. For instance, the coarse-event $[e_1, e_2, e_3]$, composed of John's steps e_1, e_2, e_3, realizes both the form *John's walk to the station that start at* t_1 and *John's walk from time* t_1*to* t_n.

As the fundamental step of the account, we propose to conceive both processes and events as rigid embodiments of coarse-events and forms. Indicate this construction as "$[e_1, e_2, e_3]/P$", where "$[e_1, e_2, e_3]$" is the coarse-event (namely, the mereological sum of events e_1, e_2, and e_3), "P" is the form, and "/" signifies the operation of rigid embodiment composition. Following the literature on rigid embodiments, we also call the coarse-event constituting a process or an event "its matter".[30] As Fine (1999, p.73) stresses, a consequence of this account is that processes and events comprise an intentional or conceptual constituent – the form (viz., the complex property) that is realized. It is helpful to compare Fine's notion of form (from his original theory of rigid embodiments) with the notion of form here proposed. First, the form of processes and events, conceived as rigid embodiments, is a complex property given by the criterion of application for a certain kind K. Whereas, Fine's principles of rigid embodiments can be whatsoever property or relation an entity (or some entities) may have (Fine, 1999, p.73). Second, the form of processes and events is a specific complex property that can be completely realized just by one coarse-event in a world. In this respect, our forms are more similar to Koslicki's forms (2008). However, Fine's principles of rigid embodiments may be possessed by different matters.[31] Now, we claimed that the coarse-event $[e_1, e_2, e_3]$ is composed of *events* e_1, e_2, and e_3. However, since we have not yet fully characterized what events are, and how they differ from processes, the meaning of the previous account is still obscure. We turn to clarify what processes and events are.

In order to define processes and events, we precisely introduce the notions of partial and complete realization of a form (we will use "occurrence" to refer either to processes or events – not coarse-events).

(*Complete Realization*) A form P of an occurrence is completely realized *just in case*: (i) all its argument positions for properties and relations are satisfied by events composing an appropriate coarse-event $[e_i, e_j]$; and (ii) the beginning of coarse-event $[e_i, e_j]$ corresponds to the starting time of form P and the end of coarse-event $[e_i, e_j]$ corresponds to the last moment at which an event composing $[e_i, e_j]$ satisfies the last argument position of form P.

(*Partial Realization*) A form P of an occurrence is partially realized over an interval $[t_1, t_n]$ *just in case*: (i) all its argument positions for properties and relations corresponding to $[t_1, t_n]$ are satisfied by events composing an appropri-

[30] See, e.g., Fine (1999, 2008, 2022).

[31] We considered the structure given by the criterion of application of a kind K as a complex property (like state-of-affairs-types (Armstrong, 1997), and this complex property is realized by a coarse-event – namely, the mereological sum of a plurality of events. Now, if one conceived these structures as relational in nature, then coarse-events would be identical to pluralities of events – instead of mereological sums –, and the relational structures would be realized by coarse-events so conceived. Nothing substantial would change for the proposed account.

ate coarse-event $[e_i, e_j]$ exactly located over the interval $[t_1, t_n]$; and (ii) this form has other argument positions later than t_n; and (iii) the beginning of coarse-event $[e_i, e_j]$ corresponds to the starting time of form P, namely time t_1. Moreover, a form P of an occurrence is partially realized at a moment t_n*just in case* this form P is partially realized over an interval that has t_n as its maximum, e.g. $[t_1, t_n]$.[32]

With the notions of partial and complete realization of a form at hand, we define events and processes as follows.

(*Event*) An event e is a rigid embodiment $[e_i, e_j]/P$ whose coarse-event $[e_i, e_j]$ completely realizes the form P.

For example, the event *John's walk to the station* is a rigid embodiment that is the result of a coarse-event comprising, e.g., John's steps from t_1 to t_j, and this coarse-event completely realizes the form *John's walk to the station that starts at* t_1.

(*Process*) A process p going on over an interval of time $[t_1, t_i]$ is a rigid embodiment $[e_i, e_j]/P$ whose coarse-event $[e_i, e_j]$ partially realizes the form P over the interval $[t_1, t_i]$. Moreover, a process p going on at a moment t_i is a process going on over an interval that has t_i as its maximum, e.g. $[t_1, t_i]$.

For example, the process *John's ongoing walk to the station at* t_i is a rigid embodiment that comprises a coarse-event constituted by John's steps from e.g., t_1 to t_i, and this coarse-event partially realizes the form *John's walk to the station that starts at* t_1 at t_i.

A concern may be that (*Event*) and (*Process*) apply to *accomplishment* events and *accomplishment* processes – where these events and processes are individuated by sentences that contain an accomplishment verb phrase such as "smoke a cigarette" –, but not to *activity* events and *activity* processes – where these events and processes are individuated by sentences that contain an activity verb phrase such as "walk", that does not have an intended culmination built in.[33] The concern is misplaced. The suggested definitions (*Event*) and (*Process*) not only apply to *activity* events and *activity* processes, but they allow one to make useful distinctions. Activity events, like "John's walk that happened from t_1 to t_n", have a beginning and an end and they are completed. These events are called, e.g., "a bout of walking" by Galton (2019, p.173) or "a stretch of activity" by Hornsby (2012, p.239). The suggested definition (*Event*) accounts for these activity events: they have a form, like *John's walk from* t_1*to* t_n, that is completely realized by the associate coarse-event. It is worth noticing that, in our ordinary language, we speak of the event picked out by "John's walk", leaving it to the context to fix the relevant temporal boundaries. Now, the suggested framework

[32] Given (*Complete Realization*) and (*Partial Realization*), a form P of an occurrence can be partially realized over different intervals of time, while that form P can be completely realized over exactly one interval of time that is fixed by condition ii) of (*Complete Realization*). This is the reason why the time interval is left implicit in the left-hand side of (*Complete Realization*).

[33] For this distinction, see, e.g., Stout (1997).

allows us to distinguish two kinds of process associated with an activity event, like "John's walk that happened from t_1 to t_n". The first kind of process – expressed by, e.g., "John's walk from t_1*to* t_n that is happening at t" – includes processes whose form is the same as that of the corresponding activity events: for example, *John's walk from* t_1*to* t_n. Such processes have their form that is partially realized over an interval of time. So, (*Process*) captures them. The second kind of process – expressed by, e.g., "John's walk that is happening at t" – includes processes with a different form. These processes have forms that cannot be completely realized by any coarse-event. In other words, these processes have forms that extend endlessly. For instance, the form of John's ongoing walk at t may be something like *John's starts doing a step at* t_1, *he makes a second step at* t_2, *he makes a third step at* t_3, *and so on*. (*Process*) also captures this kind of process. A consequence of the theory is that a term like "John's ongoing walk at t" may be ambiguous between the two aforementioned processes that are happening at the same time, and only the context and the intentions of the speakers allow one to disambiguate the meaning of the expression. However, it is a positive explanatorily quality of the account that it permits us to distinguish two kinds of process that must be taken separate.

However, this account has other two explanatorily qualities that are worth discussing. First, when we introduced the *Puzzle from the Completion of a Process*, we required that a metaphysical theory of processes and events has to explain the nature of a process that comes to completion. We observed that a process that comes to completion at a time t_n is not in progress at t_n. Further, it is picked out by sentences with a perfective aspect. Thus, it plausibly seems an event. This framework provides the following explanation of a process that comes to completion at a time t_n. It is a rigid embodiment $[e_i, e_j]/P$ whose coarse-event $[e_i, e_j]$ completely realizes the form P at t_n (namely, over an interval that has t_n as its maximum, e.g. $[t_1, t_n]$.) So, by (*Event*), it is an event as we intuitively expect. Clearly, this explanation does not solve the *Puzzle from the Completion of a Process*, whose solution will be delayed until Sect. 6. Second, the suggested account provides a characterization of the fundamental feature of processes of *being on-going* (or *in progress*) as well as of the fundamental feature of events of *being completed*. In other words, this account grounds Stout's ontological distinction. In particular, a process is an *ongoing* occurrence *because* its form is partially realized by its coarse-event; an event is a *completed* occurrence *because* its form is completely realized by its coarse-event.

Further, processes and events are characterized by several principles that are expected to hold for rigid embodiments. For the aim of this article, we focus on the following ones:

(*Existence-occurrence*) $[e_i, e_j]/P$ exists *iff* $[e_i, e_j]$ exists and (partially or completely) realizes P.

(*Identity-occurrence*) $[e_i, e_j]/P = [e_v, e_w]/R$ *iff* $[e_i, e_j] = [e_v, e_w]$ and $P = R$.

(*Temporality-occurrence*) If $[e_i, e_j]/P$ exists, then $[e_i, e_j]/P$ is present at a time t *iff* $[e_i, e_j]$ is present at t – viz., *iff* one of the events composing $[e_i, e_j]$ is present at t.

(*Parthood-occurrence*) $[e_i, e_j]$ is part of $[e_i, e_j]/P$ and P is part of $[e_i, e_j]/P$.

Few comments on *Existence-occurrence* and *Identity-occurrence* are required. We have already noticed that the same coarse-event can realize different forms. Now,

this statement can be made more precise. First, a coarse-event can completely realize different forms. By *Existence-occurrence* and *Identity-occurrence* and (*Event*), there exists different events. Thus, the suggested theory accounts for the difference between John's walk and John's walk to the station. Second, a coarse-event can completely realize a form and partially realize a different form. Thus, by (*Event*), (*Process*) and *Existence-occurrence* and *Identity-occurrence*, there are an event and a process, and they are different. Third, a coarse-event can partially realize two different forms. By (*Process*), *Existence-occurrence* and *Identity-occurrence*, there exists different processes. Finally, by *Identity-occurrence* and (*Process*), processes that involve the same form, but different coarse-events – because, e.g., one coarse-event is a proper part of the other – are different. For instance, Mary's ongoing walk to the station at t_5 and Mary's ongoing walk to the station at t_7 are different processes.[34]

At the beginning of the section, we fixed the constraint according to which processes and events we focus on are constituted by other occurrences. Now, this constraint can be better specified. We formulated a theory of processes and events as rigid embodiments of coarse-events and forms. Coarse-events are mereological sums composed by events. What about events that are not constituted by other events and that may be the base of coarse-events? We suggest that these events are rigid embodiments whose constituents are a form and what may be called "a basic-event". At this stage, we concede that the notion of basic-event is a technical notion, and that the *Metaphysical-cum-Semantic Principle* does not apply to them. There are several ways one may go to characterize basic-events. For instance, one may take basic-events to be instantaneous states according to Kim's theory of events as property-exemplifications.[35] Moreover, we leave it open that a basic-event can realize different forms.

Finally, in addition to the notion of identity introduced above (namely, an occurrence x and an occurrence y are identical *just in case* they have the same coarse-events and the same forms), the suggested theory allows one to introduce two other notions weaker than identity that, nevertheless, may be labeled "identity".

(*Form Identity*) Occurrences e_1 and e_2 are form identical *iff* they have the same form.

(*Matter Identity*) Occurrences e_1 and e_2 are matter identical *iff* they have the same coarse-event.

For instance, Mary's on-going walk to the station at t_n and Mary's on-going walk to the station at t_m are form identical. Mary's walk to the station and her walk are mat-

[34] There is no principle in the Finean original theory of rigid embodiments that fixes under what conditions a rigid embodiment is part of another, and it is not the specific aim of this article to provide this principle. However, we shall clarify what it means for ordinary occurrences, conceived in terms of the suggested account, to be part of other occurrences through the following intuitive principle:(*Embodiment Parthood*) $[e_i, e_j]/P$ is a part of $[e_v, e_w]/R$ *only if* ($[e_i, e_j]$ is a part of $[e_v, e_w]$) and (P is a part of R) – where: i) ($[e_i, e_j]$ is a part of $[e_v, e_w]$ if anything that is part of $[e_i, e_j]$ is part of $[e_v, e_w]$; and ii) the form P is part of R if it intuitively lacks some of R's argument positions.

[35] See Kim (1976). The assumption of basic-events is in line with Fine's (1982, 2022) assumptions concerning his theory of events and acts as rigid embodiments.

ter identical. These notions of identity have a role in grounding our ordinary assertions concerning how many occurrences there are. Indeed, it seems to us that we may ordinarily claim that Mary's on-going walk to the station is happening both at t_n and at t_m. Moreover, they also have a role in accounting for our ordinary anaphoric and referential uses. For instance, it seems that we ordinarily say that Mary's on-going walk to the station is happening at t_n and that *it* is also happening at t_m.

A tenet of this theory is that when we ordinarily use the notion of *sameness* with respect to occurrences, we are not strictly speaking about numerical identity, but about a broadly construed notion of sameness that is captured by one of the previous notions of identity. Similarly, according to this account, in the ordinary anaphoric and referential practices, we need not refer to the same occurrence, but we may also refer to different occurrences that are related by one of the previous notions of identity. In general, our ordinary counting, referential and pronominal anaphoric practices are accounted for via the following principle:

(*Counting Principle*) Occurrences x and y are ordinarily counted and referred to as "the same" *just in case* they are related by one of the previous notions of identity.

As it is known from the debates on persistence and composition concerning objects, an available option for a philosophical theory is to distinguish between a strict and technical notion of identity and an ordinary notion of sameness as well as between strict and technical referential and anaphoric uses and our ordinary referential and anaphoric practices.[36] Moreover, it is worth noticing that, in the traditional literature on events, the ordinary relation of sameness holding for events is not taken to signify the strict and technical notion of identity (as in the famous debate about whether events can change).[37] In either case, a key requirement for a philosophical theory is to account for such ordinary notions and practices, and *Counting Principle* carries out exactly this task.

5 Two concerns and their answers

It is worth discussing two concerns that emerge from the previous theory. Moreover, addressing these concerns will further characterize the theory itself.

5.1 Concern 1

Consider a banana's being green during the period of time t. Is there a process of a banana's getting yellow over time or is there a process of a banana's staying green over time? Said differently, under what circumstances does a coarse-event e_1 partially realizes a form F at t_n instead of an incompatible form F^* at the same time? One of the plausible answers to this concern is that whether a coarse-event e_1 partially realizes a form F at t_n instead of an incompatible form F^* at the same time may depend

[36] Chisholm (1976), Hawley (2001), Sider (2001).

[37] Geach (1972), Dretske (1967), Hacker (1982), Simons (1987), Baratella (2020).

on e_1 together with other occurrences co-occurring with e_1 as well as the laws of nature holding in a particular situation. In the banana case, the answer is that it plausibly depends on the banana's being green over t plus other occurrences occurring during t together with the laws of nature holding in such a situation. However, there are also answers to the previous concern that do not involve laws of nature. Suppose that John is doing surgery to Tom over a period of time t. Is there a process of John's trying to save Tom's life or is there a process of John's trying to kill Tom? The answer is that it plausibly depends on John's intentions in that situation. Specifically, in addition to the laws of nature, intentions may also matter in order to settle the question of what processes are going on at a certain time. Thus, the theory seems able to explain why there cannot be incompatible occurrences going on in a single situation.

5.2 Concern 2

The theory commits itself to a large number of forms, and so an even bigger number of occurrences. There is John's ongoing walk to the station at t_1 and John's ongoing walk to the station at t_2. There is also John's ongoing walk to a certain point p in the direction of the station at t_1 and his ongoing walk to a certain point p in the direction of the station at at t_2. This multiplication of processes and events runs against our ordinary beliefs. It is true that the theory has such commitments. However, this is not an insurmountable problem. First, due to the constraints fixed with respect to *Concern 1*, there cannot be incompatible occurrences going on in a single situation. For instance, there cannot be a banana's getting yellow over time and the same banana's staying green over the same period of time. Second, among the plurality of occurrences, there are those occurrences that we ordinarily commit on. Third, *Counting Principle* aligns the ontology of the theory with our ordinary counting practices.

6 The Explanatory virtues of the theory

The resulting theory underpins Stout's ontological distinction by developing the idea that an event has its associated form completely realized, while a process has its associated form only partially realized. In this section, we show that this theory is explanatorily powerful to the extent that it solves both the *Puzzle from the Completion of a Process* and the *Metaphysical-cum-Semantic Puzzle*. Specifically, these puzzles involve principles and sentences that are formulated in our ordinary language. We show that the suggested theory accounts for the truth of these principles and sentences.

6.1 The puzzle from the completion of a process

The *Puzzle from the Completion of a Process* is the problem of accounting for the truth-conditions of sentence (1):

(1) The *same* process p that is going on at t_i comes to completion at the later time t_n,

in addition to the problem of providing an account for the nature of a process that comes to completion. The latter task has been already settled in Sect. 4. Specifically, according to the theory in question, a process p that is going on at t_i is a rigid embodiment $[e_1, e_2]/P$ whose form P is partially realized by $[e_1, e_2]$ at t_i (namely, over an interval that has t_i as its maximum, e.g. $[t_1, t_i]$). Further, a process e that comes to completion at a time t_n is a rigid embodiment $[e_v, e_w]/Q$ whose form Q is completely realized by its coarse-event $[e_v, e_w]$ at t_n (namely, over an interval that has t_n as its maximum, e.g. $[t_j, t_n]$.) So, by (*Event*), it is an event. Now, the truth-conditions of (1) can be stated as follows. (1) is true *just in case*: (i) there is a rigid embodiment $[e_1, e_2]/P$ whose form P is partially realized by $[e_1, e_2]$ at t_i, and (ii) there is a rigid embodiment $[e_1, e_2, e_3]/P$ whose form P is completely realized by its coarse-event $[e_1, e_2, e_3]$ at t_n. $[e_1, e_2]/P$ (namely, process p going on at t_i) and $[e_1, e_2, e_3]/P$ (namely, event e that ends at t_n) have the same form. By *Form Identity*, they are form identical. So, by *Counting Principle*, p and e are ordinarily counted and referred to as "the same". Hence, the *same* process p that is going on at t_i comes to completion at the later time t_n. Thus, the suggested theory solves the *Puzzle from the Completion of a Process*.

6.2 The metaphysical-cum-semantic puzzle

The *Metaphysical-cum-Semantic Puzzle* is the problem of explaining how an event – that is a completed occurrence – has the features of processes – viz., of being an ongoing occurrence. Specifically, this problem is captured by the *Metaphysical-cum-Semantic Principle*:

(*Metaphysical-cum-Semantic Principle*) If an event e has happened by t, and e was not instantaneous, then e must have been happening at some time prior to t.

As discussed in Sect. 2.2, this problem threatens to make Stout's ontological distinction inconsistent. The suggested theory accounts for the *Metaphysical-cum-Semantic Principle*, and so it provides a solution to the puzzle. In order to show this, consider an event e that has happened by t_n – let us say that e has happened over the interval $[t_1, t_n]$. According to the proposed theory, an event e has happened over the interval $[t_1, t_n]$ *just in case* e is a rigid embodiment $[e_i, e_j]/P$ whose form P is completely realized by its coarse-event $[e_i, e_j]$ over the interval $[t_1, t_n]$. Now, consider a sub-interval of that interval, e.g., $[t_1, t_i]$. During $[t_1, t_i]$, the form P is partially realized by some coarse-event $[e_i]$. By the definition (*Process*) and *Existence-occurrence*, there is a process p that was happening at moment t_i (i.e., over the interval $[t_1, t_i]$) that is identical to the rigid embodiment $[e_i]/P$ whose form P is partially realized by the coarse-event $[e_i]$ at t_i (i.e., over the interval $[t_1, t_i]$). e and p have the same form P. Thus, by *Form Identity*, they are form identical. So, by *Counting Principle*, we ordinarily count and refer to them as the same. Hence, we conclude that e was happening at time t_i prior to t_n. So, the suggested theory accounts for the *Metaphysical-cum-Semantic Principle*, and so it provides a solution the puzzle.

7 Conclusions

This article focused on the problem of whether occurrences in progress (namely, processes) and completed occurrences (namely, events) are identical or are different. Pluralists hold that processes are different from events; monists claim that they are identical. This debate reduplicates the debate concerning ordinary objects: namely, whether a statue and the clay it is made of are identical or are different. Pluralists claim that the statue and the clay have different properties and thereby are different. The standard monist's reaction consists in the idea that there is just one object that is conceived under different descriptions: the object under the description "being a statue" has properties that are different from those attributed to the very same object under the description "being a piece of clay". However, Fine developed a theory according to which "an object under a description" has an ontological import: the theory of embodiments. The monist's strategy for ordinary objects may be reformulated within the debate about processes and events as follows. There is no difference between processes and events. Indeed, there is just one occurrence that partially satisfies a description (and so it is called "a process") and that completely satisfies a different description (and so it is called "an event"). The goal of this article was to develop the idea that a process has its associated description partially satisfied, while an event has its associated description completely satisfied, and to develop this idea under the adoption of the pluralist stance. To achieve this goal, we assumed a specific conceptualization of processes and events that reflects the notions we aimed to deal with: a version of Stout's distinction between processes and events. This account does not provide a metaphysical theory of processes and events. Instead, it has to be underpinned by a specific metaphysical theory.

As a first result, we formulated a novel theory according to which both processes and events are rigid embodiments. More specifically, we developed the thesis that a process is a rigid embodiment whose associated complex property (given by a relevant description) is partially realized by its coarse-event, while an event is a rigid embodiment whose associated complex property (given by a relevant description) is completely realized by its coarse-event – where a coarse-event is the mereological sum of some given events. We showed that this theory underpins the pluralist's theses: it keeps distinct processes and events, like John's walk to the station that is happening over the interval from t_1 to t_i and John's walk that happened from t_1 to t_i, as well as it distinguishes events like John's run from t_1 to t_n from events like John's run to the hospital. Moreover, we argued that this theory also underpins Stout's ontological distinction. In particular, it explains the fundamental feature of processes of *being on-going* (or *in progress*) as well as the fundamental feature of events of *being completed*. As a second result, we argued that the suggested theory is explanatorily powerful to the extent that it solves both the *Puzzle from the Completion of a Process* and the *Metaphysical-cum-Semantic Puzzle* that threaten to make Stout's ontological distinction inconsistent. Summing up, in this article, we did not provide any new argument in favor or against the pluralist stance concerning occurrences. Instead, we adopted this position as one of our starting points. However, the results achieved lead to the conclusion that the suggested theory as well as the pluralist stance concerning processes and events should be seriously taken into consideration.

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