18 Narrative Performance and the 'Taboo on Causal Inference': A Case Study of Conceptual Remodelling and Implicit Causation

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Abstract

Storytelling can be understood as a performative social event that instantiates a specific relationship between storyteller and audience. This relationship supports inferences of narrative causation in hearers, both locally (episode x caused episode y) and globally (repeated patterns of causation at a more abstract level). This applies to passages of performative speech in a narrative event that are non-narrative, such as description or digression. Scientific writing is often conceived as non-performative and impersonal, with causation expressed explicitly. However, I suggest in this chapter that discourse of this kind can make the task of configuring global patterns of causation more difficult. Performative narrative discourse, on the other hand, offers support for readers in the task of remodelling existing theoretical causal structures through reconceptualization. I illustrate this argument through an analysis of narrative and non-narrative performative discourse in the field of cognitive psychology.

18.1 Introduction

Research on live storytelling illustrates how a performative storyteller holds the floor, as the audience lends them the authority to control who speaks, on which topics, when and for how long. Storytellers are also granted some authority over the organization of space, movement within it and acceptable behaviours. It is this wholeness of the social event that supports a shared attribution of underlying causes linking one event in the narrative sequence to the next (Lwin 2010; Goffman 1974). This willingness to cede, temporarily, authority to a storyteller leaves traces in written narrative, for example in readers' willingness to trust narrative voices (on general 'truth bias', see Gilbert, Tafarodi and Maone 1993; in narrative in particular, see Yanal 1999). In what follows,

371

I suggest that experience of narrative performativity in a science paper can influence readers' trust not just in the authors' factual authenticity (e.g., is the data accurate?) but in the more contingent *interpretation* of facts. I view narration as entwined with performance, such that even non-narrative episodes of performative speech in an event that is narrative overall contribute to the inference of causes. In this light, I show how causal modelling is affected by local instances in science writing of both narrative and non-narrative performativity, arguing that together they incite the reader to construct an implicit and new narrative model relating a set of cognitive concepts.[1]

I use 'model' here in the sense developed by philosophers, psychologists and computer scientists in reference to predictive theories of mind organized around Bayesian probability. Here, perception is a continual revision of predictions through error correction, a dynamic network of shifting probabilities giving rise to implicit, and continually changing, causal relationships through a process of reconceptualization (Clark 2013).

'Reconceptualization' is used in the sense employed by Churchland and Boden in their accounts of creativity in the context of connectionist, and more recently neural network, approaches. In this light, concepts are not the brittle units of modular approaches to mind (Fodor), but 'flexible, distributed representations' (Kiefer and Pulvermüller 2012: 805). As a result they can be reconfigured by experience, or by repeated iterations of thought, as in Churchland's example of Newton reconceptualizing the moon, from something like a ball bearing in a track to something like a projectile that has been hurled. Reconceptualization in this sense involves reconfiguring a concept's causal profile and its relationship to the rest of the mind's world model.

Explicit and implicit mental causal modelling of this kind is found across scientific disciplines, and the process of reconceptualization which can be involved in this, and particularly in moments of scientific 'breakthrough', has been identified as a key creative component of scientific thinking. Examples include the identification of the Benzene ring, or the theory of gravity, mentioned above (Boden 2004; Churchland 2012). I have argued elsewhere that narrative fiction engages readers in a comparable process of creative reconceptualization (Jajdelska 2019). At the same time, causal modelling is foundational to the comprehension and experience of narrative performance, whether live or mediated by silent reading of narrative texts. Anthropologists, for example, have shown how causal links between story episodes are largely a matter of audience/reader inference, in response to the experience of the text as a whole. As a result, a single event sequence

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[1] See Andersen (Chapter 19), who also investigates the work of readers in comprehension (of mathematical proofs rather than cognitive theory), in terms of contextual support from scripts rather than performativity.

can be associated in different performances with radically different underlying causal models (Bauman 1986; Trompf, Gough and Eckhart 1988). Narrative performance, then, has the potential to generate creative causal inference in support of scientific remodelling.

The analysis below illustrates this idea, using a theory paper in scientific psychology by two cognitive neuroscientists. Scientific psychology is a good place to start this investigation, as it has a particularly anxious relationship with causal attribution. In part, this relates to its origins, which cohered in the twentieth century around research methods 'institutionalised across the varied communities of experimental, animal, educational, social, clinical, and applied psychologists' (Flis 2018). But it also relates to the dual status of its practitioners as simultaneously agents (as researchers) and objects (as minds) of study (Smith 2007). Smyth, for example, has shown that, compared to other scientific disciplines, scientific psychology 'behaves in textbooks as if there are grounds for not trusting its statements' (Smyth 2001: 392). The current replication crisis in the discipline (Wingen, Berkessel and Englich 2020) is arguably symptomatic of these problems, as is an intense focus on methods rather than 'ways for initial selection and identification of relevant phenomena', which are 'in comparison [to methods] underdeveloped' (Flis 2019: 167) and a 'seriously limited' 'conceptual analysis of psychological phenomena' (Flis 2018: 160).

As a result, the discipline suffers from what Grosz and colleagues identify as 'a taboo' against what might be considered a 'central goal of research', that is aiming for 'explicit causal inference' to describe the world (Grosz, Rohrer and Thoemmes 2020). This fear of explicit causal inference can explain the 'encyclopedic incrementalism' of writing in the discipline, adding more and more discrete pieces of knowledge to the field. The promise that this could 'finish' psychology – produce comprehensive knowledge or at least 'organized theory' is one it 'just could not deliver' (Flis 2018: 31; Bazerman 1987; 1988). If the genre of the 'APA [American Psychological Association] article' has ended up in a cul-de-sac, the Barrett and Bar article I consider here is an interesting example of experimentation with a different genre, one that alternates with the APA conventions described by Flis, drawing on Bazerman. I argue that this paper's elements of narrative performativity, and of performative language more generally in support of narrative inference, enable comprehension of the underlying causal claim of the paper: that emotion is a cause of perception rather than just an effect.

My analysis is informed by the work of pioneering folklorist and anthropologist of verbal art, Richard Bauman (1975; 1986; Bauman and Briggs 1990). For Bauman, performativity is a measure of how far a speaker and audience understand their relationship to be one of evaluation of the speaker by the audience, not by reference to content, accuracy or informativeness, for example, but in relation to the speaker's 'communicative competence'

(Bauman and Briggs 1990: 66). In this respect, performativity is embedded in the social event, and is also scalar: speech can be more or less performative, not just either/or. Texts emerging through performative speech are likely to be characterized by greater or lesser degrees of poetic patterning and meta-textual features (features that draw attention to the artful status of the text itself). In the article analysed here, I suggest that both narrative and non-narrative performative sections are quite starkly distinguished from those that are non-performative, but that the former nonetheless play a vital role in explicating the non-performative sections by supporting an implicit narrative involving causal relations.

I chose the paper by Barrett and Bar because I have learned from it, and cited it in my own work. If the analysis appears critical at any point this is in the context of a critique of a scholarly practice rather than a critique of the authors. It is also a comparatively rare, although far from unique, example of this approach of blending the performative with the APA genre.[2] This technique also suggests unexpected overlaps between scientific psychology and those social scientists who successfully put 'elements into relation to each other when they appear in opposition' in publications, such that social scientists have 'good reason to think that they should fit together – in some way or other – rendering disparate and even oppositional matters into a narrative explanation' (Morgan 2017: 90). In this case it is not just content that is juxtaposed in productively puzzling ways, but modes of performance, or genre.

18.2   Analysis

'See It with Feeling: Affective Predictions during Object Perception', by psychologist Lisa Feldman Barrett and neuroscientist Moshe Bar (Barrett and Bar 2009), reviews existing findings in the fields of neuroscience and cognitive psychology to 'develop the hypothesis that the brain's ability to see in the present incorporates a representation of the affective impact of those visual sensations in the past'. In some ways, the combination of title and subtitle here captures precisely the sense of a 'taboo' on causal inference identified above by Grosz et al. The title conveys a relationship between emotion and perception of an environmental stimulus, in which each mutually influences the other; if we 'see with feeling' then it is not obvious that we could see without feeling. The causal relationship between the two in this scenario therefore departs from earlier theories in both behaviourist and later cognitive traditions, which 'assumed that affect occurred after object perception and in reaction to it' (Barrett and Bar 2009: 1328, citing Arnold 1960). One way to figure this is

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[2] The paper by Barrett and Bar I discuss here was not in fact published in an APA journal, which may be why it is unusually performative for an article on scientific psychology.

as two titles for two distinctive narrations: the first more performative, the second less so. This division between two genres potentially allows for one to do the work of the reconceptualization, and the other to supply the evidence.

The authors' moves into and out of the stance of a narrative performer throughout the paper enable a relationship with the reader which can support creative reconceptualization of emotion and perception, and thereby allow the emergence of the more global theories which Flis identifies as missing from the project of psychology writing in the APA model. It should be noted that 'narration' here refers to the stance of *performing* a narrative, although the content of the paper itself does not provide the event sequence that can give the article as a whole the status of narrative. However, this performative stance of narration, supplemented by non-narrative moments of verbal performance, is, I suggest, crucial to the implicit narrative of temporally organized causal relations between emotion and perception which the article points towards.[3]

The authors' abstract in full will help with my further analysis below:

See it with feeling: affective predictions during object perception
People see with feeling. We 'gaze', 'behold', stare', 'gape' and 'glare'. In this paper, we develop the hypothesis that the brain's ability to see in the present incorporates a representation of the affective impact of those visual sensations in the past. This representation makes up part of the brain's prediction of what the visual sensations stand for in the present, including how to act on them in the near future. The affective prediction hypothesis implies that responses signalling an object's salience, relevance or value do not occur as a separate step after the object is identified. Instead, affective responses support vision from the very moment that visual stimulation begins. (Barrett and Bar 2009: 1325)

18.2.1   One Title, Two Modes

Returning to the title, it captures the contribution of local performative elements that are not explicitly narrative to the implicit narrative model developed by readers throughout the article: 'See it with feeling: affective predictions during object perception' (Barrett and Bar 2009: 1325). The first part of the sentence uses wordplay ('say/see' recalling 'say it with feeling', a stereotypical instruction to, for example, drama students), recalling Bauman's characterization of performance as drawing 'special attention to and heightened awareness of the act of expression' (Bauman 1975: 293). It also introduces the counter-intuitive idea that there is no seeing, in the non-metaphorical sense of visual perception, without feelings. We may believe that sometimes we simply see

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[3] See Meunier (Chapter 12), who also considers narrative as a means to familiarize new concepts, in his case through the narrator's relation to the narratee.

a scene or object in a disengaged or neutral way, but that, it is suggested, is not in fact the case. The performative section of the title, therefore, is also introducing the article's most counter-intuitive idea, one, moreover, which commits the authors to a broader theory of emotion and cognition. Performative text – that is text subject to evaluation for competence in delivery, rather than content or information – here enables a bolder claim than might otherwise seem proper to the APA article genre. Performativity may act here, then, as a creative training ground for what may be a new idea: that emotion contributes to perception rather than following it. In this respect, while the performative passages in the paper, as we will see, move in and out of narration, they cumulatively support a cohesive implicit narrative process in the reader of causal attributions in a model of mind and perception.

A different, less performative, relationship with the reader is constituted immediately after the colon: 'affective predictions during object perception'. 'Feeling' and 'affect' both have specialized meanings in cognitive science. 'Affect' generally refers to 'a state characterized by emotional feeling rather than rational thinking', a state which generally involves 'arousal', or 'corresponding bodily reaction (but not necessarily action)'. 'Feeling' can be used in neuroscience as a synonym for 'emotion', but it is often treated as 'one component' of emotion, 'the proprioceptive representation' of emotional 'bodily changes' (Sander and Scherer 2009). 'Feeling' however, unlike 'affect', also has a role in non-expert discourse, as a synonym for 'emotion', but also as a conceptual metaphor. Conceptual, or basic, metaphors are metaphors whose status we barely notice, as they are essential to everyday discourse. They take a range of verbal forms, cross languages and cultures, and emerge from fundamental aspects of embodied experience. HAPPINESS IS UP, for example, can be seen in expressions like 'cheer up', and relates, it is argued, to the upright, bipedal status of the human body. In the case of feeling, the everyday, non-specialist equation of feeling and emotion maps the experience of physical pain or pleasure onto mental or emotional pain or pleasure, through the basic metaphor EMOTIONAL EFFECT IS PHYSICAL CONTACT (Lakoff and Johnson 1980: 18; 50).

The first, more performative, part of the title, then, introduces readers to a new and surprising idea, but via appeal to a fundamental and familiar one. In using a term like 'feeling', moreover, with a place (although not quite the same place) in both expert and non-expert discourse, the abrupt disjunction between the more performative first half and the less performative second half is ameliorated. The second half is marked by a switch from the Germanic vocabulary associated in English with the everyday to the Latinate vocabulary associated with formal and abstract speech (Bar-Ilan and Berman 2007). This formal/informal contrast does not tell us how performative a stretch of discourse might be; both can be used for specific effects in both more and less

performative contexts. However, formal speech does imply greater social distance between speaker and hearer (Brown and Levinson 1987). The second part of the sentence is thereby abruptly distinguished again from the social event of narrative performance implied by the first part.

This is not just a case of restating the case in discourse more suited to the evaluation of accuracy rather than to the performative criterion of competence in delivery. The case itself is somewhat altered.[4] As discussed above, 'affect', unlike 'feeling', is specialized to psychology and neuroscience, distinct from the wider range of concepts connected by everyday uses of 'feeling'. 'Perception', on the other hand, is *broader* in some ways than 'seeing', covering all modalities, not just vision, as well as processes to which we do not have conscious access. But in other ways 'perception' is *narrower*, generally excluding the easy slippage in non-expert discourse between literal and metaphorical senses of 'see' (such as 'I see what you mean'). It is explicitly applied here only to 'objects', not, for example, to scenes. As an appendix to the imperative main clause before the colon, no verb is required, which allows this noun phrase to evade any time-locked claims. These would specify a starting point for the prediction and a causal relationship between prediction and perception, such as 'affective predictions *occur* during object perception' (my italics).

The second part of the title, then, both makes a different claim and establishes a different relationship with readers. The claim is hedged in the way Smyth characterizes as typical of scientific psychology papers, whereas the claim in the performative first half is not. Because it is less performative, it is also more accountable to its audience for accuracy. It is more formal (which is often, although not always, associated with an expectation of objectively described, accurate information). It claims that one aspect of 'feeling' as understood in non-expert discourse, that is 'affect', contributes to predictions. These predictions are described as happening during object perception; it is implicit that the process of prediction is in fact equivalent to the process of perception, with prediction/perception ending at the point where prediction error from the environment is minimal enough to be ignored (Clark 2013).

This pattern of an easy yet abrupt shift between performative (either narrative or with narrative implications) and informative relationships with the reader persists throughout the article. This might be seen as a symptom of the dual nature of science as a social practice and science as a methodology, which seeks to overcome the distortions of personal subjectivity by establishing objective facts. The oscillation between kinds of discourse is a way of keeping

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[4] In the afterword (finale) to this volume (Chapter 22), Wise discusses the division of labour between different kinds of language, such as formal and natural.

both aspects in play.[5] The readers of a scientific article are both part of a social community of practice, which can bond through verbal performance, including jokes (Reimegård 2014), and committed to looking at the world, as best they can, as though from an extra-human perspective (Reiss and Sprenger 2017).

On this understanding, the reader's relationships between more and less performative authorial voices capture an abrupt disjunction between their functions. The more performative voice instantiates science as a social practice, while the less performative one enacts science as a method. While the two can sit side by side, it might be assumed they need not, indeed should not, interact. This interpretation relies on a strict separation between the social and methodological aspects of scientific practice, an interpretation with long-standing challenges from history, philosophy and social science (e.g., see Barnes and Bloor 1982; Shapin 1994; and Latour 1987). On these views, scientific sociability and scientific methods are intimately entangled. More recently, some psychologists, confronted with the replication crisis discussed in the introduction, have turned to the social aspect of science to explain some failures in methodology (Ritchie 2020). From this perspective, the coexistence of more and less performative voices might be symptomatic of a problem. In this view, the performative voice instantiates readers as a social group sharing a broad paradigm of cognition. The less performative voice is then interpreted within that broad paradigm, leaving readers less critical of both paradigm and evidence as each is interpreted as potential confirmation for the other.

I suggest an alternative explanation for the function of the performative mode. The performative mode, I argue, does indeed engage readers in building a cognitive theory. But the theory is itself an *implicit narrative* embedded in the performative text, and emerges, I will suggest, from a process of reconceptualization and remodelling implicit causation in the world. It is this narrative remodelling and reconceptualization which lets them identify a causal mechanism in the data despite the 'near taboo on causal inference' identified by Grosz et al., above (Jajdelska 2019). Causal inference in an unfamiliar scientific paradigm, then, can be a creative act. And while performative narration in the article may be dispersed in fragments rather than performed in a sustained social event by, for example, a Homeric rhapsode or a West African griot, it can serve some of the same functions: reshaping our world models in ways that let us see otherwise opaque causal structures. Put differently, performative narration allows for the scrutiny of concepts, causal inference and broader theory building which the genre of scientific psychology writing, as discussed by Bazerman and Flis earlier, inhibits.

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[5] See Engelmann (Chapter 14), who also makes a case for narrative as a way to keep alternative causal explanations for a phenomenon in play.

18.2.2   Narrative Performance and Reader Trust

The opening paragraph of the 'Introduction' (following the abstract) immediately instantiates a voice with a narrator's authority to hold the floor:

Michael May lost the ability to see when he was 3 years old, after an accident destroyed his left eye and damaged his right cornea. Some 40 years later, Mr May received a corneal transplant that restored his brain's ability to absorb normal visual input from the world (Fine et al. 2003). With the hardware finally working, Mr May saw only simple movements, colours and shapes rather than, as most people do, a world of faces and objects and scenes. [. . .] As time passed, and Mr May gained experience with the visual world in context, he slowly became fluent in vision. (Barrett and Bar 2009: 1325)

This is a narrative of the following event sequence in Bauman's terms: accident; destruction or damage to eyes; transplant; simplified vision; full vision. Like the verbal performers in Bauman's studies, in performance, the authors, and in turn hearers, attribute causal links to this sequence: the accident caused the destruction and damage; the transplant 'restored his brain's ability to absorb normal visual input from the world'; 'experience with the visual world in context' caused his later fluency 'in vision'. These causal attributions may seem uncontroversial but they are not inevitable. The transplant could have been described as a restoration of 'the ability of the cornea to react to rays of light', for example, making the story one of simpler physical components of low-level cognition. 'He slowly became fluent in vision', could have been, for example, 'He learned to match visual data to the data higher up in processing streams of other modalities', again modelling vision as a mechanical process, rather than a complex skill drawing on multiple domains of knowledge and processing, such as 'fluency' in a language.

The authors' narrative phrasing of causal links, then, models a world in which agents interact with their environment by acting on it, and adjusting their expectations through the feedback from their actions. In other words, narrative performance here generates a model which will support their hypothesis: 'When the brain receives new sensory input from the world in the present, it generates a hypothesis based on what it knows from the past to guide recognition and action in the immediate future' (Barrett and Bar 2009: 1325). The narrative performance of the story of Mr. May, then, enables readers to model the article's hypothesis not just by providing a case study, but by modelling a specific causal structure for long enough to establish a hypothesis prior to assessing it.

This short verbal narrative gives way to material which cannot, without effort at least, be characterized as narrative. However, the *authority* of a narrator may persist through the use of textual features found in verbal art and performance, and it is this performative-authoritative role which supports broader narrative remodelling in these passages throughout the article. For

example, the narrative to non-narrative transition sees a continued use of declarative sentences and clauses, a continuity which carries authority in the narrative domain over to the domain of neuroscience:

As time passed, and Mr May gained experience with the visual world in context, <u>he slowly became fluent in vision</u>. [. . .]

   What Mr May did not know is that <u>sighted people automatically make the guesses he was forced to make with effort</u>. (Barrett and Bar 2009: 1325; my emphasis)

It seems unlikely here that the second sentence, which opens the paragraph after the narration ends and which does not form an event in a sequence, leads readers to believe that the authors have interviewed Mr May.[6] More likely, they accept the claim as a continuation of the authority granted to verbal performers. In both sentences, for example, there are verbal cues to this performative status. Both begin with information available to narrators but not, typically, to readers: that time passed before Mr May experienced change, and what he did or did not know at particular points in the narrative. Compare, for example, these words from novelist Ali Smith's third-person narrator of *Autumn*: 'It is still July'. Readers have neither independent means to establish that it is July, nor any reason to question the claim. Similarly, continuing the performative narrative voice into a non-narrative paragraph might make readers less vigilant about broad, and not always consensus, positions on the nature of vision, and narrower claims about what a specific individual knew about vision, than they would be otherwise.

   In the next paragraph, the speaking voice takes a step away from the narration of Michael May's experience, but maintains the authority associated with it through declarative statements: 'External sensations do not occur in a vacuum, but in a context of internal sensations from the body that holds the brain'. The claim here is no longer a simple one premised on a narrator's privileged access to information ('What did Mr May know about cognition, and when?'). Here, there is an opposition between a model of external sensations 'in a vacuum' compared to 'a context of internal sensations from the body that holds the brain'. Rhetorically, the force of this is to create a binary choice between a model hard even to conceive of (external sensations in a vacuum) and a holistic model intertwining the world ('external'), the body ('internal'), and cognition ('the brain'). This sense of a non-modular, dynamic system is reinforced by the selective use in this paragraph of verbs in the present continuous (-ING):

The sensory–motor patterns <u>being</u> stored for future use include. . .
In addition to directly <u>experiencing</u> changes in their breathing. . .
In addition to <u>learning</u> that the sounds of a voice come from moving lips . . .
                                        (Barrett and Bar 2009: 1325; my emphasis)

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[6] Meunier (Chapter 12) looks at the distinction between a sequence of actions performed in a lab, and how that sequence is represented in the corresponding research article's narrative; despite the mismatch between the two, the implication is that all events recounted have in fact been performed.

The present continuous is associated with a range of rhetorical effects, including the narrative voice of the 'historic present' (Wolfson 1982). Here it marks a move away from the narrative of Mr May, but a move which preserves the authority of the performative, narrative voice, just as it preserves and develops the implicit world model established in the narrative section. Stylistic choices between declarative or present continuous sentences, or the contrast between a more and less persuasive model of cognition, can be seen as rhetorical choices. All writers must make choices of this kind, and all of those choices will have some kind of effect on the reader. But, independently of rhetorical persuasion, artful expression and narration create a performative discourse, helping the reader to conceive of the world in a way that lets them understand the causal structure underlying the hypothesis, separately from accepting the hypothesis itself. The effect of performative language, I suggest, can be to support, rather than manipulate, the reader in a creative process of reconceptualization in order to assess the hypothesis by first understanding it. In this respect, then, the elements of narrative performance in the article provide an effective way around the 'taboo on causal inference' problem in scientific psychological writing, but one which does not confront that problem directly and therefore might not be sustainable in the field's discourse as a whole.

18.3   Creativity as Reconceptualization

At the heart of the article is the case for emotion and perception as having an entwined rather than a causally sequential relationship, at least at sub-personal speeds and levels of consciousness. As with modelling the relationship of mind and world as dynamic and holistic rather than linear and modular, this case requires some reconceptualization of emotion. For readers who trained in psychology under the influence of Jerry Fodor's work, emotion might be not just *habitually* distinguished from perception, but *by definition* distinguished from perception. Fodor's modular account of cognition drew inspiration from Turing's identification of a minimal mechanism that can do cognitive work automatically (Turing 1936). In a modular system, processing streams for different modalities, and for language, remain distinct until processing is advanced, at which points the information from each module is blended in 'central processes'. Modularity does not allow the kind of dynamic, holistic interaction of emotion, action and perception that Barrett and Bar outline (Fodor 1983). As Barrett and Bar explain, 'Affective responses were ignored in cognitive science altogether' (Barrett and Bar 2009: 1328). To even assess the coherence of their hypothesis, therefore, some readers may need first to reconceptualize (in Boden's and Churchland's sense described above) perception, affect and emotion. The performative, and either implicit or explicitly

narrative, voice established at key points of the article, I argue, supports this reconceptualizing process in readers, in part through engaging aesthetic emotions.

Take the following extracts from the second and third paragraphs of the article:

This is how people learn that the sounds of a voice come from moving lips on a face, that the red and green blotches on a round Macintosh apple are associated with a certain tartness of taste, and that the snowy white petals of an English rose have a velvety texture and hold a certain fragrance. [. . .] [T]hey learn that they enjoy tartly flavoured red and green (Macintosh) apples or the milder tasting yellow apples (Golden Delicious); and they learn whether or not they prefer the strong fragrance of white English roses over the milder smell of a deep red American Beauty, or even the smell of roses over lilies. (Barrett and Bar 2009: 1325)

The authors explain here that perception is contextual, and that the context includes the perceiver's early affective responses to the target stimulus. To make this point, they draw on readers' prior experience not only of apples, roses and lilies, but also on their capacity for aesthetic emotion, a form of emotion likely to be accessible to consciousness, not least because the stimulus itself, that is the artefact (in this case a passage of text), draws attention to itself as an object of conscious attention (Miall and Kuiken 1994; 1999). Aesthetic effects are also associated with performativity (Bauman and Briggs 1990).

The authors make a number of aesthetically directed choices here. First of all, the objects they choose (apples, roses, lilies and their colours, tastes and smells) are all 'motifs' which have been identified by folklorists in folk and fairy tales. Motifs migrate between different tale types with a power that is independent of narrative context (Aarne, Thompson and Uther 2004; Thompson 1955–58). This status as standalone objects, divorced in mental imagery from scenes, plays a role in the vividness with which they can be imagined, creating an undiluted focus on aesthetic affordances in relation to taste, sight and smell. The focus on sight in relation to taste and smell also has the potential to heighten vividness through synaesthetic effects (Jajdelska et al. 2010; Scarry 2001; Jajdelska 2019: 570–572).

Aesthetic emotions have been variously categorized (see, for example, Fingerhut and Prinz 2020; Brown and Dissanayake 2009; Miall and Kuiken 1994). A common thread, however, is their association with higher-order processing, that is processing which is more accessible to conscious report (Brown and Dissanayake 2009: 51–52; Fingerhut and Prinz 2020). Aestheticized verbal descriptions may both evoke emotions and make readers aware of the emotions' source. These descriptions of apples and roses poten-tially *enact* in readers the concept of emotion as intrinsic to cognition, and

thereby help them to understand the article's otherwise counter-intuitive hypothesis.

The enactment, insofar as it occurs, would not be evidence in support of the hypothesis, which concerns not 'emotion' in general, but affect in particular:

> We have proposed that the medial [orbitofrontal cortex] (OFC) participates in an initial phase of affective prediction ('what is the relevance of this class of objects for me'), whereas the lateral OFC provides more subordinate-level and contextually relevant affective prediction ('what is the relevance of this particular object in this particular context for me at this particular moment in time'). (Barrett and Bar 2009: 1331)

Instead, the experience of mental imagery intertwining sensual experience with aesthetic emotion allows those readers for whom emotion and perception are distinct by definition to reconceptualize both and then potentially to evaluate this causal relationship.

18.4   From Reconceptualization to Causation

Reconceptualizing emotion is a first step to successfully identifying and understanding the dynamic network of causal interactions implicit both in the paper's hypothesis and in the implicit narrative identified by performative discourse throughout. A second step is to develop an understanding of the causal links with greater precision. Here too the move between more and less performative voices may help. The more performative material metaphorically introduces agency into sub-personal processes. The most prominent example of this is the status of the brain, and/or the body as a whole, which appears in the paper's varied discourses as at some points an objectively viewed system, lacking free will, and at others as an agent pursuing an identifiable set of goals whose parameters are established by evolution. The degree to which people can be understood as free agents is a question involving considerable philosophical effort, informed in recent years by findings in cognitive science (Vierkant 2017). The authors of the paper are not, either implicitly or explicitly, expressing a position in this debate. Instead, I suggest that they are moving between more and less performative discourses in ways that allow readers to imagine and reimagine their hypothesis in different lights, one narrative and performative and one non-narrative. In doing so, readers are supported in modelling causation through narrative discourse and then importing this into non-narrative discourse.

From the perspective of folklore, anthropology and to some extent the psychology of memory, any given narration's underlying structure is defined not by its causal links but by its sequence of events (Aarne, Thompson and Uther 2004; Bauman 1986; Bartlett 1995). In this view, for any given event

sequence underlying a narrative performance, causation is built in only at the point of narration; causation is not an intrinsic quality of the sequence itself, but emerges in the audience and only through performative narration, and a single event sequence can be narrated on different occasions with different causal links. A critical element of this process, building causality into an event sequence through narration and performance, is attributing agency.[7] In the most influential psychological account of narrative production and comprehension of recent decades, for example, 'change in character's goals', a signature aspect of agency, is one of the small number of key dimensions that hearers/readers monitor consistently in order to comprehend and recall a story (Zwaan and Radvansky 1998; Zacks, Speer and Reynolds 2009). Mythical event sequences, which explain or make sacred features of the world that arose independently of humans, attribute agency either to the rocks, rivers and mountains themselves, or to divine beings who can control them (Doty 2000: 74–76).

Where an event sequence does not feature an easily recognizable agent, then, the narration attributes agency to non-agents, as in this example, continuing from the previous section on roses and apples:

They learn whether or not they prefer the strong fragrance of white English roses over the milder smell of a deep red American Beauty, or even the smell of roses over lilies. When the brain detects visual sensations from the eye in the present moment, and tries to interpret them by generating a prediction about what those visual sensations refer to or stand for in the world, it uses not only previously encountered patterns of sound, touch, smell and tastes, as well as semantic knowledge. It also uses affective representations – prior experiences of how those external sensations have influenced internal sensations from the body. Often these representations reach subjective awareness and are experienced as affective feelings, but they need not. (Barrett and Bar 2009: 1325)

This passage opens with the synaesthetic, and aesthetic, evocation of experiencing roses and lilies at the level of the person as agent, with the sensual processing of the moment linked to that of the past, and to high-level concepts which can potentially be expressed in language to others ('I prefer English roses'). Having indicated for the reader the relevant event structure by evoking aesthetic emotions in the reader, the passage then *re*narrates the story (or story component of the wider, implicit narrative generated by performative discourse across the paper), attributing agency this time to 'the brain'. The brain as agent has goals and priorities which are distinct from those of the person who weighs English roses against American ones. The goals of the brain as agent include 'interpreting visual sensations' and the method includes 'generating a prediction' of the world drawing on previous experiences, semantic

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[7] Engelmann (Chapter 14) provides a persuasive account of the need to attribute agency, as well as the difficulties in doing so, in plague narratives.

knowledge and, critically for the paper's hypothesis, 'affective representations' drawn from past experience of the relationship between external and internal sensations, all of which can operate below the level of 'subjective awareness'.

While the person as agent has a (momentary) goal of 'establishing preferences', the brain as agent has the (longer-term) goal of 'interpreting sensations'. In the second case, as the paper's author and reader are certainly aware, 'the brain's goal' is a metaphor, mapping something like, 'has evolved in such a way that responses to past stimuli statistically shape present responses to stimuli' onto 'interprets current stimuli in the light of past ones'. One effect of this extended metaphor is, as with the aesthetic effects of apple and rose verbal imagery, to support readers in developing a new model not just of the causal relationships between affect and relation perception, but of the broader network of causal relationships among body, brain and world, a network in which all three are continuously and dynamically interacting in ways that cannot be captured by a unidirectional flow from stimulus to brain to action. The goal of identifying our preferred fruits and flowers, with which we are already familiar from our own conscious experience, can then be mapped onto a less familiar, sub-personal goal of making predictions to support optimal actions, and from there to a modified account of cognition more broadly. Performative discourse, then, even when not explicitly narrative, contributes to global narration across the paper through reconceptualization and its associated causal attributions.

The same movement – between recognizable personal experience and sub-personal cognition – can be seen in reverse in this passage:

With back and forth between visual cortex and the areas of the prefrontal cortex (via the direct projections that connect them), a finer level of categorization is achieved until a precise representation of the object is finally constructed. Like an artist who successively creates a representation of objects by applying smaller and smaller pieces of paint to represent the light of different colours and intensities, the brain gradually adds high spatial frequency information until a specific object is consciously seen. (Barrett and Bar 2009: 1328)

Here, the authors open without attributing agency to the brain, using the passive voice ('categorization is achieved', 'the object is finally constructed') to avoid attributions of agency altogether. The comparison to a supposed artist creating an ever more refined representation reframes the process *with* an agent, and then finally the brain returns, this time *as* agent, one whose goal is to refine a representation, using different kinds of inputs, including affect, to the point where it enters consciousness. We start with observable data about activity in specific brain regions under specific conditions (provided through citation), and the passive voice mutes any causal claims about the causal relationship between that activity and the subsequent representation. The simile of the artist

then creates explicitly a causal relationship, which is parallel, although not identical, to the implicit causal relationship in the observable data: 'the artist creates a representation' with the goal of making an object, where, implicitly, the activity of relevant brain regions makes a representation with the goal of supporting appropriate action. Finally the causally neutral data sequence and the causally specific simile are brought together in the brain as agent, whose goal is to make a representation available to consciousness. The shifts between different levels of more and less performative and narrative discourse allow readers not just to identify the causal relationship that the authors embed in their hypothesis, but to model processes of cognition in a way that lets them assess the plausibility of that hypothesis.

18.5   Conclusion

The article discussed in this chapter was not written in response to the current replication crisis in scientific psychology, but it does implicitly address the absence of theory and conceptual work identified by Flis as a problem in the discipline (Flis 2018: 163, and elsewhere). It does so by alternating between the genres of narrative performance and of APA approved explication. The first enables the generation of theory in the reader, and the second articulates this theory in non-performative and non-narrative ways. In this way the paper maintains the division between trustworthy 'scientific psychology writing' and potentially less trustworthy engagement of creative imagination in readers, but still manages to look at the key topics in theorized ways. This points to a useful role for mixed discourses in scientific writing more generally. However, whether in psychology or less troubled areas of science, an acknowledgement of the role that performative narrative discourse plays in the work of theory, challenging the sense that this kind of narrative is merely an entertaining experiment with lower status forms of discourse, a holiday from rigour, can contribute to our broader theory-building, reconceptualization and remodelling.[8]

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