Small Group Meeting on
Counterfactual thinking
in causality, emotion,
communication, and behaviour

Aix-en-Provence, June 1-4 2016
Aim

Counterfactual thinking is at the heart of the human ability to mentally simulate events in the past and the future. In recent years, psychological research on counterfactuals has become increasingly diverse. Research on the fundamental features and processes of counterfactual thinking has expanded from the study of its antecedents and consequences, inspiring research in more applied contexts (i.e. communication, health behavior, etc.). The developments of the last decade in all of these areas have not yet been brought together to allow researchers to discuss them more thoroughly. A small group meeting provides an excellent opportunity for this endeavour, providing participants with the opportunity to present their newest research, as well as engage in extensive discussions. The aim is to stimulate a more intense communication between individuals studying counterfactuals from different perspectives.

Organising Committee

Denis Hilton, *University of Toulouse II—Le Mirail*
Kai Epstude, *University of Groningen*
Mauro Bertolotti, *Catholic University of Milan*
Patrizia Catellani, *Catholic University of Milan*
Ruth Byrne, *Trinity College, University of Dublin*
Scientific Programme
**Wednesday, June 1<sup>st</sup>**

18:00 *Welcome reception*

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**Thursday, June 2<sup>nd</sup>**

### Session 1: Counterfactuals and Causation

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<tr>
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<td>09:00</td>
<td>Ruth Byrne</td>
<td><em>Mental representations and cognitive processes in reasoning about counterfactual conditionals</em></td>
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<td>09:40</td>
<td>Suzanne Egan &amp; Caren A. Frosch</td>
<td><em>What else could have caused it? Counterfactual thinking about alternative causes and enablers</em></td>
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<td>11:00</td>
<td>Coffee break</td>
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<tr>
<td>11:30</td>
<td>Denis Hilton, Christophe Schmeltzer, &amp; Claire Wallez</td>
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<td>12:10</td>
<td>Ahogni N'gbala</td>
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<td>Jana Samland &amp; Michael R. Waldmann</td>
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### Session 2: Counterfactuals and Behaviour

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<tr>
<td>14:30</td>
<td>Sean McCrea</td>
<td><em>Placing counterfactual thinking in the context of Action Phase Theory</em></td>
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<td>15:10</td>
<td>Kai Jonas &amp; Kai Epstude</td>
<td><em>Continuous risk: Counterfactuals as determinants of sexual risk taking</em></td>
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<td>Coffee break</td>
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<td>16:20</td>
<td>Kathleen McCulloch</td>
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<td>17:00</td>
<td>Donatella Ferrante, Marta Stragà, Claire Walsh, &amp; Vittorio Girotto</td>
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**Friday, June 3rd**

**Session 3: Counterfactuals in Development**

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<tr>
<td>09:00</td>
<td>Caren A. Frosch &amp; Charlotte L. Green</td>
<td><em>The development of relief in middle childhood: Actors versus observers</em></td>
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<tr>
<td>09:40</td>
<td>Sarah R Beck, Theresa McCormack, &amp; Aidan Feeney</td>
<td><em>Counterfactual emotions inform decision-making in childhood</em></td>
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<td>10:20</td>
<td>Jo Black, Heather Ferguson, &amp; David Williams</td>
<td><em>Imagining counterfactual worlds in Autism Spectrum Disorder</em></td>
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<td>11:00</td>
<td>Coffee Break</td>
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**Session 4: Counterfactuals and Attribution**

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<tr>
<td>11:30</td>
<td>Rachel Smallman</td>
<td><em>Learning from us but not from them: Group membership influences the impact of counterfactual thinking on behavioral intentions</em></td>
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<tr>
<td>12:10</td>
<td>João Marques, Ana Cristina Quelhas, Marta Couto, &amp; Celia Rasga</td>
<td><em>Who’s more to blame? The importance of the focus effect on counterfactuals and blame</em></td>
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**Session 5: Counterfactuals and Emotions**

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<tr>
<td>12:50</td>
<td>Alessandra Tasso, Michela Sarlo, &amp; Lorella Lotto</td>
<td><em>Emotions and counterfactuals in moral decision-making</em></td>
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<td>13:30</td>
<td>Lunch Break</td>
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<td>15:00</td>
<td><em>Social programme: Visit to Aix-en-Provence</em></td>
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**Saturday, June 4th**

**Session 5: Counterfactuals and Emotions**

- **09:00** Nora Krott & Gabriele Oettingen  
  *Mental contrasting of counterfactual fantasies*

- **09:40** Fuschia Sirois, E. Miles, M. M. Kapsokavadi, V. Lvova, & N. Wojtyna  
  *"If only I hadn’t over-reacted": Exploring the role of upward counterfactual thoughts in emotion regulation*

- **10:20** Coffee break

**Session 6: Counterfactuals in Communication**

- **11:00** Patrizia Catellani & Mauro Bertolotti  
  *A model of counterfactual attack/defense communication*

- **11:40** Raluca A. Briazu, Catherine Deeprose, Giorgio Ganis, & Clare R. Walsh  
  *The role of counterfactual thoughts in deceptive communication*

- **12:20** João Marques, Ana Cristina Quelhas, & Tânia Ramos  
  *The impact of impression formation on counterfactual thoughts and ascriptions of blame*

- **13:00** Lunch break
Abstracts

in alphabetical order
Counterfactual emotions inform decision-making in childhood

Sarah R. Beck¹, Teresa McCormack², Aidan Feeney²

¹University of Birmingham, UK; ²Queen’s University, Belfast, UK

As counterfactual thinking develops over middle childhood, children begin to experience the counterfactual emotions of regret and relief. Our recent work has explored whether children use these emotions to make adaptive decisions in the future. In our first paradigm, children play a simple game on Day 1 in which they choose between two boxes. The outcome is fixed so that although they win a small prize, a better prize was available in the other box. On Day 2 children play the same game again, but they must either keep the same box as on Day 1, or pay a small cost to switch to the other box. In Experiment 1 (229 children aged 6-7 years), children who felt sad on Day 1 based on what could have happened (i.e. a counterfactual emotion), were more likely to pay to switch on Day 2. This was also the case when the box that the child received on Day 1 was determined by the roll of a die, rather than the child’s choice, suggesting that identifying the upward counterfactual may be more important than whether or not it resulted from one’s own choice. In a second paradigm we explored delayed gratification, which we know poses significant problems for young children. In this study, 78 children aged 6-7 years played a game where they could take a prize early, rather than waiting for another unknown prize. On discovering that the late-available prize was the better (2 sweets rather than 1), some children experienced regret. When given the chance to play the game on a second day, those who had experienced regret were more likely to wait for the late-available prize than those who had not. In both studies, children were unlikely to anticipate regret and we discuss this in the context of possible mechanisms for children’s adaptive decision-making. Overall, we conclude that once children start to experience counterfactual emotions, they use them to inform future behaviour.
Imagining counterfactual worlds in Autism Spectrum Disorder

Jo Black¹, Heather Ferguson¹, & David Williams¹

¹University of Kent, UK

Counterfactual reasoning is an important part of social communication, and some argue that the ability to reason counterfactually is a necessary precondition of Theory of Mind (ToM). Specific impairments in this ability are common in people with Autism Spectrum Disorders (ASD), however only a handful of published studies have empirically tested counterfactual thinking in this group. We present two eye-tracking experiments that explore how imaginability influences counterfactual reasoning in individuals with ASD and typically developing (TD) participants in an anomaly detection reading task. Counterfactual sentences in Experiment 1 depicted realistic everyday events (e.g. “If Joanne had remembered her umbrella, her hair would have been dry/wet when she arrived at work”), while in Experiment 2 they described alternative versions of known historical events (E.g. “If Spain were not a member of the European Union, they would pay for things using Pesetas/Euros in shops today”). Thus, while both experiments describe logically true counterfactual events, sentences in Experiment 1 incur a minimal change from reality, but understanding in Experiment 2 requires readers to suspend their knowledge of reality and imagine a novel version of the world. Factual versions of events (using “Because”) were included as a baseline measure. We interpret the results to consider whether people with ASD experience general difficulties with conditional reasoning, meaning that anomaly detection is delayed in both experiments relative to TD participants. Alternatively, people with ASD may have difficulty inhibiting real-world knowledge, meaning that they would show delayed anomaly detection in Experiment 2 only. Finally, it could be that people with ASD experience difficulty separating real from counterfactual events, especially when they are not grounded in real-world knowledge.
The role of counterfactual thoughts in deceptive communication

RalucA. Briazu¹, Catherine Deeprose¹, Giorgio Ganis¹, & Clare R. Walsh¹
²Plymouth University, UK

Both counterfactual thinking and deception require the imagination of alternatives to reality, yet little research has examined the link between these two processes. Using scenario based methods the current paper sought to investigate whether counterfactual thoughts play a functional role in the production of lies. In study 1 we explored the link in terms of individual differences and found that participants with a tendency to generate counterfactual thoughts were also more likely to deceive. In study 2 we investigated whether manipulating the counterfactual availability of events can influence subsequent deceptive responses. We found that in instances in which the availability of counterfactuals was greater, the tendency to respond deceptively increased. Finally, in Study 3 we tested whether counterfactual inferences can be used to infer dishonesty, and similarly we established a positive association between the two processes. Overall, the results suggest that the tendency to imagine alternatives to the past is associated with the ability and tendency to deceive. Implications and future directions are discussed.
Mental representations and cognitive processes in reasoning about counterfactual conditionals

Ruth Byrne¹

¹Trinity College, University of Dublin, Ireland

I report experimental results that examine the mental representations and cognitive processes that underlie reasoning about counterfactual conditionals. First, I report experimental results that pit the view that counterfactuals are based on the computation of possibilities against the view that they are based on probabilities. The evidence indicates that judgments of the truth of counterfactuals are influenced by possibility rather than probability. Second, I report experimental results that pit the view that the mental representation of counterfactuals is iconic but can incorporate symbols, e.g., for negation, against the view that their mental representation depends on embodied meaning. The evidence on inferences from counterfactual conditionals indicates that their representation is symbolic rather than solely embodied.
A model of counterfactual attack/defense communication

Patrizia Catellani¹ & Mauro Bertolotti¹
¹Catholic University of Milan, Italy

Evoking better or worse alternatives to reality through counterfactual thinking affects the way people make responsibility and blame attributions regarding actual events. The effects of counterfactual communication, however, have not yet been investigated in depth. In a series of experiments, we analysed how different types of counterfactuals embedded in communication influence the persuasiveness of messages and recipients’ attributional processes. Participants were presented with different messages regarding past events and their hypothetical alternatives. We manipulated the style (factual vs counterfactual), function (attack vs defense), target (one or another actor of the event) and direction (upward vs downward hypothetical comparison) of the messages, and then we measured participants’ judgments regarding the event, its actors and communication itself. Results showed that counterfactual attacks and defenses are more persuasive than the corresponding factual versions. Besides, results suggested that counterfactuals embedded in communication influence recipients’ judgments along two different pathways. On the one hand, they make different features of past events salient, by inducing recipients to compare actual outcomes with a certain reference point. On the other hand, they prompt inferences on the speaker’s communicative intention, trustworthiness and reliability as a source. Discussion will focus on the proposed Counterfactual Attack/Defense Model (CADM) describing these two pathways, as well as on the situational, social, and individual moderators of the effects of counterfactual communication.
What else could have caused it? Counterfactual thinking about alternative causes and enablers

Suzanne M. Egan\textsuperscript{1} & Caren A. Frosch\textsuperscript{2}

\textsuperscript{1}Mary Immaculate College, University of Limerick, Ireland;\textsuperscript{2}University of Leicester, UK

The aim of this research was to explore why people focus on enablers rather than causes in their counterfactual thinking. In two experiments we investigate the likelihood of an outcome still happening if a cause or enabling event does not occur and the types of alternative events people generate instead that could still bring about the outcome. We also consider the role of the strength of the cause and the enabler in bringing about the outcome. The results indicate that the alternative events people generate that could still bring about the outcome instead of the cause or the enabler seems to be more important than the likelihood of those events leading to the outcome. One possible explanation for these findings relates to the mental models that individuals keep in mind when thinking about causes and enablers. The findings are discussed in the context of previous research on counterfactual thinking and causality.
What could I have done or what can I do? The effect of counterfactual and prefactual thinking on predictions and intentions.

Donatella Ferrante\textsuperscript{1}, Marta Stragà\textsuperscript{2}, Claire Walsh\textsuperscript{3}, & Vittorio Giotto\textsuperscript{2}

\textsuperscript{1}University of Trieste, Italy; \textsuperscript{2}University Ca’ Foscari of Venice, Italy; \textsuperscript{3}University of Plymouth, UK; \textsuperscript{4}University IUAV of Venice, Italy

Our ability to mental simulate personal future scenarios (i.e., prefactual thinking), and alternative versions of the past (i.e., counterfactual thinking) seem to be close related to the intention formation process (Epstude & Roese, 2011). Indeed, the primary function assigned to counterfactual thinking is to prepare for the future, highlighting prescriptions that can be converted in future intentions and in a more appropriate behavior. Nevertheless, temporal asymmetry in hypothetical thinking was found: thinking about how a failure could have been a success resulted in significantly less controllable modifications than thinking about how the same failure could be a success in the future (Ferrante et al., 2013). In two studies, we investigated whether this temporal asymmetry is limited to the thoughts’ content or it can influence subsequent predictions and intentions. We found that after generating a controllable thought as opposed to an uncontrollable one, participants were more confident in future improvement, irrespectively by the temporal focus. This result supports the idea that both controllable counterfactuals and prefactuals actually lead people to feel more in control over the task. However, results of Study 2, in which athletes generated hypothetical thoughts after running a marathon, showed that generating counterfactual thoughts that referred to training did not increase the intention to train harder in the future. Conversely, prefactual thoughts that focused on training, rather than other elements, resulted in a greater intention to train harder in the future. Therefore, the effect of counterfactual thinking on intentions does not seem to be content-specific, whereas prefactual thinking seems to focus individuals to feasible plan of actions that are converted in behavioral intentions, showing a real preparatory function. Implications of these
The development of relief in middle childhood: Actors versus observers.

Caren A. Frosch\(^2\) & Charlotte L. Green\(^1\)

\(^1\)University of Leicester, UK

Previous research suggests that the development of counterfactual emotions such as relief undergoes several milestones. Aside from the general development of counterfactual thinking, children tend to experience counterfactual emotions before they fully understand them and are able to infer them in others. Furthermore, there is evidence that children experience greater counterfactual emotions when they have control over an outcome than when they do not. In one experiment we explore whether children aged 7-9 years are able to experience (actors) or infer (observers) relief in a game where the actors can win some stickers by choosing one of two boxes. On half of the trials they have control over their choice and on the other half of the trials, the choice of box is determined by the roll of a die. In contrast to previous findings, we found little evidence of children aged 7-8 (year 3) being able to experience or infer relief. Whereas the older children aged 8-9 consistently experienced relief (the actors) and mostly inferred relief (the observers). Also in contrast to previous findings, we found no evidence that children distinguished between controllable and uncontrollable choices. We consider these findings in the context of this previous literature.
Do causal attributions depend on counterfactuals? Distinguishing *but-for* from *if-only* tests.

Denis Hilton², Christophe Schmeltzer², Claire Wallez², & David Mandel²

² University of Toulouse II—Le Mirail, France; ² York University, Canada

The aim of this research was to explore why people focus on enablers rather than causes in their counterfactual thinking. In two experiments we investigate the likelihood of an outcome still happening if a cause or enabling event does not occur and the types of alternative events people generate instead that could still bring about the outcome. We also consider the role of the strength of the cause and the enabler in bringing about the outcome. The results indicate that the alternative events people generate that could still bring about the outcome instead of the cause or the enabler seems to be more important than the likelihood of those events leading to the outcome. One possible explanation for these findings relates to the mental models that individuals keep in mind when thinking about causes and enablers. The findings are discussed in the context of previous research on counterfactual thinking and causality.
Continuous risk: Counterfactuals as determinants of sexual risk taking.

Kai J. Jonas¹ & Kai Epstude²

¹University of Amsterdam, the Netherlands
²University of Groningen, the Netherlands

The functional approach to counterfactuals (Epstude & Roese, 2008) argues that matching content counterfactuals can impact on respective future behavior. Based on Savitsky et al. (1997) we assume that counterfactuals are also an indicator of unattained goals. Thus, counterfactuals express suboptimal means associated with past goal attainment, and point to a novel goal association with different means. Within this change of means lies the potential for a risky shift, towards using riskier means to attain one’s goal. In the context of sexual risk taking, counterfactuals about sexual goals – as one example of unattained hedonistic goals – should lead to higher risk taking during future goal attainment. Relevant indicators are episodes of STIs, condom use, or number of sexual partners. We have tested this hypothesis in a set of 5 studies (total N = 1258) with different age groups (younger and older adults), sexual orientation (gay and heterosexual), and cultures (USA, Europe and Asia). Our data show a consistent pattern of risk taking being driven by (mostly additive) counterfactuals, that is even stable in a longitudinal design. From a self-regulatory perspective our findings are interesting for a number of reasons. First of all, we can show that goal attainment processes driven by counterfactuals are not self regulatory failures (since the goal is being attained and not dropped), but that there is the potential for associating risky means with successful goal attainment. Secondly, this is especially relevant in the context of hedonistic, abstract goals, since those do not have a defined end-state, which could decrease counterfactual activation. Finally, our results show that counterfactuals can have a strong impact on consequential real life topics, such as one’s health status. Applied to sexual risk taking our data show the chronic risk potential and the associated challenge for interventions.
Mental contrasting of counterfactual fantasies

Nora Krott¹ & Gabriele Oettingen²

¹University of Hamburg, Germany
²New York University, USA

Counterfactual thinking about better alternatives to past events causes negative emotions and, when excessive, is a risk factor for depression and poor coping with negative life events. Positive fantasies about better alternatives, similarly to positive fantasies about future events, fail to integrate the present reality. The self-regulation strategy of mental contrasting complements positive future fantasies with present reality leading to disengagement from future fantasies when expectations of success are low (review by Oettingen, 2012). In three experimental studies we tested the self-regulation strategy of mental contrasting, which complements positive future fantasies with present reality, leading to disengagement from future fantasies when expectations of success are low. In Study 1, participants were induced to mentally contrast their positive counterfactual fantasies with present reality or to merely indulge in their counterfactual fantasies. We then assessed participants’ counterfactual emotions (e.g., disappointed – relieved; Roese, 1994). Participants who mentally contrasted (vs. indulged) felt less disappointed and depressed, indicating emotional disengagement. In Study 2, we focused on past events for which participants were responsible. Participants who mentally contrasted counterfactual fantasies about a better alternative that could have been chosen experienced less post-decisional regret than participants who indulged in counterfactual fantasies or merely dwelled on the present reality. In Study 3, we focused oon events for which participants were not responsible. Participants who mentally contrasted (vs. indulged or dwelled) experienced less interpersonal resentment and regret. Overall, results suggest that mental contrasting can be used to effectively regulate emotions associated with counterfactual fantasies after diverse negative life events.
The impact of impression formation on counterfactual thoughts and ascriptions of blame

João Marques¹, Ana Cristina Quelhas³, & Tânia Ramos²

¹ISPA—William James Center for Research, Lisbon, Portugal
²Universidade de Lisboa, Portugal & New York University, USA

According to the application of the culpable control model to counterfactual thinking (Alicke, Buckingham, Zell, & Davis, 2008), the ascription of blame to a certain agent is explained not only by what he could have done in order to alter and/or prevent the outcome from occurring, but also by spontaneous negative evaluations of that same agent. Following from this, one aspect which can potentially influence the counterfactual-blame link is the formation of impressions of the actor. In two experiments, we aimed to study whether this sort of actor evaluation can be relevant to better understand how the generation of counterfactual alternatives impacts the blameworthiness of certain agents. More specifically, the present studies aimed to test the direct role of a trait’s valence (positive, negative) and relevance (relevant, irrelevant) on the ascription of blame to an actor in mutable scenarios. We intended to show that for the evaluation of an actor to impact the ascription of blame to that actor, that evaluation has to be not only negative but also relevant to the outcome of the situation. We expected greatest ascriptions of blame when a critical sentence, implying not only a negative, but also relevant, trait was paired with the critical actor of the stor. A valence effect was also predicted (i.e., more blame in the negative than in the positive conditions), as well as a relevance effect (i.e., more blamed in the relevant than in the irrelevant conditions). A valence effect emerged in Study 1 such that the actor was more blamed in the negative conditions, regardless of the trait’s relevance. On Study 2, however, a relevance effect emerged qualified by greater ascriptions of blame to the actor in the relevant conditions. The results will be discussed according to their importance to the generation of counterfactuals and the understanding of the blame attribution process.
Who’s more to blame? The importance of the focus effect on counterfactuals and blame

João Marques¹, Ana Cristina Quelhas ¹, Marta Couto¹, & Célia Rasga¹
²ISPA—William James Center for Research, Lisbon, Portugal

Researchers have studied the role of counterfactuals on how people perceive the actions of victims and perpetrators and how they assign blame to them. The consensus amongst these studies is that, thinking about what the actor could, or should, have done to prevent the outcome increases the blame attributed to that actor. Kahneman and Miller (1986), however, raised the concern that most of the scenarios used tend to focus on the victims, thereby making their actions more salient and mutable and, therefore, the main focus of counterfactual thoughts. They have argued whether the possibility of generating more counterfactuals about the victims’ actions is what leads to more blame being ascribed to them. But what would happen if the perpetrator was the protagonist? In two studies, we aimed to study the focus effect of a scenario (i.e., the fact that a certain agent is the main character), not only on the production of counterfactual thoughts, but also on the blame ascribed to both the victim and perpetrator. It was hypothesized that more counterfactuals would be centered on the focal actor of a scenario and more blame would be ascribed to the same actor. We found the predicted focus effect on the generated counterfactuals, but not on blame ascriptions, due to the perpetrator always being ascribed more blame than the victim. While participants had no trouble undoing more the actions of the protagonist, they always ascribed more blame to the perpetrator. Results were interpreted according to different theoretical perspectives and future research avenues were suggested.
Placing counterfactual thinking in the context of Action Phase Theory

Sean McCrea¹

¹University of Wyoming, USA

According to the Action Phase model (Heckhausen, 1987), goal pursuit occurs over four distinct phases involving goal-setting, planning, action, and evaluation. Each phase of goal pursuit engages a set of cognitive processes functional to completing these tasks. The “predecisional” (goal-setting) phase involves deliberating on the anticipated desirability and feasibility of the contemplated goal. The “preactional” (planning) phase involves tying specific instrumental actions to temporal and situational cues. Completing the task in the “actional phase” focuses attention on the cues that signal an opportunity to act on the goal, and then initiating behavior. Finally, the “postactional phase” involves evaluating the quality, causes, and future implications of the outcome of goal pursuit.

Placing counterfactual thinking in the context of the Action Phase model yields several important insights. Counterfactual thinking involves imagining how an outcome could have been different, and as a result should typically occur in the final, postactional phase. It can therefore be inferred that counterfactual thinking largely functions to support the evaluation of concluded goal pursuit.

I will discuss several lines of research from our laboratory supporting this view. First, counterfactual thinking occurs more frequently in the postactional phase, particularly when the goal was not met or is likely to be pursued again in the future. Second, evaluation motives moderate the consequences of counterfactual thinking for emotion and behavior. Third, counterfactual thinking does not have the same consequences for memory and goal-directed behavior as does planning. Rather, the influence of counterfactual thinking on future behavior is likely to be dependent on processes that occur in subsequent action phases.
Selecting explanations from causal chains: Transitivity intuitions require exportable mechanisms

Jonas Nagel¹
²University of Göttingen, Germany

If a chain of two events leads to a relevant outcome, there are different possibilities how to explain the occurrence of the outcome. One intuition is that the distal cause that started the sequence of events in the first place is crucial for the outcome’s eventual occurrence, and that the proximal cause merely mediates the effect of the distal cause (transitivity intuition). Another intuition is that the proximal cause is the crucial explanation for the outcome’s occurrence: even though the proximal cause was brought about by the distal cause, the distal cause itself is not explanatorily relevant for the outcome (intransitivity intuition). In deterministic chains, counterfactual tests equally support both intuitions—if either of the causes had not occurred, the outcome would not have occurred. We investigate which factors determine the selection of explanations from such deterministic chains. We propose that intransitivity intuitions arise when the causal relationships mediating between distal cause and terminal effect are highly sensitive (Woodward, 2006), that is, when the chain would break down under small counterfactual variations of boundary conditions. We confirm this prediction in a series of experiments in which subjects first judge a deterministic causal chain implemented in a single exemplar of a natural kind or artefact to be transitive, but devalue the distal cause as crucial explanation for the outcome when they later learn that the dependency does not generalize to other exemplars of the same kind. We relate these findings to the general idea that good explanations have to be exportable beyond the concrete set of actual observations that is to be explained (Lombrozo & Carey, 2006). Even if an outcome is perfectly dependent on the occurrence of a distal cause, this cause is rejected as good explanation if the causal mechanism mediating the relationship does not work in similar other contexts.
On predicting actor’s regret from causal attribution, counterfactual thinking and type of behavior decision

Ahogni N’gbala¹

¹Université Paris-Ouest, Nanterre La Défense, France

The present study examines the extent to which causal inferences and counterfactual thinking determine regret following a negative outcome related to action or inaction. Participants were presented with five types of events deriving from action or inaction. Action-inaction were construed as maintaining the status quo or change based on the actor’s relevant behavioral habits, both resulting from the actor’s deliberate decisions. In three of the events, the actor’s decision were either normative or non normative (e.g., vaccinating or not vaccinating oneself against the flu) and covaried with the outcome (e.g., driving fast on a curve and having an accident), whereas the remaining two did not state any causal relationship between the decision and the resulting outcome (e.g., eating at one’s usual or an exceptional restaurant and being victim of food poisoning). After reading the scenario, participants checked one of two thoughts (i.e., “I don’t understand what caused my outcome” / “if only...”), and rated the degree to which the actors will experience regret, and their responsibility in the onset of the outcomes. The frequencies of causal attribution questions highly prevailed over counterfactual thoughts when the negative outcome derived from careful action or inaction decisions, whereas “if only...” thoughts prevailed when the outcome was due to careless action-inaction decisions. Regret ratings were higher in careless decision than in careful decision, especially for events that are known to covary with the decision. Similarly, higher degrees of responsibility were assigned to the actors for their careless behaviors, when those behaviors covary with the outcomes. Regression analyses revealed that responsibility ratings, that is, when the actor’s causal role was clear, accounted more of the amount of regret the targets were likely to experience than counterfactual thoughts, and actor’s behavioral decision.
The influence of counterfactual relevance on causal selection in children and adults

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Recent experimental findings show that people causally select norm-violating factors over norm-conforming ones although both factors are equally necessary for the outcome. The underlying cognitive mechanism is still under debate. According to the counterfactual reasoning account of causal selection, reasoners tend to preferentially consider counterfactual states of abnormal rather than normal factors which leads to the choice of these factors in causal selection tasks. Abnormality is used in a very general sense referring to statistical, moral and proper functioning norms. Whereas there are a number of findings supporting the assumption that norm violations trigger counterfactual thinking about the abnormal factor, there is only mixed evidence for the claim that increased thinking about a factor’s counterfactual alternatives leads to the choice of this factor over another. There is some indirect evidence for the role of statistical abnormality in causal selection, but no unambiguous evidence that moral abnormality plays an analogous role. We present experiments in which we manipulated the counterfactual relevance of one causal factor. Results show that counterfactual thinking did not affect causal selection. Consequently, there is reason to doubt that moral norms influence causal selection through counterfactual reasoning. We therefore propose an alternative theory, the accountability hypothesis, explaining the effects of prescriptive norms on causal selection by the ambiguity of the causal test question. Asking whether an agent is a cause can be understood as a request to assess causal contribution but also moral accountability. Our experiments provide evidence that it accountability judgments rather than counterfactual reasoning underlie causal selection in moral domains. This claim is additionally supported by developmental studies.
“If only I hadn’t over-reacted”: Exploring the role of upward counterfactual thoughts in emotion regulation

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Functional theories of counterfactual thinking (CFT) posit that upward counterfactuals can serve a behaviour regulating function by identifying future behaviours that may correct the controllable features of a negative outcome and thereby activate behavioural intentions towards corrective action. In this respect, upward CFT are akin to implementation intentions, if-then planning statements that are associated with effective behaviour regulation. A recent meta-analysis found evidence to support the proposition that implementation intentions might also be an effective means to modify emotional outcomes as emotion regulation is similar to other behaviour regulation tasks. We integrate and extend previous theory and research on CFT, implementation intentions, and emotion regulation to propose that in certain circumstances, upward CFT may be as effective for regulating emotions as they can be for regulating behaviour. Research has demonstrated that downward CFT can regulate emotions in an indirect and immediate manner by generating worse possible outcomes to a failure that can repair negative mood via affective contrasts. However, we argue that upward CFT may regulate emotions in a direct and future-oriented manner when focused on undoing an emotion regulation failure that resulted in negative personal or social consequences. In such instances upward CFT may provide a blue print for responding that activates emotion regulation intentions to correct past emotion regulation failures in future situations where emotions regulation may be challenging. We introduce a new model of upward CFT and emotion regulation, and present preliminary data to illustrate the scope and limits of this model for understanding the potential role of upward CFT for helping people correct their emotional regulation faux pas.
Learning from us but not from them: 
Group membership influences the impact of 
counterfactual thinking on behavioral intentions

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Counterfactual thoughts about “what might have been” allow individuals to learn from past events. Previous research has examined how counterfactuals about the self facilitate learning and future improvement. In this talk, I will focus on how group membership can influence the functional counterfactual pathway. The first two studies focus on how group membership influences behavioral intentions developed from counterfactuals about another’s actions. Participants who read counterfactual-inducing vignettes formed stronger intentions relative to participants who read non-counterfactual inducing vignettes; this effect was stronger for in-group targets than for out-group targets (Study 1). Furthermore, when group membership was manipulated experimentally, counterfactuals facilitated behavioral intention judgments (as measured by reaction times) for in-group targets but not out-group targets (Study 2). Additional studies explore potential mechanisms driving this effect. Together, the current research demonstrates that group membership can influence functional counterfactual thinking.
Emotions and counterfactuals in moral decision-making

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The present study was aimed at comparing the emotions experienced after the decision choice with those experienced after the respective counterfactual generation, in moral dilemmas.

According to Greene et al.’s dual-process theory of moral judgment, Footbridge-type dilemmas trigger an aversive reaction that prevail over rational cost/benefit computations in determining the rejection of utilitarian resolutions (i.e., sacrificing one person to save more lives). Previous research has suggested that in this context utilitarian resolutions are rejected to avoid the emotional cost of causing intentional harm. It might be hypothesized that, when choosing, people select the resolution that minimize the negative affect arising from the counterfactual consequences of the alternative course of action. Our study was aimed at comparing the emotions experienced after the decision choice with those experienced after the respective counterfactual generation, as a function of dilemma type. Results showed that in both type of dilemmas, most emotions were rated as more intensely felt after counterfactual generation. However, negative emotions after counterfactual generation increased to a much greater extent in the Footbridge- than in the Trolley-type dilemmas. It is concluded that, in the Footbridge-type dilemmas, the stronger negative affect associated with the counterfactual generation might be used by participants as input in the decision process, thus driving the rejection of the utilitarian choice. In contrast, in the Trolley-type dilemmas the lower changes in the emotional response pattern might make participants base their decisions on further (possibly cognitive) information.
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Location

From Marseilles-Provence Airport: a shuttle bus service to Aix-en-Provence (Gare routière/ bus station) is available every 30 minutes from Platform 1 of the airport bus station. Tickets are 8.20 € per person. From there you can take a taxi (<10 min. ride) or bus n. 4 (20 min. ride + 5-10 min. walk).

From Aix-en-Provence (Train station/city centre): from the main train station (Gare d’Aix-en-Provence Ville SNCF) you can take a taxi (10 min. ride) or bus n. 4 (15 min. ride + 5-10 min. walk).