The Complex Theory of Hope

The essay offers an account of hope that conceptualizes and analyzes hope' complexity. The Complex Theory of Hope, which the essay presents and defends, incorporates different competing theories of hope by placing them within a single framework. This is achieved by drawing a parallel between hope and complex systems, such as those studied by social and biological sciences. The resulting picture presents hope as a state that emerges from the interactions between a set of beliefs, desires, and other future-oriented cognitive and affective processes. The essay begins with a sketch of the different strategies philosophers and psychologists have employed in providing a definition of hope and with a discussion of their shortcomings. Following that, it presents the Complex Theory of Hope, which provides a general framework for combining the different attributes of hope brought up in philosophical and psychological literature. The goal is to provide a way of conceiving hope as a complex psychological state, while emphasizing its link to cognition, affect, and agency.

Keywords: *hope, optimism, emotions, moral psychology, complex systems.*

Introduction

We all have a notion of what it means to hope for something, of what it is like to lose hope, and of the factors that affect our hopeful or hopeless attitudes. We also have an idea about the wide range that hope-related attitudes can occupy, from specific events to more general assessments of our lives. Things become thornier when we try to move past such general observations. On the one hand, it seems difficult, if not impossible, to provide a definition of hope that covers all the conditions under which people report its experience. On the other, it is often difficult, if not impossible, to distinguish between the underlying psychological factors that lead to hopeful attitudes, the factors that constitute hope proper, and those that result from hope. The first set of problems is apparent in the philosophical literature on hope, where the various proposed definitions of hope fall victims to counterexamples or fail to capture some important aspect of hope. The second set of issues can be seen in psychological analyses of hope that focus on hope's measurement. Research has revealed a large number of correlations between a subjects' reported hopefulness and a predefined set of conditions, but it is often unclear if the correlated psychological states are causes or constituents of hope.

Our intuitions and common descriptions of hope indicate that hope is a complex state that cannot be reduced to a set of beliefs or desires. This is why it is possible for people who share the same beliefs and desires about an outcome to develop very different hope-related attitudes towards it. The complexity of hope is also suggested by the fact that we often maintain hope, when all reasons point towards abandoning it, and we sometimes abandon a long-held hope, even through the relevant circumstances and our beliefs about them have not changed.

Such reactions only make sense if hope involves more than just an assessment of the probability that a desired outcome comes about.

The essay's goal is to give an account of hope that focuses on the complexity of its experience. In order to conceptualize and analyze this complexity, it will present and defend a *Complex Theory of Hope*. The theory maintains that hope is a psychological state that emerges from the complex interaction between related cognitive, conative, and affective elements. Rather than trying to identify hope with any set of such elements, as recent philosophical accounts of hope often do, the Complex Theory considers hope a state that crucially depends on the *structure* and the *relations* between the beliefs and desires that give rise to it, and not merely on their presence. This is why people who have the same beliefs and desires about a certain outcome might exhibit different hope-related attitudes. The resulting view of hope is that of a positive attitude towards future events that is grounded on the combined effects of states such as being able to imagine success in one's goals, conceiving of pathways to success, and maintaining confidence in one's agency.

The following section will give a sketch of the different strategies that philosophers and psychologists have employed in providing a definition of hope and will highlight some of their limitations. Section Three will present the Complex Theory of Hope, which provides a general framework for combining the different attributes of hope brought up in philosophical and psychological literature. The last section will examine how the Complex Theory of Hope can avoid some shortcoming of previous theories and will draw practical lessons regarding hope's assessment and enhancement.

Recent Accounts of Hope

Hope has historically been treated by philosophers ranging from Aristotle and Aquinas to Descartes and Hume as an emotion along desire, joy, and fear (Cartwright 2004, Day 1969). During the twentieth century, philosophical and psychological accounts of hope have mainly focused on the evaluative cognitive aspects of hope, in providing a definition of the phenomenon. J. P. Day (1969, 89) provides a paradigmatic definition of hope (henceforth the *Standard Theory*) that has been used for the better part of the twentieth century: "'A hopes that P' is true if and only if 'A wishes that P, and A thinks that P has some degree of probability, however small' is true." Robert Downie (1963, 249) expresses a similar thought, when he tries to establish a set of necessary conditions for hope: "The criteria for 'hope that' - which I shall call the minimum conditions, for all genuine hope - are desire for the object of hope and belief that its attainment lies within a range of probabilities which includes what we ordinarily call improbable."

While intuitively part of our common sense understanding of hope, the minimal conditions presented by Day and Downie are rather loose, allowing attitudes different from hope, such as expectation, to count as hope, and, in some cases, even failing to distinguish hope from opposing states, such as despair

(Meirav 2009, Kwong 2019, Palmqvist 2021). Numerous examples in the hope literature show that the Standard Theory fails to provide sufficient conditions for hope. Moreover, the Standard Theory seems to leave out many features of hope that are paradigmatic or representative of hope, even if they do not appear in every case of hope and, therefore, do not constitute necessary conditions. To address and rectify these shortcomings, philosophers have often employed a strategy of *augmenting* the Standard Theory (Chignell 2022). This usually consists in adding further characteristics of hope and in specifying the kinds of desires that are involved in hope, the beliefs that accompany hope, or the objects that hope is directed towards.

Much of the philosophical literature on hope contains an ever-increasing list of hope's cognitive, conative, and affective aspects. Features of hope that have been presented in philosophical literature include, among others: the cognitive resolve to pursue a course of action leading to the desired outcome (Petit 2004); evaluating factors that go beyond the hoped for prospect (Meirav 2009); "seconding" one's commitments and sustaining practical pursuits (Martin 2013, 84); mental activities, such as imaging and fantasising about the desired outcome (Bovens 1999; Walker 2006, ch. 2; McGeer 2004); being able to envision some pathways in which the desire outcome can come about (Kwong 2017); "a phenomenological idea of the determinate future whose content includes success" (Calhoun 2018, 86). All these augmentations point towards the same direction: the Standard Theory that sought to define hope through a restricted set of necessary conditions does not account for the complexity of hope and does not explain why hope can be beneficial and desirable, especially in cases of hardship and doubt.

In general, the augmentations of the Standard Theory aim at two goals. The first is to address the problem of correctly identifying cases that intuitively qualify as hopeful, and to resolve some of the counterexamples to the early orthodox definitions; the second is to explain what makes hope special and different from other similar attitudes. The different features of hope-related attitudes that the various augmentations of the Standard Theory propose seem to be prima facie plausible and largely compatible with one another (Webb 2007). So, in principle, there is no reason why we could not adopt multiple augmentations of the Standard Theory. In fact, some of the theories, such as the incorporation model adopted by Martin 2013, seem to do exactly that. Accounts such as Calhoun's description of hope as a rather loosely defined phenomenological idea about one's future could also encompass multiple features of more specific augmentations of the Standard Theory. Such looseness seems to reflect common self-ascriptions of hope. For example, hopeful people sometimes report being able to envision pathways to success, or a high level of resolve in pursuing it. But this is not always the case, especially when success involves a lot of external factors.

Psychological studies have also expanded their emphasis from the simple measurement of hope-related beliefs and desires of the Standard Theory to other equally important, and in some cases more representative, aspects of hope, such as the perception of agency and available pathways to success, the ability to

envision a successful future, positive readiness and expectancy, and the ability to give meaning to one's continued existence (Pleeging 2022). As these studies show, the variance in hopeful and hopeless attitudes is not only, or even primarily, due to the canonical belief and desire couplet of the Standard Theory, but due to other factors that include a sense of agency and control and the ability to envision a successful outcome and pathways through which it can be achieved.

Despite its improvements, the augmentation approach is not without challenges and causes for concern. One evident pitfall has to do with features that might appear in some instances of hope but do not seem to be necessary, or even characteristic, conditions of hope.[1] A more concerning complaint against the augmenting strategy has to do with the strategy in general, rather than any particular augmentation. The worry is that augmenting the Standard Theory complicates the picture unnecessarily, by adopting a piecemeal process that can balloon if we are to respond to counterexamples by adding new features, every time we need to make a distinction between different hope-related attitudes.

This leads to a new challenge for the augmentation strategy. Since the features of hope in the literature are often compatible with each other and seem to reveal salient aspects of the phenomenological experience of hope, it would seem reasonable to combine the different augmenting theories. But how are we to do so? The two most straight-forward ways, conjunctively or disjunctively, seem both problematic. If we were to try and combine the amplifications of the Standard Theory conjunctively, we would run the risk of making the analysis of hope susceptible to counterexamples, since not all cases of hope demonstrate the various features of the augmenting accounts. If we were to join them disjunctively, we would lose the explanatory character of the proposed description of hope. In this case, it is not clear why attitudes that share different features, such as showing cognitive resolve or being able to fantasize about the desired outcome, belong under the same description of being instances of hope.

An alternative approach adopted by recent philosophical work on hope goes in the opposite direction and tries to *revise* the Standard Theory by clarifying the kinds of beliefs and desires that constitute hope. This sometimes involves a further specification of the belief that a desired outcome is possible, for example by viewing it as a "live possibility" that passes a certain threshold (Palmqvist 2021), or a reworking of the connection between hopeful beliefs and desires, for example the idea that one can only experience hope if their desire for something is "directly causally influenced by the belief that fulfilling the desire still possible" (Milona 2019, 715).

[1]For example, the requirement that hope involve the belief that the desired outcome is improbable, even though possible (Miceli and Castelfranchi 2010) and the requirement that hope be accompanied by the belief that the outcome is to some extent dependent on factors outside one's control (McGeer 2004) seem unduly restrictive. Something similar can be seen in more recent psychology research on hope. Rustøen 2018 suggests that many factors used to evaluate and measure hopeful attitudes in the earlier Herth Hope Index can be left out without statistically affecting the results. Pleeging 2022 goes further by validating shorter versions of *four* hope instruments, leaving out a whole set of features that presumably relate to hopeful attitudes.

Revisionist accounts manage to address some of the most obvious counterexamples to the Standard Theory. But this is not always the case.[2] More importantly, it is often hard to see what separates cases of hope and despair without introducing some extra feature of their psychological state. Why would someone who assigns the same probability to an equally desired outcome with a hopeful person, fail to see the outcome as a live probability, as Palmqvist 2021 requires, or fail to causally link his desire with the belief about the outcome's probability, as Milona 2019 wants? If we try to give an answer based on their cognitive and emotional state, then we should include these further features to the description of hope. But then we would end up with yet another augmentation of the Standard Theory.

The increasing amount of psychological research and philosophical analysis seeking to either augment or revise the original Standard Theory only helps to reinforce the idea that hope is a complex phenomenon that resists any set of necessary and sufficient conditions. This has led some to *abandon* the Standard Theory and the pursuit of defining hope more generally, and to settle instead for a functional account of hope and a description of hope as a primitive/irreducible mental state and of its particular instances as cases that share a family resemblance (Segal and Textor 2015, Blöser 2018). There are two principal motivations behind holding such a position. The first is the idea that hope has some suis generis motivational force, and perhaps some other distinctive feature that cannot be captured by any account that compiles mental states such as beliefs, desires, etc. (Segal and Textor 2015). The second is the claim that there can be no necessary conditions for hope, even those of the Standard Theory, since we can always come up with examples that intuitively constitute hope yet are not instances of desiring an outcome or believing it has a chance of coming about (Blöser 2018).

Much of the appeal of such irreducible theories of hope depends on how broadly or narrowly we understand the constituent features of hope in the various amplifications or revisions of the Standard Theory. Blöser 2018, for example, agrees that cases of hope typically involve a pro-attitude, but maintains that this pro-attitude is different than desire, although it can guide action and dispose one towards certain events, just like desire. But, if that is the case, then all we need is to present the more general pro-attitude as a constituent of hope, resulting in another revised version of the Standard Theory. Similarly, with beliefs: one may hope for something without having any beliefs about its probability, or even its possibility. But, in such cases, there must be some *implied* belief about the outcome. It would be odd if someone who hopes for something without thinking much about it (say, he hopes that Roger Federer wins at Wimbledon this year) continues to do so once they have considered the related facts (Roger Federer's retirement from tennis a few years ago) and has concluded that the outcome is impossible. In that case, again, all we need is to understand the Standard Theory broadly enough to include both conscious and implied beliefs.

[2]For example, Chignell 2022 offers some counterexamples to Milona 2019, which echo an objection raised by Calhoun 2018, 84.

The radical strategy of abandoning the Standard Theory places a significant challenge to the goal of providing necessary or sufficient conditions for hope. But, even if we were to accept that *any* feature of hope, even the two central conditions of the Standard Theory, may not be present in some (probably marginal) cases of hope, this does not mean that hope is an irreducible and primitive mental state. If that were the case, then people who experience hope would be unable to describe and justify it, as is the case with other primitive states, such as having the experience of color. But this is not what usually happens. Even if there is no single necessary feature of hope that covers every instance of hope, there certainly are some core characteristics that usually accompany it and that separate it from other states, even those closely linked to hope, such as expectation or wishful thinking. Moreover, these features must have some common ground, otherwise they would just be an arbitrary and haphazard collection. The challenge is to *find the connecting link* between the features presented by the various augmentations and revisions of the Standard Theory. This will be the task of the next section.

The Complex Theory of Hope

The Complex Theory of Hope that this section will present is an expansion *and* a revision of the Standard Theory. Despite its inadequacies, the Standard Theory can provide a starting point for a theory of hope. The reason is that it captures some important intuitive ideas about hope, broadly construed along a cognitive and a conative axis (Chignell 2022). What the Standard Theory and its augmentations and revisions are unable to provide is a definite set of necessary and sufficient conditions for hope. But there is no need for that. We should not expect a psychological state with such a wide range of targets, related attitudes, and resulting actions to be reduced to necessary and/or sufficient conditions.

It is clear that we need to add more elements to the Standard Theory as originally proposed. Hope involves more than just a desire and a belief, and usually more than desires and beliefs.[3] Exactly how much more needs to be added varies significantly from case to case. More importantly, the number of hope-related cognitive and conative states is only *one* of the conditions for hope. In addition, such states often *relate* to each other, in a way that provides mutual grounding. For example, beliefs about the probability of a desired outcome can be grounded on the ability to conceive possible pathways to success or to envision future states. Common intuition as well as research reports on hope suggest that people are generally able to express and analyze their hopes, and to describe how they feel and why, by connecting their hopeful attitudes with

[3]The definition of hope in terms of beliefs and desires is, to some extent, a product of a particularly philosophical point of view. Psychologists and most non-philosophers do not typically group their mental processes and states in terms of beliefs and desires. On the other hand, many of the non-belief or non-desire additional features of hope, such as envisioning pathways or looking at the future in a certain way can be associated with relevant beliefs and desires, even if they are not reduced to them.

specific beliefs and desires. At the same time, people usually offer a variety of factors and causes for their hope-related attitudes, from the assessment of probabilities, to feelings of self-confidence and trust, to the existence of available pathways to success. Hope, in this sense, seems to be "multi-dimensional" (Rustøen 2018).

The Complex Theory of Hope maintains that hope is a psychological state that emerges from a complex system of interacting components that can be arranged along cognitive, conative, and affective axes. This means that hope *cannot be reduced* to any set of beliefs, desires, or mental images that the various augmentations of the Standard Theory have proposed. It rather *emerges* from the complex system created by these components. Looking at hope as a state that emerges from a complex system makes it possible to separate hope from other hope-like states, such as optimism or wishful thinking, which often focus on a single aspect of our attitude towards an event, such as the probability of its coming about, in the case of optimism, or our desire for it, in the case of wishful thinking. It also allows us to attach to hope certain aspects that seem characteristic of hope, yet cannot be identified with a belief, desire, or affect. Two such characteristics are hope's a dispositional aspect, its being a "way of looking at the future", and its motivational effect – the fact that one's hopes often motivate them to pursue a course of action or to experience certain emotions.

Some accounts of hope, such as those in Martin 2013 and Calhoun 2018, present hope as something that cannot be defined in terms of beliefs and desires alone. The Complex Theory follows a similar idea of hope as a way of looking at the future and of coordinating one's plans. Such a functionalist perspective also fits character traits (e.g., kindness, honesty), which emerge from a complex system of beliefs, desires, and other related psychological states and govern our behavior. A conception of hope as something that emerges from the interactions of cognitive, conative, and affective components arranged in a complex system can supplement accounts such as those of Martin and Calhoun and allow for a better quantitative analysis of hope.

The important claim, for the Complex Theory, is that, as an emerging property of a complex system, hope is more than the sum of its parts. This is evident when we examine people that share the same beliefs and desires yet exhibit different attitudes because of the different ways in which their beliefs and desires relate to one another. According to the Complex Theory, hope is not just one or more beliefs plus one or more desires, images of success and pathways to it. But hope is not separate from the complex system of cognitive and conative elements that give rise to it, either. Rather, it is a property of *the whole complex system* and cannot be identified with any subgroup of components. Thinking of hope in terms of complex systems can help us analyze it more accurately than the mono-dimensional accounts that many augmentations of the Standard Theory adopt. It also corresponds more closely to how people describe and justify their hopes, especially in times of crisis.

The wide range of systems that exhibit complexity make it practically impossible to give a single definition of complexity that covers all cases. Yet some features of complexity seem central to it and appear in the most

representative examples of complex systems, especially those of the social sciences, such as social groups (e.g., political parties) and economic structures (e.g., the financial system). These include, among others: *numerosity* (the existence of multiple components/parts that make up a system); a *structure* that is not imposed externally but comes out of the *interaction* between the component parts; *feedback* loops that occur as the parts of the system interact with each other, leading to changes of the parts that occur within the system, and often the *emergence* of a new arrangement (Ladyman and Wiesner 2020).

By drawing a parallel with these complex systems, we can reveal some prominent features of hope. These include:

a. *Numerosity*: hope includes multiple components, such as beliefs, desires, and mental images of future events.
b. *Structure*: some of hope's components can be grouped together based on their similarities (e.g., beliefs related to probabilities, or beliefs related to pathways and their conditions); also, some components are central features of hope (e.g., being future-oriented), while others are peripheral.
c. *Interaction and feedback*: changes in one component (e.g., envisioning available pathways to success) can affect other components (e.g., beliefs about the probability of success); often this involves feedback loops within the hope-structure.

According to the Complex Theory, these features are indispensable to hope, even if there are variations to the degree in which they stand out, depending on each case.

Numerosity

The Complex Theory maintains that there are more components to hope than the two conditions established by the Standard Theory. It also claims that hope cannot be separated from the beliefs, desires, and other cognitive and affective states that give rise to it. The arguments for both positions were presented in the previous section. There is no reason to try and limit the number of components of hope. Also, admitting one aspect does not require that we abandon any other. For example, we can include both seeing the outcome and a genuine possibility (Kwong 2019) and being disposed to focus on the outcome in a certain way (Chignell 2022) as aspects of hope. This does not mean that all components of hope that have been proposed by different philosophers in their augmentations of the Standard Theory are equally plausible, or equally paradigmatic of hope. Intuitively, some components are more central and ubiquitous (for example, a desire for what is hoped for).[4] But trying to rank every aspect of hope with respect to its significance and centrality would be a demanding and contentious task. What would suffice, at this point, is the general picture of hope as a complex

[4]This is not to suggest that such a desire is a *necessary* condition for hope though. See Chignell 2022, 9, who offers a counterexample to the idea that all hopes imply that we desire the object of our hope. More such counterexamples can be easily created, even if they rarely occur.

state that contains a number of factors, some of which are more central and common, although none of them is prima facie necessary, especially if we are to include marginal or hypothetical cases of hope that serve as counterexamples in the philosophical literature.

The conception of hope as a psychological state that emerges from a system of multiple cognitive, conative, and affective components, has the advantage of allowing for distinctions between hope and other similar attitudes, such as expectation and wishful thinking. One way to make such distinctions is by adding to the complex system that gives rise to hope elements that do not appear in other hope-adjacent attitudes. For example, we can require that hope involves the belief that a desired outcome is unlikely (to exclude expectation), but still achievable (to exclude wishful thinking). This method appears intuitively plausible and can also be used to distinguish between different kinds of hope (Kwong 2020, Webb 2007, McGeer 2004). But the addition of new components every time we want to make a distinction between hope-related attitudes can also appear ad hoc and might introduce elements of hope that are not representative of its occurrences. A better way to distinguish hope from other relevant psychological states is by looking at the *structure* of the complex system of beliefs, desires, and related mental states from which hope emerges.

Structure

The idea that hope is a complex state that emerges from the *structure* and *interaction* between different cognitive, volitional, and affective elements can be best seen when comparing cases of people with the same beliefs, desires, and other related states regarding a certain outcome, who nevertheless develop different hope-related attitudes. Two patients might assign the same probability to their recovery, be aware of the same pathways to recovery, and even harbor similar mental images of their recovery. Yet, one of them might fail to connect these elements in the right way, leading to a state of despair, while the other hopes, due to her linking the same probabilities and pathways to the images of success.

Similarly, two patients might share the same belief that recovery is possible and might even make plans for their life after recovery. Yet, one of the two may base their optimistic outlook on a strong religious belief, with the thought that God always looks after him. In this case, his state is one of *faith*, rather than one of hope – quite literally, he states that he has "faith in his recovery." Similarly, the person who has no base for their belief that things will turn out well (even if probability-based beliefs are available) might be merely thinking wishfully. The patient who bases her plans for life after recovery on the probability of success, and the existence of the relevant pathways, on the other hand, can describe her situation as one of hope, a state different from wishful thinking, and from faith.

In many cases, the structure of hope's elements is based on providing grounds for one another. For example, a hopeful person might entertain images of success based on her consideration of multiple possible pathways, which is in turn based on the thought that success is not impossible, and on the belief that

the situation is not out of one's hands. There may be some other interactions between hope's elements, involving dispositional effects or cognitive presuppositions. Strong desires can incline one to consider the relevant probabilities in a different light. Also, the ability to imagine the future in a certain way can depend on the conceptual range that is available; reading about medical advancements in prosthetics might widen the kinds of future an amputee can envision, which is the basis for their hope. The important claim, from the Complex Theory perspective, is to acknowledge that the relations among the different elements of hope lead to their structuring and to hope's emergence.

One important aspect of these structuring relations among the constituents of hope becomes evident when we examine the link between hope, agency, and action, which is crucial for the practical goal in promoting hope. Adrienne Martin's incorporation model points in this direction. According to Martin, hope can be seen as a syndrome where certain considerations that belong to it become parts of a *justificatory rationale*, which, in turn, factors into our rational agency or scheme of end (Martin 2013, 47). In some of the examples Martin uses, such as her *Cancer Research* example (Martin 2013, 28), people who hold the same beliefs and desires might act differently if these relate to one another in different ways, resulting in what Martin considers different kinds of hope. Not all the connections between the different elements of Martin's "hope syndrome" are necessarily conscious. In fact, they are often subconscious, especially in cases where someone experiences a recalcitrant hope-against-hope that contradicts their assessment of the probability of a desired outcome. In such cases, hope might arise due to a connection between desires or commitments that are part of someone's subconscious psychological framework and of their attitude towards the future.

Interaction and feedback

Hope's complex structure is based as much on the components that give rise to hope, as on the relations between them. These relations are often dynamic and evolving, leading to loops that enhance or diminish one's hopeful attitude. For example, a cancer patient's hearing about some new antibody-based cancer treatment can lead to forming new pathways to success, even if the treatment is developed for a different kind of cancer and does not have a direct effect on the patient's belief about their chances of recovery. These added pathways can change the beliefs about the probability of remission, or the hope threshold, i.e., the probability that the patient considers to be hope-warranting. The change does not even have to be one where the patient's beliefs are revised. Maybe all that needs to change is the patient's focus (Chignell 2022). On the other hand, the assessment of one's current situation might lead to the abandonment of hope without any revision of future-directed beliefs and desires. A cancer patient may give up hope after having a few days of extreme pain, or after receiving little encouragement from doctors and family for a while. In response to these events, the patient may come to think that there are no reasons for hoping, even if she

has not given any thought to her chances of recovery (as a matter of fact, doing that would reveal that they have remained unchanged).

The interactions between the components of the hope structure often reinforce one's attitude by creating loops that feed into one another. Envisioning some pathways to success can lead to strengthening the belief that the desired outcome might come about, which leads to having images of success, which opens the possibility for further pathways, and so on. These loops are crucial in practical cases that aim at fostering a hopeful attitude under medical challenges or adverse psychological conditions, such as depression (which themselves often tend to exhibit such loops and cascading sequences). The paradigmatic cases of hoping against all hopes also usually involve such loops, which circumvent any evidence that would normally lead to hope's abandonment. The terminally ill patient may refuse to give up hope, not because she holds the belief that recovery is probable, or even possible. Rather, she may have looped some peripheral beliefs (for example, the belief that she is "in good hands," meaning either the doctors or God), with images about the future (after all, being in good hands can function as grounds for being hopeful about the future), leaving aside the assessment of the probability of recovery. A lot of these interactions occur subconsciously, or automatically. So, while hope can incorporate different elements in an action-oriented and deliberate set of mental states, much of the work is done by internal interactions among different hope-related mental states that occur without the agent realizing it.

The internal changes that occur as part of the interactions among the components of the hope structure can also explain some of the findings in the various measurements of hope in the psychology literature. These studies try to correlate a self-assessment of hopefulness with some preselected components that report an agent's sense of agency, their ability to find pathways to success, their self-confidence, or their spirituality (Pleeging 2022). This is a rather static picture of one's hope-related attitudes that does not take into account the possible interactions among these factors. Spirituality and religious beliefs are a good example here. While some studies find a correlation between spirituality and hopeful attitudes (Scioli 2011), it is hard to see how religious beliefs link to pathways or to a sense of agency – in fact, they seem to detract from it, since religious people often tend to downplay their agency in favor of the idea that what happens to them is part of a divine plan. So, while spirituality might seem to be a good indicator of hopeful attitudes (after all, thinking that God is looking after me can make me more hopeful), it turns out to be a rather isolated and not very useful factor. In fact, some research proposes that religious and spiritual attitudes do not have a statistical effect on the assessment of hope (Rustøen 2018). In general, the lists and correlations that appear in psychological studies of hope tell us a story, but it is only a partial story that should be expanded by looking at the internal interactions among the different components of hope.

Summing up, the Complex Theory of Hope maintains that hope is a complex state that emerges from multiple cognitive, conative, and emotive elements interacting with one another, and forming a structure. Where the Standard Theory, in its various expansions and revisions, tries to give some necessary and

sufficient conditions for hope, the Complex Theory, as it has been presented, focuses on the relationship between the different components that make up hope, rather than merely providing a specific list of hope's constituents.

The Complex Theory of Hope in Practice

The proposed account of hope has a two-fold advantage. On the one hand, it can provide a solution to many of the problem cases that the philosophical literature on hope has raised. On the other, it can guide psychologists in assessing the hope-related attitudes of people under challenging circumstances and provide some insights into how hope can be maintained and enhanced.

Much of the philosophical literature on hope, starting with the criticism of the Standard Theory, is based on hypothetical and actual counterexamples where someone finds themselves in a situation that fits a proposed definition of hope, yet does not hope (Meirav 2009, Kwong 2019, Palmqvist 2021, Martin 2013, 16). An oft cited example of the former is the case of Andy and Red, from the movie *Shawshank Redemption* (Bovens 1999, Meirav 2009). In the film, Andy and Red are two prisoners who both desire to escape and both believe that doing so is unlikely but not impossible. Yet Andy hopes of escaping while Red despairs. More generally, in many real-life situations, from the WWI trench soldiers in Palmqvist 2021, to cancer patients in Martin 2013, two people might share the same beliefs about the probability of a certain outcome and desire for it coming about yet develop different hope-related attitudes. How is this possible?

The most likely reason for such an occurrence, the advocates of the augmenting strategy would maintain, is that hope involves more than the two elements of the original Standard Theory. For example, Palmqvist 2021 suggests that, while Red has the same belief about the probability of escape as Andy, he does not view escape as a "live possibility" because he has a higher probability threshold for warranting a hopeful attitude. Any probability below 2%, for example, might be a reason for despair for someone like Red but not for someone like Andy. Alternatively, Kwong 2019 claims that Red might be unable to envision possible pathways to success, although he harbors the same desire to escape. A similar strategy can be adopted in line with any of the proposed augmentations of the Standard Theory. Many of these augmentations are plausible responses, but they only partially answer the challenge. After all, we can create counterexamples where Andy and Red also share the same hope-warranting probability threshold, and even the ability to envision pathways to success (for example, Andy could have discussed a possible escape plan with Red). In that case, one would have to add yet another feature of hope, in order to distinguish between Red's and Andy's hope-related attitudes, leading to a possible regress.

The Complex Theory of Hope adopts a different strategy than augmentation. According to it, what prevents Red from hoping is not necessarily that he lacks a belief, desire, or envisioned pathway. Instead, he might lack the required

connection between his relevant states and any *interaction* between them. In this case, Red might fail to see the escape plan as a pathway to freedom, or to connect the weaknesses of the prison security with his beliefs about the possibility of pulling off the escape. Andy, on the other hand, who has the same beliefs, desires, and envisioned pathway, connects them in a way that creates an attitude of hope. The Complex Theory suggests that we do not need to posit a new requirement for hope, in order to accommodate cases such as *Shawshank Redemption*. Instead, we can focus on the structure and connections of the components of the complex system that hope emerges from, in order to make the necessary distinctions between different hope-related attitudes, such as those of Red and Andy.

A similar strategy can be employed when looking at real life cases, such as incurable disease or permanent disability, where people maintain hope under circumstances that do not warrant it (what Martin 2013 calls "recalcitrant hope"), and cases where people abandon hope, without any seeming change in their beliefs about a desirable outcome, or their envisioned pathways to attaining it. Such medical cases often provide the background for psychological research on hope (Groopman 2004; Rizzo 1999; Katsaros 2014). Usually, researchers provide a list of factors whose relation to hope is to be investigated and see how these factors correlate statistically with patients' self-assessments of hopefulness. Unlike philosophers, psychologists are not primarily concerned with the definition of hope. This explains why they usually do not ask their research participants how they understand hope, when making a self-assessment of their hopefulness. But, despite the obvious variations in the different psychological descriptions of hope (Webb 2007), there seem to be some common ideas that correspond to the central features of the Complex Theory.

A common assumption among researchers is that hope is affected by a large number of factors (usually more than a dozen) that span over different aspects of human emotions, cognitive functions, and behavior (Pleeging 2022). By looking at the correlation of these factors to hope's self-assessment, two kinds of conclusions can be drawn. On the one hand, as one would expect, some factors, such as being able to envision pathways to success and positively accessing the possibility of success, have a higher correlation with self-assessments of hope and could be seen as core features of hope (Rustøen 2018), even if they do not always correlate in the same way across different conditions (Pleeging 2022 mentions some such variations). This is something that the Complex Theory of Hope also posits, due to the fact that complex systems exhibit a structure, with some elements being core and some peripheral.

In addition, some factors and their corresponding levels of correlation with hope tend to be grouped in broader categories. Examples of such categories include evaluations of one's sense of agency, the ability to envision possible pathways to success, the capacity to set goals, and one's level of determination (Snyder 1991, Herth 1992, Scioli 2011). This grouping of factors is compatible with the idea that hope emerges from a complex system of doxastic, desiderative, and affective states. Such systems exhibit a structure that allows the different components to interact with each other. For example, beliefs about one's agency

clearly depend on each other. People who think that they are able to respond to challenges without requiring external help, usually also tend to believe that they are competent and independent and attach moral value to facing one's problems and not groveling about them. A person with a high sense of agency in a challenging situation, such as serious illness, might remain hopeful exactly because she considers herself to be an independent and competent person who is up to a challenge. In fact, this self-assessment is inseparable from the hopeful attitude. To hope, in this circumstance, is to view herself as up to the challenge.

One aspect of hope that is less apparent in psychological research has to do with the interaction between the different components of hope. Such interactions and loopbacks are common to complex systems and intuitively appear to affect one's hope-related attitudes. For example, the pathways a patient is able to envision are affected by their sense of agency and independence. A deteriorating disability does not only decrease one's range of actions, but also their imagined pathways to overcoming their condition, and the estimated probabilities of doing so. The important point, as the Complex Theory indicates, is that such changes do not require any conscious reassessment of the possible pathways, or a reevaluation of the recovery probability. Changes can be fully internal and may come about through the interaction between the different components of hope's complex system. In fact, it would be a mistake to think that any factor affects hope independently.

The complex character of hope indicates that it is not enough to merely check for independent correlations between different factors and the self-assessment of hope. In addition, one should examine the *relationship* between the factors themselves. For example, one should check whether high scores in a factor, such as the sense of agency and self-reliance, correspond with high scores in another factor, such as imagined pathways or the assessment of probabilities. Furthermore, the possible interactions between different hope-related factors can be examined by structuring the interviews so that they have a priming effect. For example, the subjects could be asked about their assessment of success probabilities either before or after they are asked to reflect on their sense of agency, or to envision different pathways to success. Going through such mental imaging, the Complex Theory suggests, can affect one's assessment of probabilities. To what extent this is the case, can be statistically examined.

Apart from providing guidelines for improving the measurement of hope, the Complex Theory can also be used to provide practical strategies for enhancing hope, especially in precarious cases. There is ample evidence that hope can not only improve people's lives but also help them overcome personal challenges. On the other hand, it is often important to avoid unwarranted optimism and false hope, which can lead to behavior that ignores the existing dangers and ultimately worsens one's situation. Diagnoses of disease with a very low survival rate are such an example (McMillan 2014). While doctors do not want their patients to despair, they also do not want to give false hopes that might lead to a patient foregoing some necessary preparations for their likely death. Hope, in these cases, should not be based on withholding information and on

trying to alter the patient's beliefs about the severity of their situation or the lack of pathways to success.

The Complex Theory of Hope can offer some insights into how hope can be enhanced in such cases. This can be achieved through the interaction among hope's components and through the feedback loops that these components form. These feedback loops can be exploited in practical attempts to increase hopefulness and its related attributes, such as a sense of agency and meaningfulness. For example, in cases that crucially depend in the fine balance between avoiding unreasonable expectations and promoting a sense of meaning in one's life, hope can be promoted by strengthening the feedback loops between some pre-existing hope-related attributes (e.g., images of a meaningful future and a sense of agency) and by channeling those in the right direction, away from a naïve denial of the patient's predicament and towards the goal of coming to terms with the prospect of death.

Similar to other complex systems, hope is often unpredictable and sometimes mysterious. We can find it in people that face insurmountable challenges and overwhelming odds, to the point that it sometimes defies rational justification. This might seem frustrating for someone who wants to give a crisp definition of hope, preferably furnished with a set of necessary and sufficient conditions. But, far from being a troubling peculiarity, hope's complexity is a valuable and essential feature that adds to its value and that should be taken into account when we attempt to describe hope's nature and to promote its positive effects.

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