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# The Numerous Forms of Occam's Razor and their Effect on Philosophy of Mind

Mikayla L. O'Neal  
*Claremont McKenna College*

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Claremont McKenna College

**The Numerous Forms of Occam's Razor and their Effect on Philosophy of Mind**

submitted to  
Professor Amy Kind

by  
Mikayla O'Neal

for  
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## **Chapter 1: An Overview on Occam's Razor**

Consider a case where we appear to favor simplicity. Imagine you are purchasing a new laptop and are deciding between two different but functionally equivalent machines. One of these machines contains significantly fewer internal pieces, yet the two machines remain functionally equivalent. Intuitively, it seems that I (and hopefully you as well) am drawn to the computer with fewer parts, but I am tempted to question why this is. Maybe we prefer the simpler machine because we believe it will run better. But what if we could guarantee that it runs at the same capacity as the machine with more parts? Maybe we would then prefer the simpler machine because we believe it would serve us better in some practical purpose, such as it being lighter or easier to manage. But let's suppose we could guarantee that the machines are equal in this practical aspect as well. Do we still have a reason to prefer the simpler machine just because it is simpler? In more general terms, is there a reason why we appreciate simplicity qua simplicity? Moreover, when are we able to introduce this principle of simplicity in our decision-making, is it only a principle that is supposed to be considered in the event of a tie or does it have a more proactive role? Many questions arise when I consider our fixation with simplicity, and how this may or may not impact simplicity as a serious parameter in deciding between competing theories. If we are to consider this parameter as a serious principle that holds significant weight in fields like science, economics, and philosophy we must get a deeper grasp on the principle itself and why it is we cling to simplicity.

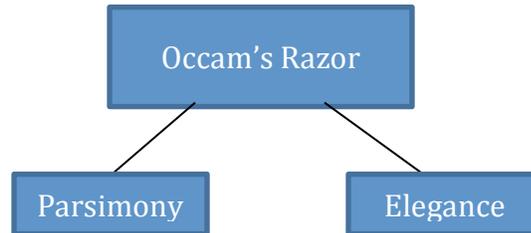
Occam's Razor, named after William of Ockham, originated as a maxim used against the theological writings of the Sentence of Peter Lombard and condemned the positing of extra entities beyond necessity (Evans). Ockham's original notion of

simplicity was stated in the context of his philosophical writings, and critiqued positing extra entities without necessary justification. The present and most general form of Occam's Razor is the preference of a simpler theory over a competing theory when the two theories have equal explanatory power. Two theories have equal explanatory power when both theories explain a certain phenomena to the same degree. Therefore, when Occam's Razor is applied, the simpler theory should be preferred if the two theories have equal explanation about a given phenomena.

The principle of Occam's Razor mainly diverges into two separate categories, Syntactic simplicity and Ontological simplicity. Syntactic simplicity, also referred to as Elegance, measures the number and the concision of theories' hypotheses. Ontological simplicity, also known as Parsimony, measures the number and complexity of types of entities that are postulated by a theory (Baker). This main divergence of Occam's Razor is illustrated below this paragraph on Chart A. In order to properly implement Occam's Razor, the implementer must assert which type of simplicity they are employing, and explain the relevance of that category to the competing theories. In the first chapter of this paper I will introduce the different interpretations of Occam's Razor generally, and establish terms to distinguish each interpretation. I will additionally critically discuss how each of these interpretations behaves and how they may differ in their preferences of one theory being simpler than another. I will then dedicate my second chapter on the implementation of these different forms of Occam's Razor in philosophy of mind, and discuss whether Occam's Razor as a whole is valid in this context. In my conclusion, I will reflect on the first two chapters and conclude that my illumination of the many forms

of Occam's Razor disserves the principle as a whole, and hinders its ability to actually provide proper inclination towards favoring the most accurate theory.

Chart A illustrates the two overarching categories of Occam's Razor: Parsimony and Elegance



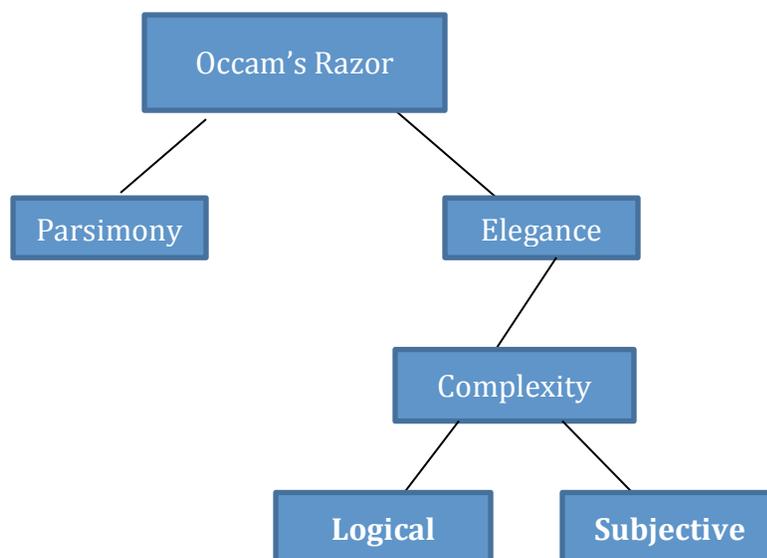
### **I. Elegance Further Explained**

Elegance focuses on how complex and numerous the premises of a theory are. In other words, the simpler theory is the one with less numerous or less complex premises than its competitor, and should therefore be selected based on its Syntactic simplicity. Elegance's implementation seems fairly straightforward if the only difference between two theories (A and B) is that theory B has one extra premise. Because theory B adds a premise without adding explanatory power, we should prefer theory A for the sake of Elegance. While this example easily illustrates how one theory is more elegant than another, we will later encounter more difficult cases of implementations where a tension between the quantity of premises and the complexity of premises arises.

In addition to the considerations of quantity of premises and complexity of premises in Elegance, there are two separate implementations of complexity. In his paper "The Failings of Dualism and the Double-Aspect Theory", Christopher Hill asserts that complexity refers to the logical complexity of premises, and their corresponding probabilities (Hill 31). In this paper I will refer to Hill's explanation of complexity as "Logical Simplicity" and further discuss its implementation in reference to the philosophy of mind discussion introduced in the second chapter. The other interpretation

of complexity I will focus on is dependent upon our understanding of competing theories. If one theory intuitively seems more complex or complicated than another, we can deem it the more complex theory. In this way something is complex because it is harder for us to grasp than the competing theory. Because of its dependency on our subjective understanding of competing theories I will refer to this version of complexity as “Subjective Simplicity”.

Chart B illustrates the further categorization of Elegance discussed with particular attention on the two forms of Complexity



A famous implementation of Subjective Simplicity is illustrated in Copernicus's justification for a heliocentric theory of planetary motion. Copernicus's explanation for how planets orbit was regarded as a subjectively simpler theory than the geocentric theory asserted by Ptolemy because Copernicus' theory explained planetary motion through a much simpler explanation than Ptolemy. For clarity I will refer to Copernicus's theory as T1A and Ptolemy's hypotheses as T2A.

T1A: The universe is formed heliocentrically, with all planets orbiting in roughly circular motions around the sun at roughly the same speed and direction (Rosen)

T2A: The universe is formed geocentrically, with the earth as the stable center, and the sun, moon, and planets orbiting in their own circular paths (orbit 1) and additional circular orbits (orbit 2) around the earth with different speeds and directions (Rosen)

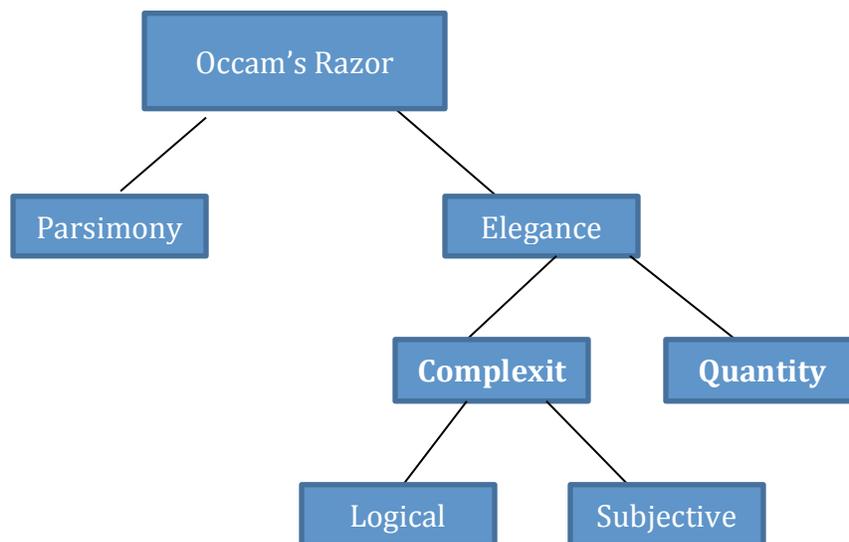
In this case, T1A appears simpler because it explains the planets behaving in a simpler way than the planet's epicycles that Ptolemy predicted orbited the earth. Instead of moving in two separate orbits with separate speeds and directions, as T2A requires, T1A explains the universe in a way that only requires one type of universal motion from all of the planets. The sole explanation of the orbit of planets in T1A seems more subjectively comprehensible than T2A because it does not require multiple explanations of movement and direction. The fact that T2A requires an individual to understand multiple orbits, speeds, and directions makes it a more complicated theory to understand. T1A is simpler because it is an easier theory for us to grasp, making it a template for Subjective Simplicity. While Copernicus' T1A appears to be subjectively simpler, it is important to discuss T1A and T2A from a Logical Simplicity standpoint to develop the difference between the two forms of complexity.

Before discussing the use of Logical Simplicity in this example, it is important to note that Logical Simplicity is dependent upon the probabilities of the premises of each theory. Therefore, to claim that one theory is logically simpler than another, the implementer must assert the likelihoods of truth for each theory's premises. If one were to substitute Logical Simplicity into the evaluation of Ptolemy and Copernicus's theories,

it does not seem that Copernicus would be able to claim that his hypothesis is logically simpler than Ptolemy's purely based on probability. Logical Simplicity is difficult to apply in this example because it requires the assertion of the probabilities/likelihoods of T1A and T2A. When Copernicus did claim to have a simpler theory than Ptolemy, he attributed his theory with being "more pleasing to the mind" with "fewer and much simpler constructions" (Copernicus 57-58). This explanation does not account for the probabilities of the competing hypotheses needed to implement Logical Simplicity, but uses Subjective Simplicity to explain the simpler theory as the more intuitive/easier to grasp hypothesis. If Copernicus did assert that T1A was simpler than T2A due to Logical Simplicity, he would need to justify why he believed it to be the logically simpler theory by presenting the probabilities of each premise. This hints at an underlying issue arising in our discussion of Occam's Razor thus far. It seems that, if a theorist wants to claim one theory is syntactically simpler than a competing hypothesis, she must present an explanation for how a certain theory is simpler than its competitor.

Though the implementer of Elegance must decide between Logical Simplicity and Subjective Simplicity, the implementation of Elegance also requires the theorist to explain how one theory is simpler in regards to either number or complexity (as a whole). This distinction is necessary because there is a potential conflict in choosing the less numerous theory and the less complex theory. I will refer to the choice of Elegance in reference to the number of hypotheses in a theory as the "Quantity Consideration" and complexity in general as the "Complexity Consideration". The chart below illustrates a clearer picture of the four forms of Elegance, bolding our current topic of Quantity and Complexity.

Chart C illustrates the fully explained categorization of Elegance with focus on Complexity and Quantity



A conflict also arises because there is no hierarchical structure between the Quantity Consideration and the Complexity Consideration, so it is unclear how one would decide between one theory that is more complex and another that is more numerous. To illustrate this example further, consider competing theories T1B and T2B that equally explain a given phenomena.

T1B has 2 assertions but each assertion is very counterintuitive and hard to grasp

T2B has 4 assertions, each assertion somewhat easy to grasp

Because there is no hierarchy between the Quantity Consideration and Subjective Complexity, it is unclear which theory should be considered the more Elegant theory. A supporter of T1B could assert that his theory is simpler because it is less numerous, while a supporter of T2B could assert that her theory is simpler because it is less complex. This conflict between the Quantity Consideration and the Complexity Consideration illustrates

a potentially problematic circumstance that appears throughout the implementation of Elegance, where the conflict has no explanation of resolution. Without an explanation to determine which theory is simpler, there are two separate (and conflicting) answers for which theory is truly simpler. This ambiguity of simplicity can further lead to doubt of whether Elegance can be universally justified without the use of a decision principle that helps us determine which theory is simpler in the event of conflicting considerations. If there is no principle established for Elegance's considerations then the simpler theory appears to merely be a subjective ad hoc application of one of the multiple parameters of Elegance.

Another issue that surfaces in Elegance occurs exclusively in the Quantity Consideration. Nelson Goodman introduces an example of language variance that seems to exploit a weakness in the Quantity Consideration. He begins with two theories equally explaining the color of emeralds based on the fact that all observed emeralds having been green in the past.

T1C: all emeralds are green

T2C: all emeralds first observed prior to time X are green and all emeralds first observed after time X are blue (where X is some future time).

Given these two competing theories, T1C intuitively appears to be more Elegant because it is shorter and it posits a single parameter, while T2C posits a second modifying parameter, including a distinct dependency on time. To illustrate the issue with Elegance and language variance's manipulation on certain theories appearing to be more Elegant than another, Goodman invented the predicates grue and bleen. Something is grue if it is first observed before time X and the object is green, or it is first observed after X and the

object is blue. On the other hand, an object is bleen if it is first observed before time X and the object is blue, or first observed after the time X and the object is green. Grue and bleen are golor predicates just as green and blue or color predicates, so things that are green and blue can also be expressed as grue and bleen (Fitzpatrick).

Now, if we consider T1C and T2C in terms of grue and bleen, there is a clear discrepancy with our intuitive belief that T1C was the simpler theory. T1C and T2C can now be translated in terms of grue and bleen as T1C\* and T2C\* respectively (Fitzpatrick).

T1C\*: all emeralds first observed prior to time T are grue and all emeralds first observed after time T are bleen (where T is some future time).

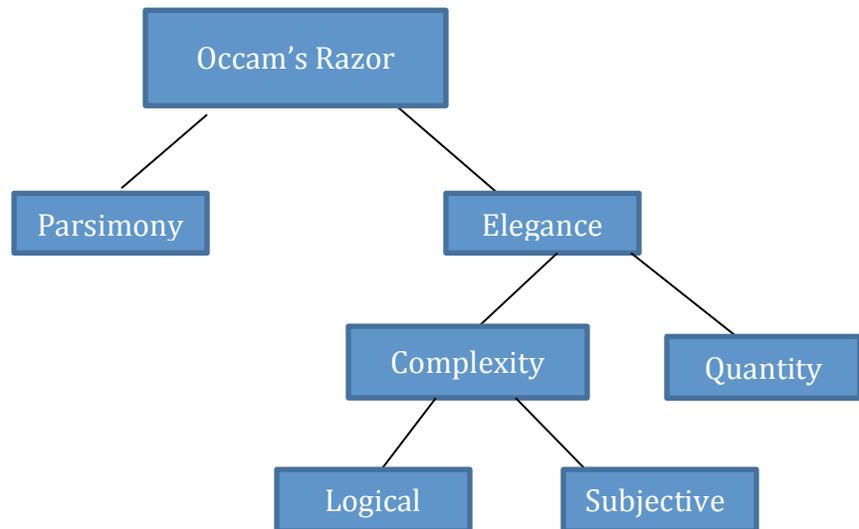
T2C\*: all emeralds are grue

If we use the same Quantity Consideration as before, our assessment of the translated theories forces us to reach the opposite conclusion. It is in fact T2C\* that appears to be more Elegant, as it now posits a single parameter and is visibly shorter than the translated T1C\*. The two versions of T1C and T2C illustrate the problem that language variance poses on the Quantity Consideration. Because different results emerge based upon which translation is given in Goodman's example it shows we arrive at a similar judgment made as in our previous discussion about the two versions of the Complexity Consideration. Namely, it seems that, at the very least, for an implementer to be justified in their use of each consideration, they must give a further explanation or principle justifying exactly how one theory is simpler than another. In this particular discussion of the Quantity Consideration it appears necessary for the implementer to explain why they chose the language they did, and explain away other possible "translations" that may contradict

with their own results. Additionally, it seems implausible to allow a person to choose a language to justify their Quantity Consideration, eliciting the question of whether the Quantity Consideration can stand unaided as a determinant for Elegance.

The quandary that occurs with the Quantity Consideration is yet another example of the difficulties that arise with the freedom of application in Elegance. When a theorist asserts that a theory is syntactically simpler than another theory they must explain whether this is true through the application of Logical Complexity, Subjective Complexity, or the Quantity Consideration (additionally providing an explanation of how to escape Goodman's worry of language variance). Given these three possibilities and the potential for possibilities to conflict, Elegance appears to give the implementer too much freedom in selecting which theory is simpler as well as asking for the implementer to justify their application. It seems then that two problems arise when one attempts to apply Elegance as a parameter. While the two problems are related they appear to have distinct problems. The first problem is that there are too many considerations without any universal principle guiding the decision of overall simplicity. The second problem relates to the lack of explanation on the implementer's part. It appears that if a theorist wants to apply Elegance, they must explain why it is being implemented in a certain way, and how it will escape worries like conflicting theories and language variance. After further inspection, the seemingly easy application of Occam's Razor through Elegance is far more complicated than a "simple" assertion. Below I will again illustrate the classifications of Elegance with all of the categories introduced.

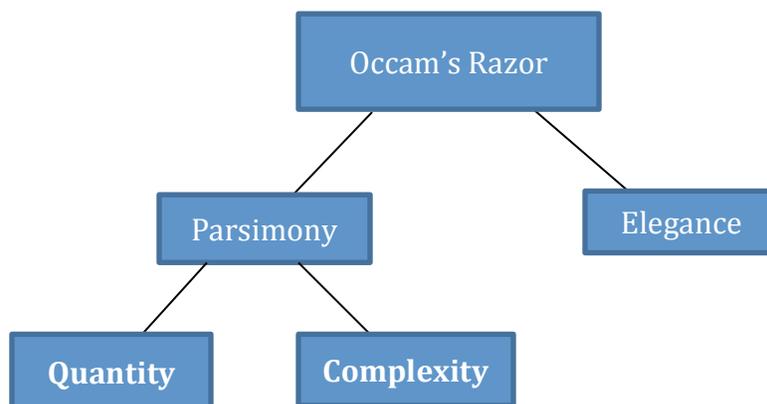
Chart D illustrates the fully explained categorization of Elegance



## II. Parsimony Further Explained

Parsimony focuses on the number and complexity of entities postulated in theories. In other words, if two competing theories have the same explanatory power, the theory with fewer entities postulated should be the preferred theory. This is sometimes referred to as the anti-superfluity principle. This principle calls for the elimination of entities posited that are explanatorily redundant or superfluous (Fitzpatrick). If two theories have the same explanatory power of a phenomenon, the entities that are posited extraneously are seen as redundant or superfluous because the extra entities do no further explanatory work than the more concisely posited competing theory.

Chart E illustrates our first division of Parsimony through Quantity and Complexity



An example of Ontological simplicity is demonstrated in an argument comparing our world with the possibility that we are brains in vats. Consider the competing hypotheses T1D and T2D explaining the world we believe to be experiencing. T1D is a theory from a skeptic, and T2D is a theory about the world being exactly as we perceive it,

T1D: We have as much evidence that we are brains in vats being stimulated into thinking that we are experiencing the world around us as we have for believing we perceive and experience the world directly. Because we have the same amount of evidence for both, we cannot say with certainty that we are either brains in vats or we are in the world we believe to be experiencing. Therefore, we cannot make a conclusion about being in either.

T2D: The world is as it appears to be, and everything we perceive we are actually experiencing.

T1D argues that we cannot prefer T2D to it because both the brain in vat world and the “real perception” world have the same explanatory power about our experiences in the

world, forcing us to suspend judgment. Both theories equally explain why we perceive things, but T1D asserts we could perceive things through a simulation, while T2D asserts we perceive mind-independent objects directly. In order to combat T1D, a T2D supporter could apply the principle of Parsimony and argue that we should prefer the theory that we are in the real world because it posits fewer entities, while explaining our experiences just as thoroughly. T1D asserts that there may be an unknown entity such as the simulator making us perceive the world around us.

If this simulation theory were true then it would follow that the T1D theorist would have to at least account for two separate entities, the world we believe to be experiencing, and an independent world outside of this one where the vat exists and functions. Whether the T1D theorist needs to posit our experiential world is debatable, but the T1D must account for two types of experiences, our real experiences stimulated by the vat, and our fake experiences that are merely being simulated. Because we experience things in two different ways according to the T1D theorist, he must posit an extra experience or entity over and above the T2D theorist. By taking a skeptic's stance and refraining from judgment, T1D then at least considers the positing of an additional entity (the world containing the vat or the experiences in the vat), causing it to assert more entities than T2D. According to the principle of Parsimony, T1D then appears to posit a superfluous entity that does not provide any further explanation of our world, and T2D should be preferred.

In cases like T1D and T2D, the application of Parsimony appears to be unproblematic, but we still run into an analogous problem with the lack of hierarchy between Quantity and Complexity that we recognized in Elegance. Let's say I baked

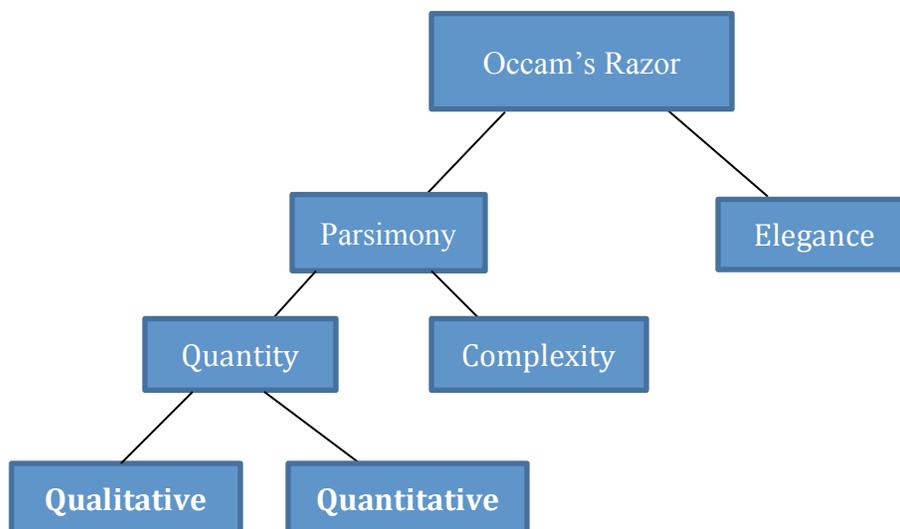
myself cookies went on a walk, and came back to find my cookies gone. I could have two equally explanatory and strange theories (T1E and T2E) explaining how my cookies disappeared.

T1E asserts that an alien came down and ate all three of my cookies.

T2E asserts that three robbers broke into my apartment

T1E posits a single entity (the alien), but seems very complex (in the same way as Subjective Simplicity) as it seems very counterintuitive and hard to believe that an alien landed on earth and broke into my apartment to eat my cookies. T2E is Subjectively simpler (although not by much) than an alien coming from space, but it still posits 3 separate entities. The struggle then seems to be which explanation we prefer; the ontologically complex theory or the one with the least number of the things posited. This example may be explained with the other two categories that further divide parsimony, Qualitative and Quantitative. Below Chart E illustrates a full division of Parsimony with our new categories of Quantitative and Qualitative.

Chart F illustrates the full division of Parsimony with particular attention to our new considerations Qualitative and Quantitative



Qualitative parsimony relates to the number of types of things postulated, while Quantitative relates to the number of individual things postulated. If we implement Qualitative parsimony my example would show that the three robbers in T2E are actually a single type of entity, so the T1E would be more complex and numerous, as the three robbers posit one type of entity, and the alien posits a more complex explanation with two types of things existing (the alien and humans). Yet the worry of the lack of hierarchy still arises by tweaking the example. Consider new theories T3E and T4E that highlight the same issue.

T3E asserts that my two roommates came and ate my cookies even though they were supposed to be in their respective classes

T4E asserts that my dog and my cat ate the cookies.

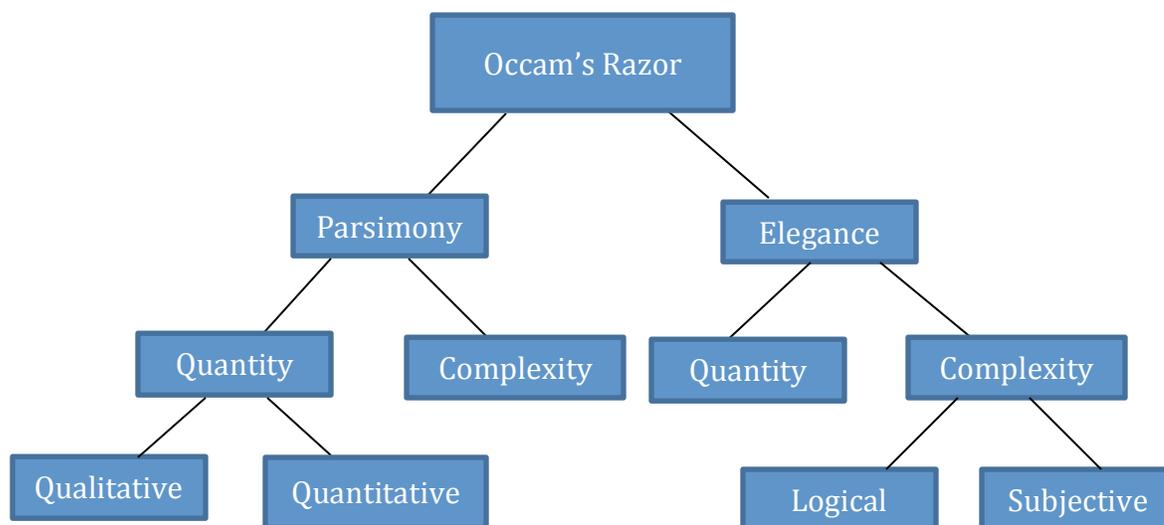
With the lack of hierarchy it seems arbitrary which theory we select because both roommates leaving class to steal my cookies presents a less plausible theory (making it more complex), while my dog and cat eating the cookies posits two extra ontological entities. Again there is an apparent tension between the considerations of Quantity and Complexity that was illustrated in Elegance. The further explanation required in the Qualitative and Quantitative considerations are also comparable to the further explanation required with the language variance example in Elegance's Quantity Consideration. Just as the theorist who applied the Quantity Consideration in Elegance needed to provide a further argument against Goodman and in support of a specific translation of competing theories, the implementer of Parsimony must further explain how one theory is particularly simpler than another. Through this section of explicating Parsimony we have also found four separate considerations: Complexity, Quantity, Qualitative Quantity, and

Quantitative Quantity. With these four considerations in mind, it seems that we have reached a similar impasse as our problem in Elegance. If one does assert that one theory is more Parsimonious than another, she must further explain how exactly this theory is applied.

### **III. Reflection on Occam's Razor as a Whole**

At this point I think it is important to explicate all different forms of Occam's Razor introduced in this paper. Most generally, we have our distinction between Elegance and Parsimony. This distinction is most clearly defined by Parsimony's focus on the ontological simplicity of entities posited, while Elegance focuses on the syntactic simplicity of the premises themselves. A further categorization briefly discussed in Parsimony was the Qualitative and Quantitative distinction. This categorization distinguishes how entities posited should be divided. Quantitative Parsimony asserts that the entities posited should be split up into individual entities, while Qualitative Parsimony considers the amount of entities posited based on the categories into which they fall. Elegance is also divided in terms of Quantity and Complexity. The Quantity Consideration deals with the length of each hypothesis. The Complexity Consideration is further divided into two separate considerations through Logical Simplicity and Subjective Simplicity. Logical simplicity focuses on the logical complexity and probability of the premises of a theory, while Subjective Simplicity focuses on our subjective understanding of competing theories. Chart G below illustrates all aforementioned categories.

Chart G illustrates full depiction of Occam's Razor in its eight categories



Although we initially explicated Occam's Razor through its two forms of Elegance and Parsimony separately, it is important to note how Parsimony and Elegance may come into conflict with one another. This conflict of Parsimony and Elegance is illustrated in the postulation of Neptune to explain the orbit of observed planets. T1F is the syntactically simpler theory because it explains things in a less complicated way, while T2F is the ontologically simpler theory.

T1F asserts the existence of the then unobserved planet Neptune, which explains the orbit of observed planets around Neptune abide by the pre-established laws of celestial mechanics

T2F denies the existence of Neptune, and asserts that there is a more complicated explanation for the observed planets' disregard of the laws of celestial mechanics.

While the postulation of Neptune added another Ontological and unobservable (because Neptune could not be directly observed at the time) entity, T1F introduced an explanation of the observed planets orbits instead of complicating the laws of celestial mechanics as T2F would have required (Baker). T1F introduces a less parsimonious theory, but its subjectively simpler explanation of the orbit of observed planets allows the T1F supporter to posit it as the simpler theory. However, it seems somewhat suspicious that T1F's syntactic simplicity provides enough justification as the "simpler" theory to be preferred prior to our now justification of Neptune being observed. Although we now have clear observable evidence of the existence of Neptune, prior to our knowledge of its existence there did not appear to be a legitimate justification for choosing the more elegant theory instead of the more parsimonious theory. It could have hypothetically turned out that the laws of celestial mechanics were incorrect, and the planets were orbiting a certain pattern unobserved to us that was explainable without the positing of Neptune.

In fact, the paradigmatic example of this occurred when Newton's laws led the French astronomer Urbain-Jean-Joseph Le Verrier to posit the existence of a planet called Vulcan. Recognizing an irregularity with the planetary motion of Mercury, he questioned whether there was mass near it that could account for these motions. Because this possible mass could account for the behavior of Mercury in accordance with Newton's Gravitational laws, it was believed that there was an unobserved planet near Mercury that was too close to the sun to be detected (Levenson). This alleged planet was named Vulcan, and just as in the case of Neptune, a new entity was posited in order to provide a more elegant explanation. Eventually Einstein's theory of Special Relativity accounted for Mercury's behavior, and the positing of Vulcan was discredited (Levenson). The

application of Occam's Razor is further complicated by the existence of the Vulcan case. The Neptune and the Vulcan cases were parallel in their reasoning and their justification for the positing of a new planet, but one was proven to be incorrect. Although I have been alluding to the fact that a hierarchy could possibly aid in the complications that arise when different forms of Occam's Razor compete, cases like these two illustrate a different problem. If there were prescriptive rules in this case and elegance was to generally be favored over parsimony, we would still have the wrong conclusion in asserting Vulcan. If we establish a hierarchical structure, it seems it would only answer a uniformity problem, and not a truth problem. In other words, we may establish a hierarchy that allows us to choose one version of simplicity over another in a conflict, but the Vulcan/Neptune cases show us it may not help us get closer to the truth. If our goal for implementing Occam's Razor is to reach the truth or get closer to it, it does not seem possible to establish a single uniform rule to use for every case to decide how one theory is "simpler" than another.

The explanation of why one theory is simpler than another appears convoluted in both Parsimony and Elegance as I have demonstrated that neither have a hierarchical structure in their definitions for how one theory is indisputably simpler than another, and that the hierarchical structure may not even be beneficial. With examples illustrating inconsistent results, it appears that both versions of simplicity require the implementer to determine or explain what line of simplicity she will follow. The fluctuation of simplicity and freedom it provides for the theorist to decide which line of simplicity she chooses to follow elicits the question of whether simplicity as a principle can be wholly justified.

## **Chapter 2: Occam's Razor Applied in Philosophy of Mind**

Although I have discussed Occam's Razor through a broad and theoretical perspective in the previous chapter, I will now focus on its past and current implementation in philosophy of mind. In this chapter I will introduce historical applications of Occam's Razor in this field, put them into the context of Chapter 1's discussion of the multiplicity of parameters, and finally assess whether or not Occam's Razor is (or has the potential to be) properly used in the field of philosophy of mind. I focus on two central questions: 1. Can we consider one theory of philosophy of mind (in respect to Physicalism and Dualism) simpler than its competitor? 2. Does Occam's Razor belong in the philosophy of mind debate? In order to discuss the validity of Occam's Razor in philosophy of mind, it is important to first present previous invocations of Occam's Razor in the relevant subject, with specific attention to the debate between Physicalists and Dualists. In the final section of this Chapter, I will argue that Occam's Razor should no longer hold a place in philosophy of mind.

### **I. The Physicalism/Dualism Debate: Are we just bodies or do we have minds as well?**

Defenders of Physicalism assert that everything is physical, and in the context of philosophy of mind, affirm that sensations are not "over and above" the physical processes that occur. In other words, the mental properties we experience, such as pain, color, hunger, smell, and emotion can all be explained by the physical world, and are not a part of a separate non-physical entity such as the mind (or exist as non-physical properties without the positing of a mind). While there are many versions of Physicalism

that offer different explanations of consciousness and human sensation, all Physicalists agree that the sensations that we experience can be explained in completely physical terms. In this paper I will discuss Physicalism from a Type Physicalist's standpoint. A Type Physicalist asserts that, for every mental property that occurs it can be grouped into a type or group that is directly correlated with a type of physical property (Stoljar). Token Physicalism on the other hand asserts that mental states cannot be divided into types and correlated directly to a uniform type of mental states. Because the Type Physicalist asserts that the two properties are identical, they conclude that all mental properties can be explained in completely physical terms, and that there is nothing over and above the physical explanation of the occurring properties.

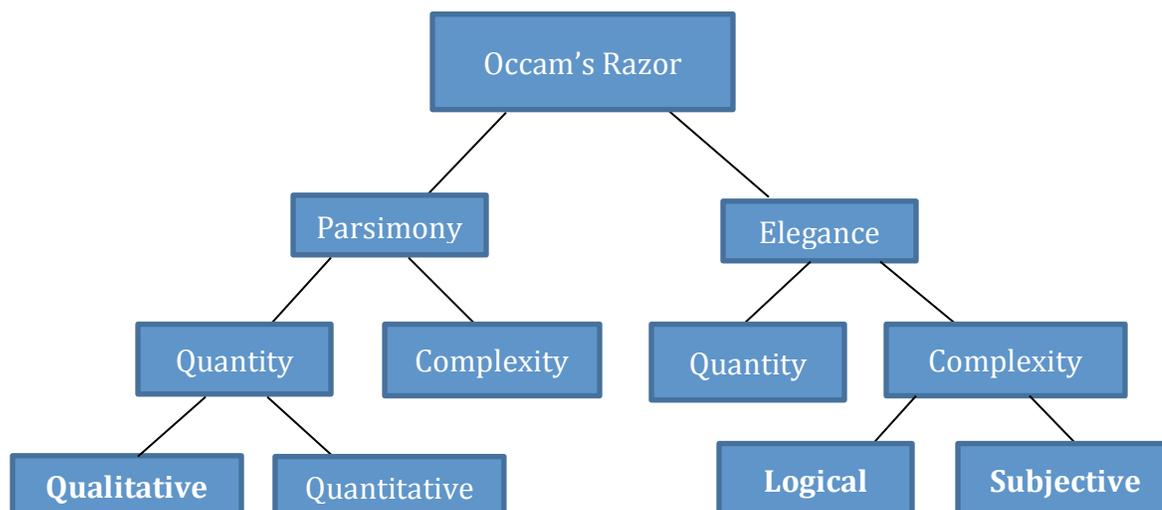
The Dualist opposes the Physicalist's assertion of a completely physical world, and claims that these mental properties are distinct from the physical (Robinson). Just as in Physicalism, Dualists hold different views about whether these mental properties form a collective non-physical abstraction such as a mind, or whether these properties are just instances occurring individually. All Dualists will contend that the mental and the physical are distinct from one another, and neither can be fully explained in terms of the other (they are distinct and individual in this way). This is not to say that all Dualists believe that the body and the mind can exist separate from one another, but they do believe that these two aspects of a person are ontologically separate entities. In this paper I will focus particularly on the Substance Dualist who posits a "mind" as a collection of the mental properties each person experiences, in comparison to a Predicate or Property Dualist who asserts only mental predicates or properties (Robinson). With the Physicalist and the Dualist's positions explicated, the mind-body debate becomes clear: Can humans

be explained in completely physical terms or are we do we have a distinct mind as well as a body?

## **II. Occam's Razor: A Mindful Explanation**

Occam's Razor first comes to prominence in the philosophy of mind debate in the late 50's by Physicalists declaring that they hold a simpler theory than the Dualists. Moreover, Physicalists like J.J.C. Smart use Occam's Razor as a solitary form of positive argumentation to favor Physicalism over Dualism. In this section of the chapter, I will introduce three philosophers' stances on the application of Occam's Razor in philosophy of mind; John Jamieson Carswell Smart, Christopher Hill, and Jaegwon Kim. Through introducing these philosophers' views I will present three separate interpretations of Occam's Razor in philosophy of mind. Referencing the terminology established in the previous chapter, I will illustrate the application of Occam's Razor in the context of Logical Simplicity, Subjective Simplicity, Qualitative Parsimony. I will additionally expand Smart's single paragraph assertion of Occam's Razor in an attempt to salvage its implementation in the philosophy of mind. Lastly, I will critically assess these arguments and determine whether Occam's Razor is appropriate in the philosophy of mind debate. Below I have again depicted my full chart of Occam's Razor, bolding the specific categories relevant to the philosophy of mind debate.

Chart H illustrates our full picture of Occam's Razor introduced in first chapter with relevant categories; Qualitative Parsimony, Logical Simplicity and Subjective Simplicity



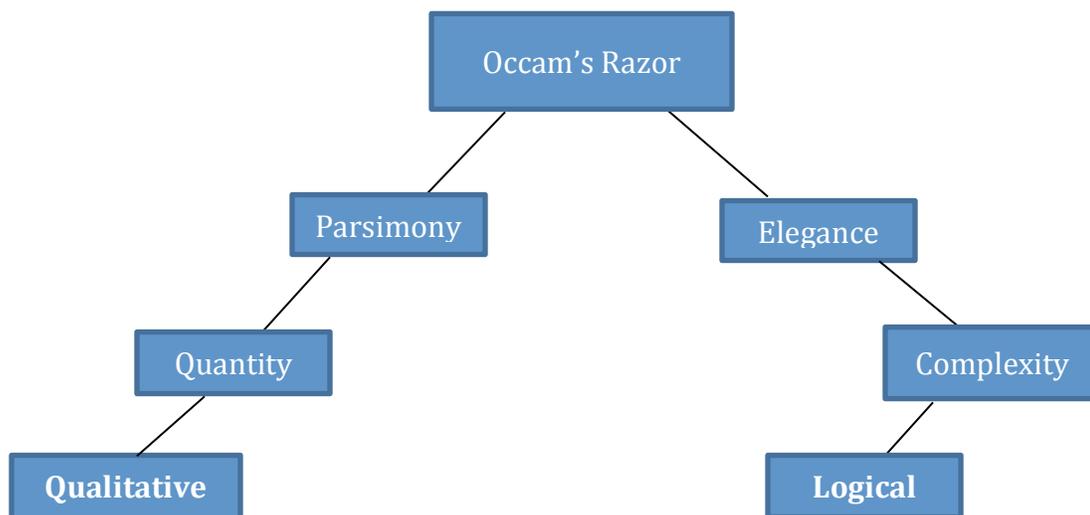
John Jamieson Carswell Smart (most familiarly known as J.J.C. Smart) was one of the first to invoke Occam's Razor in the Physicalism/Dualism debate in "Sensations and Brain Processes", published April of 1959. In a single paragraph of his paper, Smart launches his defense of Physicalism with that claim that one should prefer Physicalism to Dualism "mainly because of Occam's Razor" (Smart 142). In Smart's paragraph on Occam's Razor there appear to be two separate interpretations of simplicity at work. An expanded version of Smart's argument seems to assert simplicity through Qualitative Parsimony and Subjective Simplicity. Smart asserts Qualitative Parsimony when he states that his view terminates the correlation of separate entities by positing a single entity (Smart 142). In other words, Smart believes that Physicalism is ontologically simpler than Dualism because it only posits a physical entity (the body), while Dualism posits both mental and physical properties that are correlated with one another (presumably

mind and body). That being said, Smart's implementation of Qualitative Parsimony is not thoroughly articulated. In his single paragraph on Occam's Razor he mainly states this interpretation by discussing the unnecessary use of correlation between mental states and physical states. His focus on the correlation thesis seems to assert that this correlation is superfluous, and the positing of only physical states is ontologically simpler than positing both. Because Smart's claims were not thoroughly explained, I will leave them as assertions for now as I will later present arguments for Qualitative Parsimony and Subjective Simplicity.

More recently than Smart, Christopher Hill attempts to bolster the argument for Occam's Razor by the Physicalist as he expands on the possible implementations the Physicalist can make using Occam's Razor. In the introductory section of his chapter "The failings of dualism and the double-aspect theory" Hill states, "...The materialists of Smart's era relied mainly on sketchy appeals to simplicity and terse complaints about the obscurity and messiness of competing view" (Hill 19). In this chapter, Hill argues for a positive argument for Physicalism based on the "best explanation principle", but initially wrestles with our focus on simplicity in the debate. While Hill's argument for the best explanation principle's implementation in the mind-body debate is interesting and ties indirectly to our discussion on simplicity, I will set it aside for the purpose of this paper and focus on his responses to the argument for Occam's Razor. Referencing back to Smart, Hill attempts to justify Smart's assertion of Qualitative Parsimony in defense of Physicalism.

Although we have distinguished our own forms of simplicity, Hill understands simplicity to fall into three separate categories: Formal, Ontological, and Mathematical. Hill's Formal simplicity relates to our earlier distinguished category of Logical Simplicity, as he describes Formal simplicity as a comparison of theories based on logical complexity and the number of primitive assumptions in competing theories (Hill 28). Hill's Ontological simplicity also directly relates to our prior defined Qualitative Parsimony, as he compares the simplicity of theories based on the number of mutually irreducible categories of entities (Hill 28). Hill's third category labeled Mathematical simplicity focuses on comparing theories by deriving the mathematical structure or the curve of the functions of each theory, and favoring the function's representative curve that is smoothest. In the case of simplicity in the mind-body debate, Hill decides to focus on Formal and Ontological simplicity, leaving mathematical simplicity behind. For consistency with the rest of my paper, I will refer to Hill's Formal and Ontological simplicity as Logical Simplicity and Qualitative Parsimony.

Chart I shows Hill's use of Occam's Razor with Logical simplicity and Qualitative Parsimony bolded



Hill's Logical Simplicity argument asserts that the theory that is more formally simple should be preferred if both theories equally explain the phenomena. This theory is laid out below:

Hill's Logical Simplicity Argument for Type Physicalism:

1. If a theory  $t_1$  has a higher degree of logical simplicity than a competing theory  $t_2$ , then all else being equal, there is a good and sufficient reason to prefer  $t_1$  to  $t_2$  (Premise)
2. Type Physicalism has a higher degree of logical simplicity than Dualism and the double-aspect theory (Premise)
3. There is a good and sufficient reason to prefer Type Physicalism to Dualism and the Double-aspect theory (Conclusion 1,2) (Hill 29).

Hill describes Logical Simplicity in two ways. The first explanation deals with one theory being simpler than another because the first theory has assumptions with a lower degree of logical complexity (Hill 28). Consider an example where there are two competing and equally explanatory theories, Theory X and Theory Z that both attempt to explain D phenomena. Theory X assumes A exists and Theory Z assumes the single conjunction (A and B) exists. Hill argues that Theory X has a higher degree of formal simplicity, as it does not include a conjunction in its single assumption, making it the more preferred theory (Hill 28).

The second way Hill believes a theory is logically simpler is if it has fewer assumptions than a competing theory (Hill 28). This criterion is also dependent on the

previously mentioned formal simplicity parameter, as a person could tie multiple assumptions into a single assumption through a conjunction, but would still have a more complex theory (seen in Theory Z as it was a single assumption but had the conjunction A & B existing). This conjunction would not necessitate that this single complex assumption demonstrates a lower degree of logical complexity than its competitor with less complex assumptions. Consider the competing theories 3 and 4. Let's suppose Theory 3 has a single assumption in the argument, but it is one of complexity, e.g., it has to assume A, B, and C is true. Comparatively, Theory 4 has two assumptions, but these are logically simple assumptions (assume F and separately assume O). Although Theory 3 has a single assumption, it is clear that this single assumption is more complex than the two assumptions in Theory 4. Therefore, using Hill's determination of formal simplicity, Theory 4 is the preferred theory (Hill's Implementation of Simplicity, O'Neal).

In both cases Hill's explanation of Logical Simplicity is dependent upon the probabilities of each theory's premises. He determines that the formally simpler theory is the theory that is more probable based on the conjunction of all of the premises' probabilities. Hill's focus on probabilities of premises, and overall theories (based on the conjunction of all premises' probabilities) provides an explanation about why he believes theories with less complex or less numerous premises than their competitors are to be preferred.

Simple cases like the comparison of Theories X and Z above also appear to intuitively fit in describing why we believe that one theory is formally simpler than another, but just as we had seen in the previous chapter, the more complicated cases are

not reconciled with our intuitions so easily. In fact, Hill's premise layout of the Dualist/Physicalist debate seems to raise more questions about Logical Simplicity than it answers. Hill asserts that both theories accept the synchronic psychophysical laws and the diachronic psychophysical laws as theorems (Hill 28). These two laws represent different ways to understand the correlation of mental and physical properties that occur either simultaneously or at separate times. Hill states that both the hypothetical Dualist and Physicalist accept these laws and assert their theories' postulations in addition to these laws. Below I will number the Dualist and the Physicalist's assertions without the diachronic and synchronic psychophysical laws to illustrate each theorist's unique fundamental postulations.

Hill's Physicalist asserts:

1. Neurological laws
2. The sensory state-types are identical to particular neural state-types

Hill's Dualist asserts:

1. Neurological laws
2. Psychophysical laws (that explain interactions with neural states)
3. The denial of the identity of sensory state-types with neural state-types (Hill 30)

Once Hill establishes the fundamental postulations for Dualism and Physicalism, he asserts that, based on logical simplicity, Physicalism is simpler because it has one less postulation. As illustrated above, he asserts that Physicalism has two fundamental postulations for its theory (aside from the given theorems accepted in both Dualism and Physicalism), and Dualism has three. According to Hill's interpretation of Logical

Simplicity, it then seems that Physicalism is logically simpler, and should be preferred as the simpler theory. That being said, Hill believes the complications that arise in the first premise of the Logical Simplicity argument (established on page 24) prevent him from concluding that we can or should prefer Physicalism based on these parameters.

Moreover, he concludes that we are unable to make any Logical Simplicity assertions about Physicalism and Dualism due to the immaterial quality of the debate.

Hill's first premise of the previously illustrated Logical Simplicity argument rests on the probabilities of each premise and the conjunction of the probabilities for each theory. By comparing the probabilities of each theory Hill believes we can assert that the theory with the overall higher probability is the less logically complex, consequently making it the simpler and preferred theory. By establishing Logical Simplicity in this way, Hill is compelled to establish probabilities for each premise in both Dualism and Physicalism. Without asserting a probability for each premise of the theories, Hill believes he cannot conclude that one theory is simpler in terms of formal simplicity than another.

Hill believes that asserting probabilities in this debate is problematic because these assigned probabilities would be ad hoc, and would differ depending on which theory you were interested in defending. For example, it would seem that the Physicalist would want to assert much higher or equivalent premise probabilities to the Dualist's probabilities, which would enable their theory to be less logically complex than Dualism. A Dualist on the other hand could argue that the identity premise contained in the Physicalist's argument should have a significantly lower probability or likelihood

because of the strength of the assertion. Because the Physicalist asserts that mental and physical properties are “identical”, the Dualist may claim that the probability of this premise should be lowered because these mental and physical states have very different characteristics. The Dualist may assert that the difference in characteristics should lower the probability of being identical. At the same time, the Physicalist could respond arguing that the psychophysical correlation laws the Dualist asserts in their second premise should also have a significantly low probability. Hill concludes that the probability disagreement can never be impartially settled because there is no evidence supporting probabilities for either theory. This then leads Hill to try to settle the mind-body debate through Qualitative Parsimony.

Hill's assertion of Qualitative Parsimony follows the same standard form as that of his Logical Complexity.

Hill's Qualitative Parsimony Argument for Type Physicalism in Standard Form:

1. If a theory  $t_1$  has a higher degree of qualitative parsimony than a competing theory  $t_2$ , then all else being equal, there is a good and sufficient reason to prefer  $T_1$  to  $T_2$  (Premise)
2. Type Physicalism has a higher degree of qualitative parsimony than Dualism and the Double-Aspect theory (Premise)
3. There is a good and sufficient reason to prefer Type Physicalism to Dualism and the Double-Aspect theory (Conclusion 1,2) (Hill 35).

Hill's line of argumentation parallels that of his attempt to justify logical simplicity. He believes that the second premise is evident because Physicalism clearly postulates fewer "unreduced events" (Hill 35). Because Physicalism postulates fewer unreduced events, Hill asserts that it is clear that it meets the requirement of the second premise and is ontologically simpler than Dualism. The complications then arise with his first premise, and whether we should conclude that we should prefer one theory over another based on it having a higher degree of ontological simplicity. Hill attempts to justify the use of Parsimony via Bertrand Russell and his justification based on "epistemic safety" (Hill 36). Hill's epistemic safety is in relation to the probability that something is true. One thing is epistemically safer than another thing if it is more likely to be true. In the case of Parsimony, and entities posited, the epistemic safety would pertain to the likelihood of an entity in existing. This appeal to epistemic safety and to probability of truth mirrors Hill's previous attempt to justify Logical Simplicity based on the probability of individual assumptions.

While Hill wrestles with the determination of probability to justify Qualitative Parsimony, he recognizes that the conclusion of probability, and in turn simplicity, can only be settled if one theory can be described entirely as a subset of its competitor. In other words, if one theory's ontological assumptions are not entirely contained in the competing theory's assumptions, the determination of probability based on the ontological assumptions is unattainable. Further, the probability of truth is based on the epistemic risk each theory has, and it seems that, especially in the Physicalism-Dualism debate, both sides take great epistemic risks (Hill 38). Dualism asserts two foreign claims to Type Physicalism, i.e., the existence of nonphysical characteristics, and the existence

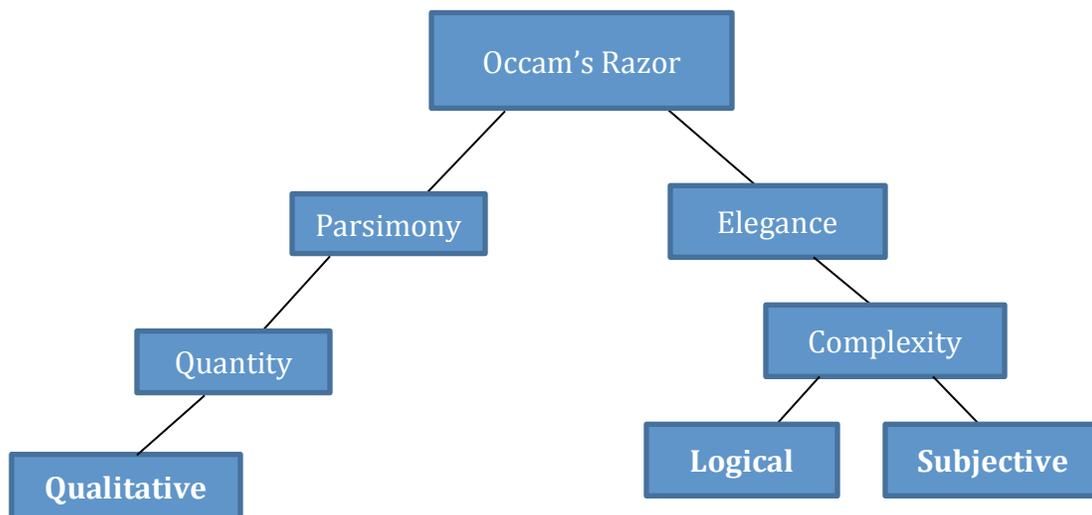
of nonphysical events, while Type Physicalism denies that sensory characteristics are nonphysical and denies that sensory events are nonphysical (Hill 38). In this way it seems that both the Physicalist and the Dualist take risks that can neither be proven nor shown to be the negation of their opponent. The Russellian argument is then fruitless for the Parsimony assertion as it is entirely based on this idea of epistemic risk. Without the probabilities of truth certainty, neither can conclude that their theory is more epistemically certain and the first premise from Hill's argument for Qualitative Parsimony cannot hold.

To avoid the complete denial of Qualitative Parsimony for Physicalism, Hill attempts to settle the first premise based on an appeal to aesthetic intuitions. Hill states that, "theories with comparatively few existential commitments tend to appeal to our aesthetic sensibilities" (Hill 40). Because Physicalism provides a more unified and uniform explanation of the universe (since everything can be explained in physical terms without having to add the mental properties as something separate), he believes we should prefer it based on our aesthetic intuitions. This appeal to the aesthetic provides a strong positive argument for the Physicalist on the basis of Parsimony. The Dualist would have to accept that their interpretation of the universe is less uniform than the Physicalist's because of their compulsion of positing distinct mental properties and states. That being said, if the Physicalist does assert this form of Occam's Razor, it is completely dependent upon these "aesthetic intuitions" that we all may or may not share. Moreover, if the only positive argument for Physicalism is based on an aesthetic intuition that may or may not be equally shared by everyone, the Physicalist's appeal and argument for being a comprehensively "simpler" theory is significantly weakened. Not

only is this a weak argument based on its possibly narrow appeal, but it also is founded on merely an intuition about how we believe the world should work. If the Physicalist is to accept that their main positive argument is based on a theory that may not be accepted by everyone (aesthetic Occam's Razor) and is based solely on intuition, they significantly weaken their positive argument against the Dualist, possibly to extinction.

At this point it is important to reflect on the assertions made by both Smart and Hill. As previously stated, Smart asserts Qualitative Parsimony and Subjective Simplicity without a significant explanation or argument for either. Similar to Smart, Hill argues for Qualitative Parsimony, eventually concluding that its only justification in the context of this debate is dependent upon an appeal to our aesthetic intuitions. Hill differs from Smart by implementing an argument based on Logical Simplicity. He eventually concludes that Logical Simplicity cannot be used in this context because of its emphasis on probabilities. He determines that any assignment of probabilities in this case would be highly problematic and disputable. Hill then seems to discredit the use of Logical Simplicity in this debate leaving only Smart's assertion for Subjective Simplicity and Hill's aesthetic appeal of Qualitative Parsimony as possible interpretations of Occam's Razor in the philosophy of mind.

Chart J shows Hill and Smart's applications of Occam's Razor previously introduced



Through Hill it seems that the arguments for Logical Simplicity has been defeated with and Quantitative Parsimony has been reduced to a weak justification on aesthetic intuition. The final interpretation introduced was alluded to in Smart as Subjective Simplicity. I will now attempt to expand what I believe Smart's argument is for why Physicalism is subjectively simpler than Dualism. This interpretation is illustrated when Smart discusses science's increasing ability to describe everything in terms of its physical arrangement. Smart first asserts that science has been able to describe everything in terms of the physical world except for the mental properties associated with human's states of consciousness. He claims that this correlation between mind and body does not additionally "help" describe the phenomena of human experience (Smart 142). It appears that Smart believes the correlation between mental states and physical states does not give any supplementary explanation about the human experience because these mental states are unobservable and immaterial, so we are not able to further assess the "correlation" they may have with our physical states. If this correlation does not benefit

us in explaining the phenomena of human experience, and it posits an extra entity that cannot be explained like everything else can in our world, Smart concludes that these posited mental states correlated with our physical states are “unbelievable” (Smart 142).

My expanded version of Smart’s argument asserts that we should not only deem Physicalism ontologically simpler, but syntactically simpler as well. This is illustrated when he discusses the believability of the theory, and how implausible Dualism seems for asserting an extra entity that is the only thing working outside of our complete understanding of the world. Because everything else can be explained in physical terms, and we have no proof for these non-physical mental sensations, Smart states that the theory appears far more complex without the existence of any further explanatory power. The complexity implemented in Smart’s assertion of Occam’s Razor appears to be the same complexity encountered in the previous chapter’s Copernicus/Ptolemy example, where Ptolemy’s explanation of planetary motion seems to be far more complicated and incomprehensible than Copernicus’s. This form of simplicity then focuses on how the theory’s hypotheses are believable in comparison to the entities posited, making it an implementation of Subjective Simplicity.

In his book *Philosophy of mind*, Jaegwon Kim discusses the Subjective Simplicity interpretation of Smart’s argument, and whether Smart’s conclusion of simplicity is valid. He divides simplicity in the ontological and syntactic parameters we have previously discussed, and argues that Smart’s assertion is one based on the syntactic parameter. Similar to my interpretation of Smart’s argument above, Kim asserts that Smart believes Physicalism explains the universe in a much less complicated way than what would be

necessary if we were to assert psycho-physical correlations instead of psycho-physical identities. Kim concludes from Smart's line of thought that the psycho-physical identities not only simplify our theory of the universe, but keep it in the explanation of physics. But reflecting on Smart's argument Kim goes on to ask, "Doesn't the psychoneural identity theory *merely replace* psychoneural correlations with an *equal* number of psychoneural identities, one for one?" (Kim 101-102). Kim's question contests Smart's assertions that his Physicalist world would contain fewer assertions (syntactically) than the Dualist's. Because Smart argues from a syntactic simplicity standpoint, Kim is able to assert, at the very least, that Smart's identity theory claims the same amount of non-reducible assertions as the Dualist. Kim states, "Moreover, these identities are not deducible from more basic physical-biological laws any more than the correlations are, and so they must be countenanced as fundamental and ineliminable postulates about how things are in the world" (Kim102). The Dualist must make a claim about correlations for every mental and physical property that occurs, but the Type Physicalist must also assert the identity each time, equalizing the amount of fundamental postulates each theory has.

Is Physicalism more complicated than Dualism based on antecedent plausibility? Antecedent plausibility in this case seems to correspond with what we determined in the previous chapter as Subjective Complexity and our interpretation of the complexity of theories. On reflection it appears that Physicalism makes a strong claim about two states that behave in different ways being identical. By the word "strong" I am implying two factors about the identity thesis and its relation to plausibility. The first implication of the identity theory's strength corresponds what type of statement it asserts. Jaegwon Kim briefly discusses the implication of the strength of the identity thesis when he states, "The

identities are empirical just like the correlations, and they make even stronger modal assertions about the world, going beyond the correlations” (Kim 102). The assertion of identity is a stronger claim in this case than the correlation statement because it is asserting two things that occur *must* be identical.

The second factor that raises a possible issue of antecedent plausibility follows from this stronger modal assertion, and from the different properties that the mental and the physical seem to possess. Although they occur simultaneously, there seems to be a clear distinction between the kind of characteristics that mental and physical states have. This distinction of properties in addition to the strength of the modal condition Physicalism entails causes hesitation about the plausibility of the identity theory. Because Physicalism makes this strong identity claim about two properties that seem vastly different, does Subjective Simplicity indicate that Dualism is the simpler theory? Keeping in mind the strength of the identity claim, it would seem that the weakest claim we can make is that physical and mental properties happen simultaneously or are correlated. A stronger assertion would be that one property causes another, and an even stronger assertion would be that the two things are identical. If this is true, then it would seem Physicalism is the more Subjectively Complex theory because it forces us to grasp a stronger claim without evidence of this identity. The Physicalist may respond that Dualism is harder to grasp because we have no evidence of anything outside of mental states interacting with the physical world, making mental properties more implausible, but aren't these qualities fundamentally different from everything we encounter? Additionally, it is a quality of these mental properties to interact indirectly with the physical world, so we would not be able to observe them physically.

At the very least, if we have two quasi-conflicting ideals (even in only the complexity aspect) do we disregard that category and use another, more settled/less disputed category? Is this fair to the Dualist or is this just another ad hoc proposal by the Physicalist? Moreover, if we look to other cases to justify what we do here, we see it ranges widely and the decisions have no formal standard to go by. With this we progress to a separate discussion of Occam's Razor and how John Heil believes the principle should be applied.

### **III. Are we properly using Occam's Razor?**

In the previous section I discussed several interpretations and applications of Occam's Razor in philosophy of mind. Smart, Hill, and Kim all represented either defenders or attackers of these given interpretations. John Heil presents a separate view of Occam's Razor in philosophy of mind, reflecting on how Occam's Razor should be applied more generally. In his book *Philosophy of mind* Heil writes,

There is no guarantee that the world is a simple place. Such matters, however, needn't detain us. We are bound to judge competing theories on their merits. We can think of Ockham's Razor, not as a principle that tells us how the world is organized, but as one that encourages us to place the burden of proof on proponents of "less simple" theories (Philosophy of mind, Heil 39).

Although Heil discusses Occam's Razor in the context of Epiphenomenalism and other competing Dualist theories, his view on the purpose of Occam's Razor closely relates to the discussion at hand. Heil's position is that Occam's Razor is purely a principle that calls for an account by the less simple theory as to why it is less simple. Heil's belief that Occam's Razor is a principle requiring the more complicated theory to provide further explanation shifts the burden of explanation to the complicated theory. In other words,

Heil's Occam's Razor may require a theory to provide further explanations, but the principle itself does not assert its own view about whether or not our universe is set accordingly.

Heil's reflection on the application of Occam's Razor as a whole distinguishes it from the previous philosophers mentioned because he rejects the view that Occam's Razor is a principle that can be applied as a tiebreaker. While Smart, Hill, and Kim appeared to assert the use of Occam's Razor as something that would grant a preference for one theory over another, Heil claims Occam's Razor is merely a burden-shifter. To be put more clearly, Heil rejects the assumption that each philosopher prior to this worked under, namely, the "simpler" theory should be preferred. He seems to assert that there is no basis for this idea that simplicity should win-out on inherent grounds, since "there is no guarantee that the world is a simple place", therefore rejecting this principle as a decision principle. Heil's formation of Occam's Razor appears to be as follows: if two theories explain the same phenomena, and one theory is less simple than another, the more complicated theory has a burden of proof to explain why it is more complicated. No portion of Heil's Occam's Razor states that the simpler theory should be preferred. Considering this new perspective of Occam's Razor, it seems that the Physicalist would push the burden of proof on the Dualist, and the Dualist would assert that they could further explain phenomena like mental properties better than the Physicalist. Given both of their biased positions, there could never be a definitive resolution following an attempted shift of the burden of proof.

#### **IV. Is Occam's Razor warranted?**

I have discussed many interpretations of Occam's Razor, some raised historically by philosophy of mind-ers like Smart, Hill, Kim, and Heil, and some created in the context of my own discussion of the many implementations of Occam's Razor, but have felt dissatisfied with the multiplicity of conclusions. I have introduced three separate interpretations of Occam's Razor in philosophy of mind: Subjective Simplicity, Logical Simplicity, and Qualitative Parsimony. Hill demonstrated the deficiency of the use of Logical Simplicity and was forced to accept only an aesthetic intuition justification of Qualitative Parsimony. Finally, I presented an argument from Jaegwon Kim and an argument from myself discussing the problem of endorsing Subjective Simplicity in this subject. Heil's statements about Occam's Razor introduced a separate perspective of its purpose in general as a burden shifter rather than an arbitrator of choice. I applied our current Physicalist/Dualist debate to Heil's version of Occam's Razor, finding myself again unsuccessful in applying Occam's Razor in this specific field. Through this chapter I have found two central problems in the application of Occam's Razor in philosophy of mind: 1. Its variety 2. The weakness of the individual arguments. The first issue that arises with Occam's Razor in Philosophy of mind stems from its wide range of implementations with multiple ad hoc conclusions.

In several portions of this chapter I have shown ad hoc assertions and justifications for Occam's Razor in this field. Whether Occam's Razor is based on probabilities, understandability, or aesthetic appeal, the argumentation for which theory fits the "simpler" criteria appears equally arbitrary on every occasion. The variety of

interpretations of Occam's Razor also gives freedom to both sides to assert that their theory is simpler because of a given category of simplicity. As Hill has pointed out, Logical Complexity could support the Dualist or the Physicalist, depending on who is asserting the probabilities. Additionally, the Physicalist can assert Ontological simplicity according to Hill so long as it is accepted as a modest proposal based on aesthetic intuitions (something clearly the Dualist would assert was question-begging). Kim also points out possible implications about simplicity that to the very least implies a tie between the Dualist and the Physicalist, with the possible inference of the Dualist theory being more antecedently plausible (therefore simpler). Heil then points out that this form of Occam's Razor is a misinterpreted view, and Occam's Razor should only be discussed as a principle calling for further explanation. In any case, the appearance of Occam's Razor in philosophy of mind leaves the implementer with freedom to decide simplicity, indicating its deficiency as a legitimate principle.

With the flexibility of Occam's Razor leading to multiple conclusions, it raises the question of whether this malleable principle has a single overriding interpretation which gives a definitive answer of which theory is essentially simpler. Because of my exploration of the many interpretations of Occam's Razor in philosophy of mind, I am pessimistic about the determination of one category of simplicity as the fundamental category that will give a resounding answer as to which theory is the simpler theory. That being said, the weakness of simplicity arguments as a collective indicates that a single fundamental category of Occam's Razor would be futile as each argument of Occam's Razor presented in this paper has been foiled by its competitors.

With my refutation of the multiple applications in mind, I turn to a different criticism of the implementation of Occam's Razor in the Dualism/Physicalism debate. In his book *The Conscious Mind* David Chalmers asserts that Occam's Razor cannot be applied at all in this field without the assessment of any interpretations of Occam's Razor. In chapter 4 of *The Conscious Mind* Chalmers writes,

The first reason to prefer Physicalism is *simplicity*. This is a good reason. Other things being equal, one should prefer a simpler theory over one that is ontologically profligate. Ockham's Razor tells us that we should not multiply entities without necessity. But other things are not equal, and in this case there *is* necessity. We have seen that Physicalism cannot account for the phenomena that need to be explained (Chalmers 169).

So it seems that Chalmers believes that Occam's Razor cannot even be considered as a positive argument in this debate based on Physicalism's inability to explain phenomena to the same degree as Dualism. If Chalmers is right about the unequal explanatory power, then it seems apparent that we could not automatically prefer Physicalism based solely on the fact that it is simpler. Just as the previous chapter illustrated with several examples, Occam's Razor is only a warranted arbitrator when things are equal explanatorily. Again, all of this criticism of the use of Occam's Razor in the field of philosophy of mind is dependent upon the establishment of whether Dualism and Physicalism have or lack the same explanatory power. Chalmers will not even consider the validity of the arguments of Occam's Razor in the debate, because he thinks the principle as a whole cannot be applied in this circumstance.

### **Chapter 3: Conclusion**

The examination of Occam's Razor in the context of philosophy of mind has illustrated problematic aspects of the principle as a whole. As I consider the multiple interpretations that were possible in the Physicalism/Dualism debate, I have recognized the freedom and responsibility required for an implementer of Occam's Razor in any field. Because there are so many interpretations of simplicity, it provides many possibilities in which one theory can be simpler than another. This provides the implementer with many opportunities to assert that one theory is the simpler one, initially appearing as a positive aspect of the principle. But as this paper illustrated, the wide range of interpretations provides possibility of contention between them, complicating the principle's implementation. I have also found that the variety of applications of Occam's Razor requires the explicit explanation of how one theory is simpler than another. As Hill's work demonstrated, the declaration of simplicity is far more complicated than stating that one theory is simpler than another. In fact, it seems that the further one tries to justify their draw towards simplicity, the harder it seems to concretely explain why one theory is better than another based on these parameters.

With all of this in mind I consider the draw towards simplicity in other fields like science. I also feel the intuitive attraction towards simplicity that scientists reason with, but now I am perturbed by examples like Vulcan and Neptune. Contemplating the apparent contradictions present in Occam's Razor and the difficulties that are introduced with its many implementations, I believe we hinder ourselves by considering it a principle than can be readily applied.

If one is to apply Occam's Razor it must be thoroughly explained and justified in the correct context instead of using it as an assumed maxim. If one is to apply Occam's Razor in a given field, it also seems pertinent to include information about the subject they are using the principle for. If someone attempts to apply Occam's Razor in more abstract fields like philosophy of mind, they will run into the probability/epistemic safety problem we encountered earlier. If another person wants to apply Occam's Razor to two competing theories in concrete science, they will more readily be able to apply probabilities and epistemic safety into their simplicity considerations. If yet another person wants to merge the two fields and tries to apply Occam's Razor to something like the positing of unobservable planets, they will be able to consider probabilities, but to a limited degree. Comparatively, a person could try to apply Occam's Razor with their aesthetic intuition of the simplicity of the world in mind in order to justify their reasoning for application. The simplicity principle's application may appear intuitive, and easily employable, but this paper shows that it requires much more explanation from the implementer.

In any case of implementation, much explanation and justification for applying simplicity in the correct context is involved, and even the preference of the simpler theory over the more complicated is not a given. As Heil showed, the mere fact that one theory is simpler than another may only indicate a shift of burden to explain, but not an overall preference for the simpler theory. Through charts and explanation I have established and expanded the assumed categories of Occam's Razor beyond just Parsimony and Elegance. My explanation of the newly formed categories has also illustrated the extent of intricacy in Occam's Razor's application. I also discussed the

difficulties that arise in attempting to solve the problem with a hierarchical system since each case seems to differ in its application of Occam's Razor.

This paper's discussion of the many forms of Occam's Razor has alluded to a rough and malleable definition of what it means to be simple, and how it makes a theory more preferable than its competitor. With this in mind, it seems to generate a more general question about why we prefer the simpler theory in the case of equal explanatory power. Why do we not prefer the more complicated theory, or refrain from judgment, if both theories are able to explain the same thing? In the context of philosophy and science, it almost seems counter-intuitive to support a theory without sufficient evidence other than a general and malleable principle. Why should we rest on the simpler theory if the principle of simplicity clearly introduces more complications and questions? It may not benefit us to in our continued progress in philosophy and science to champion the more complicated theory, but I think we should be equally unsatisfied with supporting the other theory "for the sake of simplicity". If two theories truly do provide the same explanatory power, one should not be satisfied with choosing either and should pursue more explanation in support of one theory. Put differently, this paper has shown that the simpler theory is not only unclearly determined, but its simplicity may not move you any closer to the truth. It then seems that if a person is faced with two theories with the same ability to explain a given phenomena, she should continue her search for more explanation and remain unbiased.

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