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The nature of intuition : what theories of intuition ought to be

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WHAT THEORIES OF INTUITION OUGHT TO BE

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by
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ABSTRACT

The Nature of Intuition:
What Theories of Intuition Ought to Be

by

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Master of Philosophy

Immediate striking feelings without any conscious inference are viewed as one of the sources of truth by many philosophers. It is often claimed that there is a long tradition in philosophy of viewing intuitive propositions as true without need for further justification, since the intuitiveness, for traditional philosophy, suggests that the proposition is self-evident. In philosophical discussions, it was extremely common for philosophers to argue for the intuitiveness of their theories. Contemporary philosophers have put increasing attention and effort into the study of this methodology in philosophy. They explicitly use the term 'intuition' and 'appealing to intuition' to refer to such common practice in philosophy. Recently there are numerous papers discussing the topic of intuition, its reliability, evidential status, and what philosophy ought to be. These disputes have lasted for several decades and it seems the disputes may even continue for several more decades.

Despite the excessive usage of the term 'intuition', there are still polarized attitudes towards intuition: not only on the question of whether we should appeal to intuition in doing philosophy, but also on what 'intuition' means. The latter problem, the divergence of understanding on 'intuition', seems to be the main factor causing endless disputes of this topic and it should be the problem primarily solved. There are philosophers who notice the problem that there is no general agreement on the accounts of intuition. However, surprisingly, most of them have not attempted to solve the problem, but just simply give their own accounts of intuition, or claim that it is improbable to have general agreement on the definition of 'intuition' instead.

In fact, it is possible to have a general acceptable theory of intuition. The main aims of the thesis are to provide the method of seeking the good candidates for a general acceptable theory of intuition and to use the method in seeking one of the good theories. In order to achieve the goals, the thesis will (1) provide the ground for the discussion, by specifying several features of intuition as the desiderata of a good theory; and (2) examine several theories of intuition that have been offered in recent literature as example. We will find that, unfortunately, among the theories selected in philosophy, there still seems to be no satisfactory account of intuition. Nevertheless, there seems a promising account of intuition offered in psychology. The thesis will argue the psychological account is one of the good candidates of

general acceptable theory of intuition. If not, we at least have a method of seeking the good theories of intuition.

DECLARATION

I declare that this is an original work based primarily on my own research, and I warrant that all citations of previous research, published or unpublished, have been duly acknowledged.

(LAM Hung Nin)

Date:

CERTIFICATE OF APPROVAL OF THESIS

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Master of Philosophy

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Part I

Chapter 1: Introduction

1.1 The Plan of the Thesis

Immediate striking feelings without any conscious inference are viewed as one of the sources of truth by many philosophers. It is often claimed that there is a long tradition in philosophy of viewing intuitive propositions as true without need for further justification, since the intuitiveness, for traditional philosophy, suggests that the proposition is self-evident. In philosophical discussions, it has been extremely common for philosophers to argue for the intuitiveness of their theories. Contemporary philosophers have put increasing attention and effort into the study of this methodology in philosophy. They explicitly use the term 'intuition' and 'appealing to intuition' to refer to such common practice in philosophy. Recently there are numerous papers discussing the topic of intuition, its reliability, evidential status, and what philosophy ought to be. These disputes have lasted for several decades and it seems the disputes may even continue for several more decades.

The excessive usage of the term 'intuition', which has occurred in the papers of both advocates and opponents of this methodology for a long time, does not mean there are many agreements reached in the discussion. There are polarized attitudes towards intuition: not only on the question of whether we should appeal to

intuition or not in doing philosophy, but also on what 'intuition' means. The latter problem, the divergence of understanding of 'intuition', I believe, is the main factor causing endless disputes on this topic and it should be the problem primarily solved. Some philosophers (Weinberg, 2007, p. 318; Williamson, 2004, p. 109; 2007, p. 215) notice the problem that there is no general agreement on the accounts of intuition. However, surprisingly, most of them[1] have not attempted to solve the problem, but just simply give their own accounts of intuition[2], or claim that it is improbable to have general agreement on the definition of 'intuition' instead. Philosophers seem to ignore the fact that, even if they can successfully build up a positive account of intuition, their theories are merely one of the competing accounts of intuition. They still have the responsibility to show that their account of intuition has advantages over other theories, before they can comfortably use their account of intuition in the arguments.

The indifference towards the divergence of understanding on 'intuition' allows philosophers to build up their own accounts for intuition. Different philosophers have different understanding of the term 'intuition'. For example, some view intuition as: "a sui generis, irreducible, natural propositional attitude that occurs

[1] Bealer (1992; 1998; 1999) has a part trying to do this job in his papers. It is not, however, a sufficient and systematic probe into the contemporary theories of intuition. More importantly, he seems not to have the same target with the thesis and thus could not give us a satisfactory account of intuition in our sense, which will be discussed in part II.

[2] Recently Cappelen (2012) argues that philosophers do not use intuition as methodology in doing philosophy, but his argument also built on his own conception of intuition.

episodically" (Bealer, 1998, p. 213) which mainly concerns modal propositions; inclination to believe a proposition by merely understanding it (Sosa); immediate feelings on classification or application of the concepts or natural kinds (Goldman; Kornblith; Devitt); merely (quick) judgments generated by our ordinary mechanisms (Williamson); merely retrieval of past opinions or beliefs (Lewis; Van Inwagen) et cetera. Most of the philosophers seem to be not interested in seeking a generally accepted theory of intuition. They are mainly interested in arguing for the reliability and the evidential status of intuition, and only a few of them attempt to directly argue against other accounts of intuition. Ironically, their discussion will probably not come to a conclusion, unless there is a generally accepted theory of intuition.

One of the reasons that philosophers avoid seeking a generally accepted theory of intuition probably is they think that it is not possible to find one. However, general agreement on the theory of intuition, I believe, is not impossible to seek, and it is worth seeking, since the generally accepted theory of intuition can probably lead to progress in resolving other disputes of intuition (if not directly give us the answer).

The thesis attempts to show how it is possible to have a generally accepted theory of intuition. The main aims of this thesis are to provide the method of seeking a generally acceptable theory of intuition and to use the method in seeking

one of the good theories. In order to achieve the goals, the thesis will (1) first provide the ground for the discussion by specifying several features of intuition as the desiderata of a good theory. The theories of intuition have the responsibility to give satisfactory explanations of these features. If the theory cannot give a reasonable explanation for most of the features, it fails to be a good candidate of the accounts of intuition. After forming the ground of selecting theories, we can easily (2) examine several theories of intuition that have been offered in recent literature and we are more likely to find a generally acceptable, good theory of intuition.

Here is the plan: this thesis will be divided into two parts. In the first part, the thesis will specify several features of intuition, directly or indirectly supported by psychological research if they are not generally accepted.[3] Good explanations for these features of intuition would be the desiderata for a good theory of intuition. Thus the features are the criteria for us in selecting good candidates of theories of intuition.

In the second part, the thesis will introduce several substantial theories of intuition offered in recent literature, and evaluate these theories by whether they

[3] I choose to believe that psychological research can reflect what our intuition is, although some philosophers (e.g. Bealer; Ludwig) do not believe. Their arguments against psychological research (third-person approach) on intuition and the reasons that I still believe in psychological research will be discussed in later section and in part II.

can offer good explanations for the features of intuition listed in part I. We will find that, unfortunately, there still seems to be no satisfactory account of intuition among the theories selected in philosophy, but there seems to be a good theory of intuition in psychology. Even if this conclusion is controversial, the thesis at least provides the ground of selecting good theories of intuition, with the help from psychological research.

It is the time for us to progress to the next section. But before we follow the plan to discuss the features of intuition, there are some related issues that have to be discussed in advance.

1.2 Background Questions

To avoid ambiguity and misunderstanding, the thesis plans to use some space to discuss three problems of intuition first, namely: (1) what intuition is; (2) what kinds of theories we are seeking; (3) the disunity of intuition; and (4) the argument of irrelevance. It is important to clarify the terms that will be used in this paper and to have some consensus on what sorts of evidence we can use in studying intuition, since it is difficult to continue our discussion unless we can have some agreements on these three problems. They will be discussed in the following in turn.

1.2.1. What is intuition: The target of this paper

When a professor tries to explain what methodology philosophy uses in the classroom, he/she usually gives the students a thought experiment to consider. The professor gives, for example, the case of the *inhospitable hospital* to the students: a case asking whether a doctor should cut up a healthy person and give the vital organs to five patients in order to save their life. Normally this thought experiment can elicit the intuitive feelings of students that 'the doctor should not cut up the healthy person'. When most of the students reply that they have a kind of immediate striking feeling for this case, the professor will ask them to refer this kind of experience as intellectual seeming or intuition.

This kind of experience is believed to be commonly shared by many people. Using this kind of experience in justification is argued as the traditional characteristic methodology of philosophy. The uses of this kind of experience in arguments generally appear in the history of philosophy, starting from the time of Plato. For example in the *Theaetetus*, Socrates argues against the claim that 'knowledge is merely true judgment' by using the analogy with the jury, eliciting Theaetetus and the readers' striking feelings in supporting his claim. In the *Meditations*, Descartes argues that the existence of God is justified by the 'light of nature', which is similar to the striking feelings mentioned.

The aims of this thesis are to provide the method of seeking a generally acceptable theory of intuition and to seek one of the good theories. The targeted 'intuition' here is the intuition in philosophical sense, which appeared in the philosophical discussions mentioned above. The paper is willing to give a clear definition for this kind of striking experience if it can. However, even though the term 'intuition' is excessively used in contemporary philosophical discussion, it still seems exceedingly difficult to give a satisfactory generally accepted definition for this kind of feeling.

This kind of experience is clearly different from 'intuition' in the ordinary sense. As Sosa points out, in the ordinary context, it is acceptable to define 'intuition' as 'apprehensions without reasoning', but this definition would include perceptual and introspective apprehensions also, which are clearly not the targets in our philosophical discussions. Even if we change the definition to "non-inferential belief due neither to perception nor to introspection" (Sosa, 1998, pp. 257-258), the definition is too broad since it still includes beliefs unrelated to our discussion such as hunches and guesses. The 'intuition' we are interested in is different from the ordinary and broad sense in daily conversation. To discuss 'intuition' in philosophical sense, we probably need a more detailed description or a new definition for 'intuition'.

Therefore, it is natural for philosophers to specify the targets of their studies in intuition, to restrict the use of term 'intuition' to the use which philosophers care about. For example, Alvin Goldman and Frank Jackson specify that their interested target is *classification or application intuitions*, distinguished from what Goldman calls '*garden-variety intuitions*', which include "premonitions about future events, intuitions about a person's character (based on his appearance, or a brief snatch of conversation), and intuitions about probabilistic relationships." (Goldman, 2007, p. 3) George Bealer (1998) distinguishes *rational intuition* from *physical intuition*, and claims that rational intuition is the target of philosophical discussion.

These are the attempts of philosophers trying to distinguish the notion of 'intuition' between the use in the daily conversation and the use in the philosophical sense, and it seems that we have to restrict the use of the term to the philosophical sense. However, we might worry that the philosophers restrict the use of the term to a controversial sense or to a too narrow sense. The specification of the term may also not be sufficiently clear. For instance, '2+2=4' is one of the examples of intuition for Sosa (1998) and it seems not to be a kind of classification or application intuition for Goldman, but it is believed that most of us would count it as one of the targets we would like to be discussed. Bealer (1998) also restricts his account of intuition to the immediate feelings elicited in the reliably good

cognitive conditions. Bealer says: “[s]uch conditions might be beyond what individual human beings can achieve in isolation” (1998, p. 202), which is so far-out that would exclude most of philosophical practice. But the experience we are interested in seem should be commonly and easily found in philosophy. It seems that these philosophers have to relax restrictions for the uses of the term, by clarifying what they mean by the classification intuition or rational intuition, in order to include the experience we are interested in, but a more direct approach would be to have a new specification on the target of discussion, to include most of the intuitions we are interested in, in an easier way.

The paper will use the term ‘intuition’ in the broader sense than those philosophers specified, to include some of the mathematical or probabilistic intuitions. On the other hand, the term will be used in a narrower sense than the use in the daily conversation, excluding hunches and guesses. It seems to be generally accepted that intuition is some robust, striking, rapid feelings generated by apprehending propositions or thought experiments, without any conscious inference processes. Although the description given may have flaws, the targets are familiar enough to form a basis for the current discussion, thus this description for the target seems to be sufficient for current purposes. Note that in the following, the thesis will also use the term ‘intuitive feelings’ to mean the feelings described

above.

1.2.2. What kinds of theories we are seeking?

The thesis describes intuition as robust, striking, rapid feelings generated by apprehending propositions or thought experiments, without any conscious inference process. Someone may then ask, “Why isn’t this the theory of intuition we are seeking?” If we think it is uncontroversial that intuition is immediate striking feelings, then it could be viewed as a generally accepted theory for intuition. Why does the thesis not consider this as one of good theories of intuition?

The thesis has to emphasize that the theories we are really interested in are not merely true, but also complete and valuable. By complete and valuable, the thesis means the theories of intuition have to be able to explain how our intuition operates, to explain why we have the intuitions we do on particular cases and to accurately predict what intuitions we will have when encountering a certain thought experiment. This can help us in giving us more insight into intuition, for example its reliability and its evidential status. A good theory of intuition may even help us to answer whether philosophers ought to use intuition as methodology in studying philosophy.

Complete and valuable theories are expected to have explanatory and

predictive power, which can help us to answer further questions about intuition. Therefore the theories we are seeking are not merely analyses of the notion of intuition, but also theories that are capable of explaining and predicting what intuition we will have. What is added to our knowledge of intuition if we take 'immediate striking feelings' as theory of intuition? 'Immediate striking feelings' itself as theory of intuition could not clearly and directly give us information on how our intuition operates and what intuition we will have, and could not suggest us an answer to the further questions about intuition. Compare this with a theory of water; imagine we are told that the definition of water is 'H2O', but not anything else about chemistry. It may be a perfect definition of water. However, could we thus claim that this definition itself is a complete and valuable theory for water? Saying that water is H2O by itself, without accompanying chemical theory, could not give us explanation of some important features of water, like the reason why water is in the form of liquid at room temperature. Could the theory by itself predict what will happen if we boil water? To view the theory in this aspect, it seems we could not say 'water is H2O' is a complete and valuable theory of water.

In a similar vein, 'immediate striking feelings' may be a true definition of intuition, but it is not a full and successful theory. To be a full and successful theory, there are many details that have to be filled in. There are many suggestions on how

to fill in the details for this simple theory; we will examine some of them in chapter 3 and 4. Therefore, rather than attempting to modify this simple theory by ourselves, it may be quicker and better to seek a good theory of intuition among the theories selected in chapter 3 and 4.

The main point the thesis emphasized in this section is that the theories we are really interested in are the theories that have explanatory and predictive power on intuition. These kinds of theories are expected to be able to lead us to solve some further problems on intuition, on its reliability, its evidential status and whether philosophy ought to use it as methodology.

1.2.3. The disunity of intuition

We know that there are different kinds of intuition: epistemic intuition, mathematical intuition, moral intuition and the like. To have a theory of intuition seems to imply that we view these different kinds of 'intuition' as unified in a relevant way. Some philosophers argue that such unification should not merely be done by its verbal label 'intuition', but have to be unified in a relevant sense: contents, phenomenology, origins, et cetera.

One of the features of intuition in a later chapter (2.6 Heterogeneity) suggests that different kinds of intuition are not common in their contents, brain

mechanisms and so on. Someone thus questions whether it is possible to have a theory of intuition in general. Using an example from Sinnott-Armstrong and Wheatley (2012, p. 1), “Consider mineralogy. … [J]ade is not a unified mineral. Jade consists of two subtypes – jadeite and nephrite – with different chemical compositions: Jadeite is a type of pyroxene, and nephrite is a type of tremolite. Because of these chemical differences, it would be silly for a mineralogist to try to formulate a precise theory of jade in general.” Sinnott-Armstrong and Wheatley take this example as an analogy to moral judgments and claim that moral judgments are not unified in content, phenomenology, force, form, function, or brain mechanism; thus it is hard and not worth having a single theory for moral judgments. The example can also be taken as an analogy to intuition. There are in fact different kinds of intuition and they are not unified by the content, function, and brain mechanism either. Would it also be silly to have a general theory of intuition? It will undermine the thesis if it is not possible and not worthwhile to seek a general theory of intuition.

Though intuition is not unified in contents and brain mechanisms, it does not follow that it is impossible or not worthwhile to seek a general theory of intuition. The general theory is possibly valuable even if the targets of the theory are not genuinely unified. Taking perception as an example, there are theories for various

different types of perception, and scientific research on the structures and mechanisms of different senses: vision, hearing, olfaction, gustation, cutaneous senses and so on. We have a theory for any particular sense and these different senses obviously are not unified by their contents, phenomenology or brain mechanisms. Does it follow that it is silly to study perception as a unified topic or to seek a general theory of perception? Clearly it is not the case. The general theory of perception is needed to study the processes of perception: sensation, perceptual organization and identification of objects. We need the general theory to get the principles of perceptual grouping: How do we analyze and group sensory data? How different senses interact each other and identify objects? (Gerrig & Zimbardo, 2010) It is clearly insufficient for particular theories of perception to work independently and any particular theory of perception cannot give us what the general theory of perception can tell us.

In the general theory of perception, psychologists maintain that, for example, there are processes determining us to put attention to a particular object or event. One of these attentional processes is *stimulus-driven capture*. Stimulus-driven capture refers to the phenomenon where our focus is automatically captured by a particular object in the environment even when we are not attending to it. The phenomenon occurs in vision (e.g. the colour of a traffic light changes from red to

green) and also in hearing (e.g. you can clearly hear someone said your name even in a noisy environment). (Gerrig & Zimbardo, 2010) The best that a theory of any particular sense can do is only to generate the process of attention in particular senses, but the phenomenon seems not to be and should not be viewed as a separate organizational process for any particular sense. Only the general theory of perception can organize the phenomena to be a general process of attention.

In studying perceptual grouping, a group of psychologists argue that we use a series of principles in grouping the sensory data. These principles, known as the *Gestalt principles*, mainly apply in visual experience, but some of the principles can also apply to other types of perception like hearing. In vision, it is observed that humans use the *law of proximity* in grouping perceptual elements: humans tend to group the closest perceptual elements as a unit. For example, we tend to group the right-handed sided figure of Figure 1 as a three-column figure, while viewing the left-handed sided figure as a whole. (Gerrig & Zimbardo, 2010) On the other hand, humans also organize and group our perceptual elements in the realm of hearing. (Bregman, 1990) The Gestalt principles can also explain the grouping behavior of hearing. Using the law of proximity as an example again, when

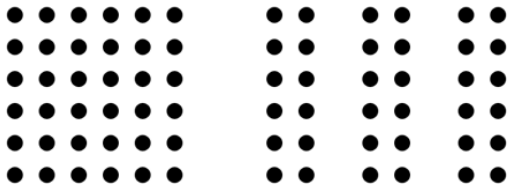

Figure 1 The law of proximity: humans tend to group the closest perceptual elements

we hear six clicks sound with regular temporal interval, we tend to organize them as six separated sounds. However, when we hear the sound with short temporal interval and long temporal interval appear alternately, we tend to group the perceptual elements as three double-click sounds rather than six separated sounds. It suggests that we are using the similar principle of grouping in hearing to vision and it is expected the principles may somehow apply to other types of perception also. Without the general theory of perception to view perception as a whole, it is unclear how we can generalize the Gestalt principles in vision to other types of perception.

Therefore, though the different types of perception are not unified, it is still possible, reasonable and valuable to study perception as a unified topic and have a general theory of perception.

There are various types of intuition which cannot be unified easily. There are also various researches (2.6) find that different types of intuition are actually generated by different brain mechanisms. The disunity of intuition, however, does not entail that we cannot study intuition as a unified topic and seek good candidates for the general theory of intuition, similar to perception. Though we cannot ensure that the general theory of intuition is as valuable as the general theory of perception, it does not prevent us from studying intuition as a unified

topic and it seems worth attempting to find the general theory of intuition at the starting stage. We can probably gain a better understanding on what intuition is.

1.2.4. The argument of irrelevance (IA)

Recently it is common for psychology and experimental philosophy to conduct surveys on the folk (i.e. non-academics). There are numerous researches conducted by asking the folk's responses to the philosophical thought experiments. The experimenters relate the data from the studies to the study of intuition, and interpret the general responses of the folk as the general intuitions of humans. For convenience, in the following the paper will call this experimenters-subjects method of studying intuition, following Ludwig (2007), the *third-person approach*. This contrasts with the *first-person approach*, where the method of experimenters are subjects (i.e. self-contemplation), in which the philosophers who are interested in intuition on any questions will sit in a comfortable armchair and ask himself/herself about what he/she thinks, instead of asking the opinions of the folks on the street.

In the study of intuition, some advocates of intuition (e.g. (Bealer; Ludwig)) impugn the third-person approach. The advocates emphasize that there is a gap between intuitive feelings and responses. The studies from psychology and

experimental philosophy can only collect the responses from the subjects, and the studies may not reflect the intuitive feelings the subjects have since the limitations of third-person approach which cannot be rectified enlarge the gap between the feelings and the responses. The argument that the psychological and experimental philosophical researches are irrelevant to the study of intuition is what the thesis calls the *argument of irrelevance*. (IA)[4]

Let us use the paper "Semantics, Cross-Cultural Style", the studies of Machery et al. (2004) on the theories of reference, as an example. The aim of the studies is to find if there are any differences of intuition on theories of reference between Western and Eastern groups of subjects. In the studies, Machery et al. set four thought experiments according to the form of Kripke's *Gödel case* and *Jonah case*, and survey the undergraduates from Western and Eastern cultural backgrounds. Here is one of the vignettes they used in the survey:

> "Suppose that John has learned in college that Gödel is the man who proved an important mathematical theorem, called the incompleteness of arithmetic. John is quite good at mathematics and he can give an accurate statement of the incompleteness theorem, which he attributes to Gödel as the discoverer. But this is the only thing that he has heard

[4] Note that the argument of irrelevance (IA) is an important component of this thesis, which will mainly be used in part II. For convenience, the thesis will abridge the term to IA in the later chapters.

about Gödel. Now suppose that Gödel was not the author of this theorem. A man called 'Schmidt' whose body was found in Vienna under mysterious circumstances many years ago, actually did the work in question. His friend Gödel somehow got hold of the manuscript and claimed credit for the work, which was thereafter attributed to Gödel. Thus he has been known as the man who proved the incompleteness of arithmetic. Most people who have heard the name 'Gödel' are like John; the claim that Gödel discovered the incompleteness theorem is the only thing they have ever heard about Gödel. When John uses the name 'Gödel', is he talking about:

(A) the person who really discovered the incompleteness of arithmetic? or

(B) the person who got hold of the manuscript and claimed credit for the work?" (Machery, Mallon, Nichols, & Stich, 2004, p. 7)

In the studies, the subjects are asked to choose between the descriptivist theories of reference (A) and the causal-historical theories of reference (B). For the purpose of analyzing the data, each response consistent with the causal-historical theories of reference was given a score of 1, otherwise it was given a score of 0. The scores were summed up, and the results are shown in Table 1 in below.

	Score (SD)
Gödel cases	
Western participants	1.13 (.88)
Chinese participants	.63 (.84)
Jonah cases	
Western participants	1.23 (.96)
Chinese participants	1.32 (.76)

Table 1 The results of experiments from Machery et al. (2004) Mean scores for experiment 1 (SD in parentheses)

Machery et al. believe the results reveal a significant difference in the intuition of theories of reference between Western and Chinese subjects on the Gödel cases. Although there seems to be no significant differences between two groups of subjects on the Jonah cases, they believe the results showed that there is probably a variation of the intuition of different groups of subjects.

How Machery et al. explain the lack of significant differences between two groups of subjects in the Jonah cases? They explain the results by claiming that the thought experiments may be too long and too complex for the subjects to attend to the relevant materials in the vignettes. This explanation has cast doubt on the results of experiment in Jonah cases, but the explanation could not apply to Gödel cases, since the Gödel cases, as adduced above, are considerably shorter and simpler cases than Jonah cases. Assume that Machery et al. give the right explanation to the insignificant results in Jonah cases. Could we simply ignore the results of Jonah cases and take the results of Gödel cases as the evidence of the variability of intuition in different cultural groups?

There are still, unfortunately, several worries to the interpretation of the results and the methodology of the studies on Gödel cases. Both Ludwig (2007, p. 150) and Deutsch (2009) suspect that there is misunderstanding of the subjects to the thought experiments since there are possibly two interpretations for the questions of the thought experiments. When the experimenters ask "when John uses the name 'Gödel', who is he talking about?", the subjects can interpret the question as "to whom does John intend to refer when he uses 'Gödel'?" or "to whom does the name, 'Gödel', refer when John uses it?". The ambiguity of the semantic reference and the speaker's reference of the term may make differences between the responses of the subjects from different cultures. (Deutsch, 2009, p. 454) In the studies, we are interested in intuitive feelings on the exact same proposition. If the different response patterns are only due to different understandings of the question, it cannot be evidence for the variability of intuition of different groups of subjects.

Moreover, Sosa (2005) points out that the design of the survey may also prevent the experimenters from eliciting the intuitive feelings of the subjects. Although Sosa is arguing against other studies from Weinberg, Nichols and Stich (2001), the studies of Machery et al. have a similar flaw. In the thought experiments, the subjects can only choose between the descriptivist theories of reference and

the causal-historical theories. There is no third choice for the subjects. The subjects may possibly not have any feelings on the thought experiments, but be forced to choose one of the answers given. It is not feasible to interpret these responses as the intuitive feelings of the subjects and the results of the studies probably cannot reflect the intuition of the subjects.

Furthermore, Ludwig (2007) contends that there are many other factors that could prevent the experimenters from eliciting intuitions in response to the exact same targeting vignette of the subjects. For example, the subjects may have different understandings of the task and the vignettes because the survey is not conducted in the subjects' first language. The subjects may have different background beliefs. Some of the subjects may not pay enough attention to the experiments and may give a random answer to the experimenters. It is also possible for the subjects to worry about how their responses are taken in some other cases. For example, it is possible for psychopaths to judge transgressions more severely but not according to their intuitive feelings, since they are motivated to show that they are ready to go back to society. (Blair, 1995, p. 23)

All of the factors mentioned above possibly enlarge the gap between the targeted intuitive feelings and the responses of the subjects. The factors prevent the experimenters from inferring intuitive feelings from the responses of the

subjects. Is there anything worse than this? Yes. Even if we can ensure the responses truly reflect the intuitive feelings of the subjects, the results do not necessarily reflect the 'real' intuition for some of the advocates, which they believe is what we should pursue. The advocates emphasize it is possible to have a gap between intuitive feelings and 'real' intuition, not only between the responses and intuitive feelings of the subjects. Differences between the notions of responses, intuitive feelings and 'real' intuition would be clearer by considering two examples. Suppose a subject has certain intuitive feeling to a vignette, but he/she misunderstands the question and gives a response that hardly reflects what he/she feels at that time. It counts as a gap between responses and intuitive feelings. Compared with another case that a subject makes the judgment according to his/her intuitive feeling to a vignette, but he/she makes the judgment while he/she feels angry or disgust. Some philosophers believe the feeling of the subject at that time cannot truly reflect what the subject's 'real' intuition is to the vignette. It counts as a gap between intuitive feelings and intuition.

In order to express the 'real' intuition, the subjects have to make judgments in high quality cognitive conditions. Some advocates believe the subjects need to have competence with the involved concepts.[5] It is hard to ensure this if we use the

[5] To have competence with a concept is, in Bealer's words, to 'possess a concept determinately'. What is meant by 'possess a concept determinately'? Bealer says "A subject possesses a concept in

third-person approach in studying intuition. Therefore, on Ludwig's way of thinking, the only plausible way of studying intuition is the first-person approach. Using any results from the third-person approach to argue against intuition seems to be unfair to the advocates of intuition.

This 'real' intuition argument seems to suggest 'successfulness' as a component of intuition. The philosophers who use this argument seem to be sympathetic with the idea that once intuition is elicited under high quality cognitive conditions, it is rare (or impossible) for intuition to go wrong.[6] For now let us set aside this radical thought; the thesis will argue against the success conditions of intuition in part II.

I am sympathetic with the philosophers who doubt the validity of the third-person approach to some extent: the data from the surveys sometimes are not plausibly interpreted as intuitive feelings of the subjects. There is anecdotal evidence from my own findings. I have translated the vignettes from the paper of Machery et al. into Chinese[7], expressed to nearly thirty people and asked for their

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the full sense iff (i) the subject at least nominally possesses the concept and (ii) the subject does not do this with misunderstanding or incomplete understanding or just by virtue of satisfying our attribution practices or in any other weak such way." (Bealer, 1998, p. 222) Likewise, a subject is in high quality cognitive conditions if he/she is free from misunderstanding.

[6] Ludwig believes 'real' intuition at least reveals the psychological truth in oneself, "a conceptual truth is any truth knowledge of which is attainable on the basis of competence in deploying the concepts involved in it." (Ludwig, 2007, p. 133) Bealer believes that 'real' intuitions have a strong modal tie to the truth. He says "x determinately possesses a given concept iff, for associated test property identities p: x would have intuitions which imply that p is true iff p is true." (Bealer, 1998, p. 225)

[7] I have attempted to ask people to response to the original vignettes in English, but most of them

answers on two-forced choice questions and opinions. Although the results of two-forced choices seem to support the expectation of Machery et al., the post-answer opinions from the people seem to confirm what Deutsch, Sosa and Ludwig guess. One person reports that he chooses the descriptivist responses because the vignettes emphasize the protagonists "only know" something about Gödel and Tsu Ch'ung Chih. He seems to believe that this information for the protagonists must be relevant to the answers and thus chooses the descriptivist answers. Another person reports that she thinks that both answers in the Gödel cases are acceptable, so she just randomly chose the descriptivist answer; there are four other people who spontaneously report that they need a third choice instead of choosing between causal-historical theory and descriptivist theory. They tell me I should add a choice like 'no comment' or 'both answers can be accepted'. More interestingly, although I have extremely careful translation on the question "when John uses the name 'Gödel', who is he talking about?" to avoid misunderstanding that the question is not asking for the speaker's reference, two people still report that they think the question is asking for what John intends to refer to.

It is apparently inappropriate to interpret the responses of these people as reflecting their intuitive feelings. However, if we leave out the responses that are

quickly lose their interest and refuse to respond. Although the universities in Hong Kong are English speaking universities, it is still important to translate the materials of the survey to the first language of the participants.

hardly treated as the intuitive feelings we are interested in, the results of the informal survey then become less significant and uninteresting. I suspect that the participants of Machery et al.'s survey have similar feelings. It is quite doubtful whether the results can truly reflect the intuitive feelings of the subjects.

There are several other worries that the third-person approach may face in studying intuitive feelings. Participants may not understand the technical terms used in the vignette well and give the answer under misunderstanding, for example the terms 'laws of nature' and 'current state'. (Nichols & Knobe, 2007, p. 667) It is also possible that participants give the answer near the midpoint because of their uncertainty about the task. (Nagel, 2011, p. 24) If a survey targets only undergraduates or the folk, this can also possibly cause a systematical error in survey. It is unclear that whether we can generalize the results from these studies as reflecting the intuitions of professional philosophers. (Haidt, Koller, & Dias, 1993, p. 625; Ludwig, 2007) Some philosophers thus suggest that we have to study intuition by merely using first-person approach. Since we know about how we feel better than others feel, we may be the best interpreters for the feelings of us. Many of the worries in studying intuition mentioned above could probably ward off by using the first-person approach.

Clearly the survey has the limitations in eliciting and studying intuition.

However, it seems inapposite to recklessly banish the use of the third-person approach in studying intuition. As mentioned in 1.2.1, the target of this thesis is specified as immediate striking feelings. It is unclear why this target is impossible to be studied by the third-person approach.

There are numerous techniques of the third-person approach that can prevent the responses of the subjects from being affected by misunderstanding or the setting of the survey in general. For example, avoiding using technical terms in the expression of vignettes; asking participants to justify their answer in a few sentences; random assignment of the participants to prevent systematic differences from the unrelated variables; exclusion of participants who guess the hypothesis of the experiments to prevent the participants giving the answers which the experimenters expected; using a Likert scale or adding a third choice in the survey instead of only two choices, to prevent forcing the participants to choose an answer which does not best reflect their intuitive feelings; using the back-translation method to translate the vignettes into the first language of the subjects to prevent the subjects from misunderstanding or losing interest in the vignettes.

By applying these techniques to the third-person approach generally, we probably can avoid misinterpretation for the intuition of the subjects, although the experimenters have to bear that it is more difficult for the survey to have significant

results. Deutsch (2009) and Stich (2012) also note that by having better clarification of the involved concepts and control of the factors, it is possible to avoid the ambiguities and elicit the responses which we are really interested in.

In fact the first-person approach also has some obstacles in studying intuition. When using the first-person approach in studying intuition, it is possible for the philosophers to erroneously ignore some factors causing the feelings they have and to give a bad explanation for them. For example, in one of the studies from Lewicki (1985), participants are arranged to have an unpleasant communication with one of the experimenters. There is a significant tendency that the participants choose to avoid contact with that experimenter in the later section of the experiment. Interestingly, when the participants are asked to explain their choice of avoiding that experimenter, they explain the behavior as a random choice. The implication is that even if we clearly notice we made a certain choice or had certain feelings, we may still possibly give a bad explanation or a false reason why the feelings are elicited. (See also (Nisbett & Wilson, 1977; Wilson & Stone, 1985; Wilson & Brekke, 1994))

The findings from psychology that it is common for human thoughts to be prone to have bias may make us less confident in the first-person approach of studying intuitions. It is found that there is a tendency for some people to

over-ascribe knowledge of an outcome to a protagonist if they know the results first; this is known as *hindsight bias*. (Fischhoff, 1975) Some people are prone to the *fundamental attribution error*, a tendency to ignore the influence from the environment and over-attribute behavior to the character or personality of the protagonist. (Ross, 1977) More importantly, some people are found to have *confirmation bias*. People tend to search for evidence supporting their preferred view. They often stop searching if they can find a few pieces of evidence, even if that evidence is bad evidence. (Haidt, 2001) Because of these biases in human thought, it seems also reasonable to question the accuracy of first-person description and explanation of intuitive feelings.

The possibility of confusing the source of memory also poses a threat to the first-person approach in studying intuitions. It is found that the source of memory can sometimes be easily confused. To illustrate, here is a short story of Donald Thomson from Baddeley:

> "Australian eyewitness expert Donald Thomson appeared on a live TV discussion about the unreliability of eyewitness memory. He was later arrested, placed in a lineup and identified by a victim as the man who had raped her. The police charged Thomson although the rape had occurred at the time he was on TV. They dismissed his alibi that he was in plain

> view of a TV audience and in the company of the other discussants, including an assistant commissioner of police. The policeman taking his statement sneered, 'Yes, I suppose you've got Jesus Christ, and the Queen of England, too.' Eventually, the investigators discovered that the rapist had attacked the woman as she was watching TV - the very program on which Thompson had appeared. Authorities eventually cleared Thomson. The woman had confused the rapist's face with the face that she had seen on TV." (Baddeley, 1982, p. 133)

It is also found that memory can be confused with imagination. (Finke, Johnson, & Shyi, 1988) Note that memory should be distinguished from intuition; the intuitive feelings we are interested in should not be merely recalling of our memory, since intuitive feelings are able to respond to new cases. (2.2) Using the first-person approach, it is possible to misidentify memory as the intuitive feelings the subject has, which seems also to create difficulty for studying intuition by first-person approach.

Thus the first-person approach does not have as many advantages over the third-person approach as Ludwig thinks. However, the paper is not going to suggest that we give up the first-person approach in studying intuition. For now, there seems to be no perfect approach to studying intuition. The paper suggests that we

should also take the third-person approach into consideration, since there seem to be no better choices if we want to start our studies on intuition.

In the paper of Weinberg (2007), he makes a distinction between hopeful and hopeless sources of evidence. For a source of evidence to be hopeful, it is not required that the source be infallible, but only that it be possible for the errors to be detected and corrected. If a source of evidence is hopeful, it is reasonable for us to believe it even if it is not perfect. Weinberg seems to be right on this point, and it seems the third-person approach of studying intuition is hopeful and thus trustable. We should not ignore the efforts the experimenters currently put into their studies in avoiding misunderstanding, for example when they ask additional questions in the survey to ensure the participants understand the task. In studies surveying children, the experimenters sometimes mail the questionnaires to parents of participants to avoid misinterpretation of the responses of children. (Repacholi & Gopnik, 1997) As most studies have implemented enough controls to warrant at least some degree of confidence in their results, it seems unreasonable to reject the studies as evidence reflecting intuitive feelings.

In the following chapters, the thesis will select and use the studies from psychology and experimental philosophy as evidence for the features of intuitive feelings. If the studies are conducted in a good way, the paper will assume the

responses from the participants reflect their intuitive feelings. Although the third-person approach may still not be perfect in studying intuitions, it is believed that the studies will continuously progress in the understanding of intuition, and our good candidates for theories of intuition should be able to revise according to the results newly found by future research.

Chapter 2: The Features of Intuition

Following the plan given in the introductory part, this chapter aims at providing a list of the features of intuition as the ground for selecting good theories in the later part. The thesis will argue that (2.1) *fallibility*; (2.2) *novelty*; (2.3) *particularity*; (2.4) *plasticity*; (2.5) *variability*; and (2.6) *heterogeneity* are the features of intuition. What these features mean will be explained and elaborated in turn in the following sections. If it is true that, as this chapter will attempt to argue, intuition really has the features listed above, then good explanations for these features would be the desiderata for a good theory of intuition. Therefore, these features can serve as the criteria for selecting good theories of intuition in part II.

There are two strategies in play in the following to argue that (2.1) – (2.6) are really the features of intuition. The first strategy is (i) to show that these features are uncontroversial in philosophy, by (a) inquiring into the philosophical discussion of intuition, in order to find if a feature of intuition is directly admitted by a number of philosophers who are holding different views; or by (b) looking into the common practice in philosophy.[8] If it is found that a feature of intuition is uncontroversial in philosophy, a good theory of intuition seems to need to explain the feature well, or

[8] Herman Cappelen in his book *Philosophy without Intuitions* (2012) seems to play a similar strategy of looking into the common practice in philosophy. Cappelen first characterizes the features of 'intuition', then claims that in the common practice of philosophy our usage of 'intuition' lacks those features, and thus concludes that there is no such practice in philosophy of appealing to intuition at all. I am not convinced that the features that Cappelen listed are the uncontroversial features of intuition. This thesis aims to motivate a competing account of the central features of intuition.

give a strong reason for rejecting the feature.

As mentioned in 1.2.4, the thesis accepts both first-person and third-person approaches in studying intuition. The second strategy is simply (ii) to use the results of psychological studies as support. The results of psychological studies may reveal some interesting features in the responses of the subjects. The thesis will assume the results also reveal some interesting tendency of the subjects' intuitive feelings and suggest certain features for intuitive feelings. As it is assumed that 'philosophical intuition' is 'intuitive feelings' in the thesis, a good theory of intuition in the thesis has to (a) explain the features suggested by psychological studies; or (b) at least give a good explanation of why the experiments have such and such results.

There are several other things worth noting here before the discussion of any particular features of intuition. First, it has to be noted that the list of features (2.1) – (2.6) is not gained from analysis of the notion of intuition, but is argued for by viewing them as a matter of fact. Someone may then worry why a good theory must explain these features, but as the thesis noted in 1.2.2, the theories we are seeking are good and valuable theories. If these features are really general tendencies of our intuitions, as the thesis will argue in the later sections, then it seems that a good theory needs to offer explanation for these important features.

Second, the list of features is only the preliminary list for the features of intuition, generated from the current studies and self-observation in a limited time. The list of features is possibly incomplete. This list of features is open to modification; the members in this list can be freely withdrawn or added, by using the strategies (i) and/or (ii) mentioned above, without posing any threat to this thesis. Although it is possible that this list of features is incomplete, the features seem to at least have enough prima facie plausibility that a good theory of intuition must address them or explain them away. Thus the list of features could be the criteria of selecting good theories of intuition.

Third, since the target of this thesis is most kinds of philosophical intuition, the features in the list should be generally revealed in most kinds of intuition, not merely in a certain type of intuition, for example epistemic intuition. Otherwise the feature is not a feature of intuition but a feature of epistemic intuition only, which is not the target we are mainly interested in. For the same reason, the general theory of intuition should be able to give an explanation for the features in the most kinds of intuition, not merely in a certain type of intuition. The aim of this thesis is selecting the good general theories of intuition, not in selecting the good theories of epistemic intuition.

Fourth, the features listed above are not completely distinct features.

Sometimes the features may overlap each other. It is possible for the same study to give evidence for several features of intuition. For example, the thesis will argue that *variability* (roughly, different groups of subjects may have different intuitive feelings on the exact same vignette/proposition) is a feature of intuition. The results of psychological studies supporting the view that variability is a feature of intuition may also be related to *fallibility*, another feature of intuition that intuition may sometimes go wrong. In this case, the thesis will mention the psychological studies in the section of the feature that is most relevant, but note that some researches are in fact support for several features and some of the features are inter-supported.

The last thing that has to be noted here is that the thesis will make careful use of the terms 'intuition', 'intuitive feelings' and 'responses'. For the term 'responses', the thesis uses it to refer to the utterances or written responses given by the subjects in psychological studies. For the term 'intuitive feelings', the thesis uses it to mean the immediate, striking feelings of the subjects. The thesis uses the term 'intuition' in describing the discussion in philosophy, but please note that in the thesis it is believed that 'intuitive feelings' is 'intuition' in the philosophical sense.

2.1 Fallibility

The first feature of intuition the thesis introduces is *fallibility*. It simply means that the contents of intuition, or intuitive feelings, can possibly be false.

In recent philosophical discussions, although there are numerous disputes over intuition, for example the degree of reliability intuition has and the role of intuition in philosophy, there are still some features that most philosophers generally accept. Fallibility seems to be one of those uncontroversial features for intuition. Not only the opponents, but also the advocates of appealing to intuition accept that fallibility is a feature of intuition, even for the philosophers who believe in a priori intuition, and for the radical advocates of intuition. For example:

> "[I]ntuitions are not infallible evidence about that personal concept."[9] (Goldman, 2007, p. 15)
>
> "[I[ntuitions can (at least occasionally) be mistaken." (Bealer, 1992, p. 104)
>
> "Actually, we have long known of the fallibility of apparent rational intuition, even in the best conditions of alertness, normality, and reflection time." (Sosa, 1998, p. 261)

[9] For Goldman, intuitions are basic evidence concerning one's own psychological concepts or tacit theories, concerning only the psychological truth in one self, but not the objective truth. (Pust, 2000, p. 252; Nagel, 2007, p. 802) Goldman believes that due to false beliefs or misunderstanding, it is possible for the subjects' intuition to inaccurately reflect the subjects' own concepts.

It is apparent that the advocates admit, at least ostensibly, that intuition is fallible, even when the subjects generate the intuition under good cognitive conditions. One of typical examples of fallible intuition in philosophy is the intuition on the *naïve comprehension axiom*. Some advocates of appealing to intuition admit they have this intuition, but they clearly mention that they believe the naïve comprehension axiom is wrong. Many linguists also argue that we generally have false intuitions that *garden path sentences* like 'the old man the boat' and 'the horse raced past the barn fell' are grammatically wrong. We also seem to have a false intuition that the series of natural numbers 1,2,3,4,5 … has more members than the series of odd numbers 1,3,5,7,9 … In fact both series have the same number of members.

The advocates, however, are in fact not interested in whether intuition is *fallible*. What the advocates really interested in is whether intuition is *acceptable* as evidence. The recent disputes in philosophy on the related aspect mainly focus on the reliability of intuition and the evidential value of intuition in the justification of beliefs. There are studies from experimental philosophy which suggest that intuition is unreliable on some occasions, and there seems to be no good way for us to distinguish bad intuition from good intuition. Some experimental philosophers

then conclude intuition is better not treated as evidence. Some advocates argue for intuition by pointing out that intuition, despite its fallibility, is in fact reliable enough to be treated as evidence. For example, Ernest Sosa (1998) makes the analogy between intuition and perception. He argues that intuition should have a similar evidential status as perception. These advocates believe intuition should be acceptable as evidence just like perception.

These issues are controversial and well-discussed by many philosophers. Thus this thesis will not repeat their arguments or take any stance on the acceptability of intuition as evidence. The thesis does not aim at getting into these complicated disputes. The thesis rather aims at seeking a ground of consensus to continue our discussion on intuition. Therefore, it will avoid getting into the disputes on the degree of reliability of intuition and making any normative statement on intuition.

The thesis will gather the features of intuition that philosophers generally accept and/or the psychological findings suggest. *Fallibility*, but not *acceptability*, is one of the good candidates for these features. Both the advocates and opponents clearly accept that the intuition is sometimes mistaken and the focus of discussion is shifted from the fallibility itself to the acceptability as the evidence seems to suggest this feature is generally accepted in philosophical discussion.

To avoid misleading, it is worth reminding that there are philosophers (e.g.

(Bealer; Ludwig)) who believe certain intuitions are infallible. These philosophers make the distinction between 'intuition' and 'real' intuition (or for Ludwig the 'ipso facto intuition'). They argue that the latter is infallible since 'real' intuition requires the subjects to make judgments under reliably high cognitive conditions. These arguments will be examined in chapter 3.1. Nevertheless, even if these philosophers desire the infallibility of 'real' intuition, they at least accept some degree of fallibility to 'intuition'.

It is obvious that there is general acceptance to fallibility of intuition in philosophy. There is also a large body of psychological studies that find that the responses of subjects sometimes easily go wrong. It provides evidence that human's intuitive feelings are possibly flawed. Typical examples of such studies would be the studies about the *conjunction fallacy*, the *base rate fallacy* and the *Wason selection task*. These studies found that sometimes subjects perform poorly in responding to probabilistic or logical questions.

Consider the *conjunction fallacy* first. It is clear that it is more probable for a particular event (e.g. P(A)) to occur than the conjunction of that particular event and another event to occur (e.g. P(A&B)). However, the studies from Tversky and Kahneman (1982) find a significant number of subjects falsely judge the opposite.

For example the famous *Linda case*:

> "Linda is 31 years old, single, outspoken, and very bright. She majored in philosophy. As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations." (Tversky & Kahneman, 1982, p. 92)

The subjects are asked to rank which of the eight statements for Linda is more probable. Three of these statements are:

> Statement A: "Linda is active in the feminist movement."
>
> Statement B: "Linda is a bank teller."
>
> Statement C: "Linda is a bank teller and is active in the feminist movement." (Tversky & Kahneman, 1982, p. 92)

Statement A and B is a statement of a particular event (probability to occur is P(F); P(T)), and statement C is a statement of the conjunction of that two events (probability to occur is P(F&T)). Many subjects correctly judge statement A is more probable than statement C. Surprisingly, however, the subjects tend to falsely rank statement C (P(F&T)) more probable than statement B (P(T)).

There are further studies that found that the subjects' judgments on probability are flawed on some other occasions. Consider the *base rate fallacy*. The studies ask the subjects to judge:

> "If a test to detect a disease whose prevalence is 1/1000 has a false positive rate of 5%, what is the chance that a person found to have a positive result actually has the disease, assuming you know nothing about the person's symptoms or signs?" (Casscells, Schoenberger, & Grayboys, 1978, p. 999)

More than half of the subjects judge that the probability that the person has the disease is 95%, but the correct answer is in fact merely 2%, far less than the answer of most of the subjects.

The *Wason selection task* also a good example in illustrating the fallibility of the subjects' judgments. (Wason, 1966) Suppose we have four cards on a table. Each card is printed with a number on a side and a letter on another side. The four cards on the table are now shown 5, 4, A and K (Figure 2). Suppose we are also interested in testing a proposition that 'for a card printed with an even number on one side, its opposite side is printed with a vowel'. Which card(s) we must turn over to check whether this proposition is true for these four cards?

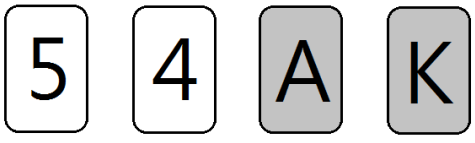

Figure 2 An example of Wason selection task.

There is a tendency for the subjects to judge we must turn over the card printed 4, or both the card printed 4 and the card printed A. However, the correct answer is that we have to turn over the card

printed 4 and the card printed K, since only another side of ‘K card’ printed even number will violate the rule, whether another side of ‘A card’ printed odd number does not matter.

The second piece of the evidence comes from developmental psychology. Young children are often found to perform poorly in the *false-belief task* and the *appearance-reality task*. They seem to think the world is transparent to all people and thus are unable to attribute false beliefs to others or even to themselves. In the traditional *false-belief task*, children are told a story of two characters, for example Sally and Anne. Children are told that Sally has a basket and Anne has a box. Sally also has a marble. She puts the marble into her basket before leaving the room. While Sally is outside the room, Anne takes Sally’s marble and puts it into the box. Children are then asked when Sally is back, where she will look for her marble. The correct answer on this task is the original place Sally puts the marble (i.e. the basket) since the protagonist seems not to have a belief that her marble has been moved by another person. However, children under five seem to have tendency respond to the task falsely. They often respond that the protagonist will find the correct place for the marble (i.e. the box) without being able to give a good reason to justify their belief that the protagonist thinks the marble is in there. The results of the studies

suggest that children have difficulties in attributing false belief to other people. (Wimmer & Perner, 1983; Gopnik & Astington, 1988; Mossler, Marvin, & Greenberg, 1976; Wellman, Cross, & Watson, 2001)

Young children also perform poorly in the *appearance-reality task*. In the studies of Gopnik and Slaughter (1991; Gopnik & Astington, 1988), children aged between three and five are first shown an object, for example a crayon box. Children are asked to judge what is contained in the box and most of the children respond the object is used as its ostensible appearance (i.e. the box contains crayons). Children are then shown that the object is fake (i.e. the box actually contains candles). Children are asked to retrieve their past false belief before the box is opened. Most five-year-old children correctly report that they had a false belief before the box was opened. However, it is found that significant proportions of three-year-old children seem to have difficulty in reporting their past false belief. Three-year-old children seem to believe that they must have had a correct belief in the past. It seems to suggest that children under five also have difficulties in ascribing false beliefs even to themselves.

Attribution of false belief is one the important products of our epistemic intuition in philosophy. The development of children's thinking on attributing false beliefs (and also moral judgments, evidence provided in chapter 2.5) countenances

the fallibility of intuitive feelings on two aspects. First, the studies from developmental psychology show that children give the false responses in a number of experiments. The results suggest children have bad intuitive feelings on those tasks and thus seem to support that the intuitive feelings can possibly be false. Second, the results show that our intuitive feelings are not innately perfect. Although these intuitive feelings will be developed over age, the development is made following our long history of evolution. As evolution more likely leads us to a larger chance to survive but not to a larger chance to find the truth, it seems more plausible to assume that these intuitive feelings are still possible to have flaws. Therefore, developmental psychology seems to provide us good evidence in thinking that it is possible for intuitive feelings to go wrong.

It is worth noting that there is theory that views epistemic intuitive feelings as largely related to the *feeling of knowing* (FOK) and the *feeling of another's knowing* (FOAK) state. (Nagel, 2007) The FOK state is a mental state that one feels he/she 'knows the answer of a question', before he/she actually gets the exact answer. One can have this strong feeling even when he/she is unable to remember the exact answer of the question. This state is best illustrated by the idiom 'on the tip of one's tongue'. The FOAK state is different from the FOK state, and is a mental state that one feels regarding whether another person knows something. The confident

utterance of another person can trigger one's FOAK state and one will tend to ascribe knowledge to that person, while avoiding eye contact or some gestures may prevent one from ascribing knowledge. Both of these states are treated as heuristic processes that can save our cognitive energy in selecting trustable testimony. However, the heuristic processes often make the tradeoff between accuracy and the time in responding. By using cognitive shortcuts, the processes use less mental resources and respond quicker but make less accurate judgments. For example, confident utterance does not necessarily correlate perfectly with possessing knowledge. It is possible for the subjects who use the FOAK state to ascribe knowledge to make false judgments. If epistemic intuitive feelings really related to these two states, the theory seems to suggest that the feelings are open to error.

The third piece of evidence comes from the studies on group differences of responses. These studies will be mainly concerned in the section on *variability* (2.5), but the studies also suggest fallibility to a certain extent. Roughly, different responses from the subjects on the same question seem to suggest some responses are flawed. In this section, the thesis will only consider the studies from Haidt and his associates (1993), and leave other studies to the section of variability.

Turiel (1979; 1983) tries to give definitions and make a clear distinction

between *moral* and *conventional rules*. In the early results of studies from Turiel and his associates, the subjects seem to perform very well in distinguishing moral and conventional transgressions. The subjects seem to be able to distinguish two types of transgressions and rules systematically. The differences between moral and conventional rules, on Turiel's view, can be summarized as four features. Moral rules are authority independent, and generalizable over the world. Violation of the rules will involve a victim and will be more serious than conventional transgressions. The features of conventional rules are just the opposite of the features of moral rules.

However, in the later studies of Haidt and his associates (1993), there seem to be group differences in making the moral/convention distinction. For example, subjects from different socio-economic status (SES) groups seem to make moral judgments differently on disgusting behaviors, like the *chicken case*:

> "A man goes to the supermarket once a week and buys a dead chicken. But before cooking the chicken, he has sexual intercourse with it. Then he cooks it and eats it." (Haidt, Koller and Dias, 1993, P. 617)

Haidt et al. find that the subjects in the low-SES group tend to erroneously judge this kind of disgusting but non-harmful behaviors as moral transgressions. The low-SES subjects believe the protagonist broke a rule that is authority

independent and generalizable over the world, which significantly differs from the judgments of the subjects in high-SES group. Someone may believe that disgusting behaviors are in fact moral transgressions. However, if the behaviors are moral transgressions, the high-SES subjects then misjudge the behaviors as merely conventional transgressions. Either way, the studies from Haidt et al. and also other studies on group differences of responses seem to suggest the fallibility of intuitive feelings.

It is evident that it is possible for the subjects to have a tendency to make false judgments on some occasions. These psychological studies seem to also provide evidence that the subjects' intuitive feelings are possibly flawed. As fallibility is an uncontroversial feature in philosophy and well supported by the psychological studies, fallibility seems to be a strongly supported feature of intuition.

2.2 Novelty

Novelty is another feature of intuition the thesis aims to argue. It roughly means that intuitive feelings are able to respond to new cases. In contrast with recognition, which is a feeling that is normally not ever generated in response to novel cases, it seems common for us to have some immediate, compelling feelings on previously unencountered vignettes. Thus it seems plausible to assume novelty as a feature of intuition.

Although novelty is believed to be a generally accepted feature in philosophy, philosophers, unfortunately, seldom have direct discussion of this feature. The only passage that directly mentions novelty is from Bealer, in a section where he argues against a reductionist account of intuition that views intuition as merely "a 'raising-to-consciousness' of nonconscious background beliefs". Bealer says this "proposal also runs into problems with the phenomenon of novelty. At any given time, there are a number of novel questions about which one has no belief one way or the other (even a nonconscious background belief) but about which one would have a clear-cut intuition." (Bealer, 1998, pp. 209-210) Apart from this passage suggesting novelty, discussion of this feature is rarely found in philosophy.

Luckily, the common practice of philosophers suggests they have in mind that

'intuition' has the feature of novelty. There are ample examples in philosophy suggesting that philosophers believe that intuition has the feature of novelty, and thus novelty seems to be an uncontroversial feature of intuition in philosophy.

It is clear that there are times when we have not encountered a particular vignette in philosophy, but when the vignette is presented to us, it can elicit our compelling feelings at first time. Philosophers seem to believe in the novelty feature of their readers' feelings. Otherwise it seems less obvious why philosophers construct new vignettes in supporting their arguments. For example, in *A defense of abortion*, in arguing it is morally permissible to have abortion, Thomson (1971) introduces a *violinist case* in supporting her argument. The vignette is compelling in eliciting the readers' feelings that 'it is permissible for the protagonist to disconnect with the violinist' even they read the vignette for the first time. Similar practice can be widely found in philosophical discussion, for example in the *Gettier case*, *Bertrand Russell's barber case*, the *trolley case*, the *twin earth case* and the *inhospitable hospital case*. If philosophers do not believe the new cases can elicit the readers' compelling feelings in supporting their arguments, it seems strange for philosophers to continuously be giving new cases in their arguments. Therefore, the common practice for philosophers to continuously use new cases in arguments gives strong evidence that novelty is a generally accepted feature of intuition in

philosophy.

It is also rarely found that psychological studies directly examine this feature of intuitive feelings. Nevertheless, there is discussion of the relation between 'creativity' and 'intuition'[10] which seems to indirectly support the novelty of intuitive feelings. Specifically, if novelty is not a feature of intuitive feelings such that intuitive feelings are unable to respond to new cases, it seems there is no natural explanation on how intuitive feelings can link to 'creativity', to make creative process or to generate creative ideas.

There is empirical evidence supporting the link between creativity and intuitive feelings. In psychology, there are several indicators used in testing the subjects' preference on intuitive cognitive style, for example the *Myers-Briggs Type Indicator* (MBTI) and *Psycho-Epistemological Profile*. These two indicators are found to have a correlation with creativity. In the studies of Hall and MacKinnon (1969), they survey a number of architects using MBTI. Hall and MacKinnon find that there is a tendency for highly creative architects to prefer the intuitive cognitive style, which is the cognitive style that makes judgments quickly and automatically, compared with the non-creative subjects. In some other studies, it is also found

[10] Note that the term 'intuition' used here is in the sense employed by psychologists. The term is used in relatively broader sense than philosophical discussion. The thesis will use 'intuitive feelings' in describing psychologists' views and studies instead to avoid ambiguity.

that MBTI and Psycho-Epistemological are correlated with *Barron-Welsh Art Scale* (BWAS), which is a scale indicating creativity. (Hill, 1987-1988)

In a more recent research, Raidl and Lubart (2000-2001) also aim at studying on the correlation between intuitive cognitive style and creativity. In order to measure subjects' preference for using the intuitive cognitive style, Raidl and Lubart use two questionnaires and two tasks for testing intuitive behaviors. In two questionnaires, the subjects are asked to self-evaluate their preference for rational or intuitive cognitive style and to choose the responses of particular situations between rational or intuitive behavioral pattern. In the tasks of testing intuitive cognitive style, the subjects are asked to perform certain tasks, for example grouping different given objects, and the subjects' performances are then given a score by the judges in measuring the subjects' preference for intuitive cognitive style.

The results find that the score on one of the questionnaires is significantly correlated with the performance of the subjects in several creativity tasks, for instance, a task asks the subjects to suggest methods of escaping from a high tower by using a short cord. The results seem to suggest a correlation between intuitive cognitive style and creativity, and thus also indirectly suggest the novelty feature of intuitive feelings.

However, there are at least two worries about these studies. The first worry is on the validity of the MBTI and Psycho-Epistemological Profile in measuring the preference of intuitive cognitive style. It is also doubtful whether these two scales are totally independent from creativity. If the scales are in fact also testing creativity, it is unsurprising that highly creative subjects get higher scores on these two scales. Besides, in the study of Raidl and Lubart, the only significant correlation they found is the subjects' self-evaluation and the performance of tasks in testing creativity. The results suggest the correlation between the preference of intuitive cognitive style and creativity, but it probably needs more empirical evidence to show that there really is such correlation.

Although philosophical discussion and psychological studies do not provide a large amount of support for novelty, at least it does not seem to be a feature of intuition that has attracted attacks. Philosophical common practice that philosophers often use new cases in arguing seems to strongly and sufficient support that novelty is a generally accepted feature for intuition. Thus it seems better for a theory of intuition to be compatible with this feature.

2.3 Particularity

Intuitions in response to particular cases serve as the data for philosophy. Philosophers should organize the compelling intuitions into a coherent system, and build up theories according to the intuitions. This method, namely the *method of cases*, is believed by many to be the right way to construct theory in traditional philosophy. (Russell, 1912; Lewis, 1973) For example, Bertrand Russell describes how we do philosophy:

> "Philosophy should show us the hierarchy of our instinctive beliefs, beginning with those we hold most strongly, and presenting each as much isolated and as free from irrelevant additions as possible. It should take care to show that, in the form in which they are finally set forth, our instinctive beliefs do not clash, but form a harmonious system. There can never be any reason for rejecting one instinctive belief except that it clashes with others; thus, if they are found to harmonize, the whole system becomes worthy of acceptance." (Russell, 1912, p. 25)

Recently, although it is controversial whether the method of cases is the right way of doing philosophy (Cummins, 1998; Kornblith, 2006; Cappelen, 2012), the discussion of this method at least gives us some insight into what philosophers possibly believe. It seems possible that philosophers who have in mind that we are

doing philosophy by the method of cases may start forming this belief from their observation on the phenomenology of intuitive feelings, namely the *particularity* of intuitive feelings.

The thesis intends to emphasize the distinction between two senses of particularity. In one sense, intuitive feelings are attributed the feature of particularity since (*Pa1*) intuitive feelings seem to be more easily elicited by particular *cases* but not by general *principles*. In another sense of particularity, (*Pa2*) it seems easier for us to have intuitive feelings with particular *contents* but not with general *contents*. Take the Gettier case and Gettier intuition as an example; it is possible for our intuitive feelings to be elicited by the Gettier case (which is a particular case) but with the general content that 'JTB is not sufficient for the definition of knowledge'. This example supports *Pa1* but discourages us from believing in *Pa2*. Conversely, it is also possible for our intuitive feelings to be elicited by considering the general principle that 'JTB is not sufficient for the definition of knowledge' but with particular content that a certain protagonist in a hypothetical case does not have knowledge. This example discourages us from believing in *Pa1* but supports *Pa2*.

It is worth noting here that particularity is not a necessary feature for intuitive feelings in the sense that it is still possible for intuitive feelings to be elicited by

general principles or with general contents. Particularity is an interesting feature worth explaining since it seems there is a tendency for our intuitive feelings to be elicited by particular cases or with particular contents. If it is generally accepted that our intuitive feelings have this feature of particularity, it seems a good theory needs a good explanation of the feature or of why it appears to us that intuitive feelings have such a feature.

The thesis will argue for both types of particularity as features of intuitive feelings. Let us begin with the first type of particularity (i.e. (*Pa1*) intuitive feelings seem to be more easily elicited by *particular cases* but not by general principles).

The thesis first investigates the discussion and the common practice in philosophy in supporting *Pa1*. In different theories of intuition, the discussion of philosophers more or less implies that they believe intuition has the feature of *Pa1* to a certain extent. For example, although Bealer clearly mentions he has an intuition on the naïve comprehension axiom, he also emphasizes that intuition elicited by particular cases is one notable type of intuition. He says:

> "[The fallibility of intuition] pale by comparison with a positive fact, namely, the on-balance agreement of elementary concrete-case intuitions among human subjects. Indeed, the on-balance agreement among our

> elementary concrete-case intuitions is one of the most impressive general facts about human cognition." (Bealer, 1998, pp. 213-214)

The theories held by Alvin Goldman, Frank Jackson and Michael Devitt also seem to imply they believe *Pa1* is a feature of intuition. Goldman, for example, believes that what we mean by 'philosophical intuition' is the classification or application intuition, which is "[the] intuitions about how *cases* are to be classified, or whether various categories or concepts apply to selected *cases*. [emphasis added]" ((Goldman, 2007, p. 4) See also (Jackson, 1998; Devitt, 2005; 2006)) Goldman clearly thinks this type of intuition is often elicited by particular cases, as he says:

> "[P]hilosophers routinely consider actual and hypothetical examples and ask whether these examples provide instances of the target category or concepts. People's mental responses to these examples are often called 'intuitions'." (Goldman, 2007, p. 1)

Jonathan Weinberg also says:

> "In the extant practice of appeal to intuitions as philosophical evidence, one cites one's application or withholding of a concept from a given case, usually a hypothetical one, in defense of (or in order to attack) a particular philosophical claim." (Weinberg, 2007, p. 320)

It seems a number of philosophers believe the practice of appealing to intuition is application of concepts to particular cases. It is also natural for philosophers who hold such views to believe that it is more frequent and easier for intuition to be elicited by particular cases. There seems to be only a few theories which argue against *Pa1* for intuition. One of these theories is from Ernest Sosa. In Sosa's early view (1998), he clearly mentions that intuition requires abstractness. This requirement may seem be seen as anti-*Pa1*, since it seems that abstract propositions will mostly be general rather than particular. That Sosa thinks *Pa1* is not a feature of intuition is also supported by his examples of intuition. Most of the examples he gives are general propositions, like "no sphere is a cube". (Sosa, 1998, p. 260) It is clear that the early theory of Sosa is anti-*Pa1*, which will be discussed in chapter 3.2. Nevertheless, *Pa1*, the feature that intuitive feelings are more easily elicited by particular cases, seems not to be a too controversial feature of intuition in philosophical discussion.

The common practice in philosophy may be good evidence that *Pa1* is not a controversial feature of intuition. Recall the example in the section of *novelty*. Philosophers often support their arguments by *novel* cases, like the *violinist case*, the *Gettier case* and the *inhospitable hospital case*. But it seems worth paying

attention to why philosophers often argue by novel *cases*, and not by general principles or theories. If *Pa1* is not true, and if general principles are equally likely to elicit the readers' intuition to particular cases, it is unclear why philosophers prefer to use *cases* in supporting their arguments. It is also rarely found that there are philosophers who successfully argue for the intuitiveness of their theories, but there seem to be overwhelming amount of examples that particular *cases* successfully elicit the readers' intuitive feelings. Evidence from the practice in philosophy seems to strongly suggest that there are a number of philosophers who would accept *Pa1* as a feature of intuition.

There are psychologists who emphasize the essential role that narratives (particular cases) play in moral development or in making judgments, which could not be replaced by abstract propositions. (Vitz, 1990) Seymour Epstein mentions similar views in emphasizing the convincing power of narratives over abstract disputes, and he seems also believe that "narratives are intrinsically appealing in a way that lectures on abstract subjects and technical documents are not". (Epstein, 1994, p. 711) Epstein also makes a reasonable conjecture that the results that anecdotes in the passage could increase the subjects' confidence in it are due to narratives being more convincing than abstract discussion. (Kahneman & Tversky,

1982)

Unfortunately, the research directly on the link between narratives and intuitiveness is hardly found. One of these studies is from Nichols and Knobe (2007). Nichols and Knobe survey the subjects' view on whether it is compatible for us to be in deterministic universe but have responsibility for our actions. In the studies, the subjects are asked to make judgments on both abstract general questions and particular cases. For example:

> General: "In [deterministic universe], is it possible for a person to be fully morally responsible for their actions?"
>
> Particular: "In [deterministic universe], a man named Bill has become attracted to his secretary, and he decides that the only way to be with her is to kill his wife and 3 children. He knows that it is impossible to escape from his house in the event of a fire. Before he leaves on a business trip, he sets up a device in his basement that burns down the house and kills his family. Is Bill fully morally responsible for killing his wife and children?" (Nichols & Knobe, 2007, p. 670)

The results find that the subjects' responses are radically different in answering the two types of questions. In responding to the abstract general

questions, 86% of the subjects judge that it is not possible for a person in a deterministic universe to be fully responsible for their actions. On the other hand, in responding to the particular case, 72% of the subjects make the opposite judgment that Bill is fully morally responsible for his actions. The results would be unsurprising if we interpret them as showing that the general questions are asking for the subjects' (tacit) theory of morality, while the particular cases elicit the subjects' immediate feelings. This interpretation of the results, however, is difficult to find support for, since it is hard for the experimenters to test the intuitiveness of the subjects' responses. There may be further studies on the reflection time and confidence of the subjects' on their judgments for both general propositions and particular cases, but it seems difficult to find empirical evidence in supporting *Pa1* of intuitive feelings.

Although *Pa1* may lack support from empirical studies, it seems to have sufficient support from the fact that *Pa1* is not a controversial feature of intuition in philosophical discussion and from the common practice in philosophy. Thus it seems reasonable to think *Pa1* is a feature of intuition.

The feature of intuition that (*Pa1*) intuitive feelings are easier to be elicited by particular *cases* seems to link to the second type of particularity, (*Pa2*) it seems

easier for us to have intuitive feelings with particular *contents*. As our intuition is more easily elicited by particular cases, it seems reasonable to assume that it is also easier for us to have intuitive feelings with particular contents.

Empirical evidence in supporting *Pa2* is similarly sparse as *Pa1*. The evidence has to be found in the discussion and the common practice in philosophy. *Pa2*, however, seems to be a more controversial feature than *Pa1*, as there are more philosophers who claim that it is not unusual for them to have intuitions with general contents, such as the naïve comprehension axiom, 'no sphere is a cube' or even the theories those philosophers are sympathetic to.

As self-reporting, I found myself is harder to have intuitive feelings with general contents, and thus I am suspicious of the persuasiveness of intuition with general contents to those philosophers. Jaakko Hintikka seems to have a similar worry. He also "doubt[s] that many philosophers can honestly claim to have sharp intuitions as to which one of the several so-called theories of truth is itself true." (1999, p. 134)

The common practice in philosophy may provide support for *Pa2* of intuition. We know that philosophers often use cases in supporting their arguments. These cases are supposed to elicit the readers' intuitive feelings in favor of the arguments. But after offering a case, philosophers often have a sentence or two to link those

feelings with the views that they intend to argue. Why do philosophers have to do such a thing if the cases can directly elicit the readers' intuitive feelings on the theories? It seems natural for us to think that these feelings are merely concerning the *cases* (which are elicited with particular contents), for example, the doctor in *inhospitable hospital case* 'should not cut up the healthy person and give his vital organs to five other patients'. The feelings are less likely to directly elicit the readers' feelings on the views they are arguing with more general contents, like 'utilitarianism is wrong'.

Take the *Gettier cases* (1963) as an example. Edmund Gettier argues against the view that the JTB conditions are sufficient conditions for knowledge and he uses two vignettes in supporting his argument. Both of the vignettes are supposed to elicit readers' intuitions with particular *contents* about the cases that a certain protagonist does not have knowledge, but not directly on 'JTB is not sufficient condition for knowledge'. As he mentions in the conclusion, Gettier seems to think his conclusion is inferred from readers' intuitive feelings with particular contents about the cases, but not directly supported by readers' intuitive feelings. He says: "[t]hese two *examples show* that definition (a) [a version of JTB account for knowledge] does not state a sufficient condition for someone's knowing a given proposition. The same *cases*, with appropriate changes, will suffice to *show* that

neither definition (b) nor definition (c) [other versions of JTB account for knowledge] do so either. [emphasis added]" (Gettier, 1963, p. 123)

It seems common for philosophers to argue for their views in the similar form to Gettier. They often argue for the intuitiveness of the cases they provided and point out it seems natural to infer to the views they hold from the feelings on those cases, but not directly argue for the intuitiveness of their views. If it is equally likely for intuitive feelings to be elicited with general contents, it seems less clear that why we have such common practice in philosophy. This common practice in philosophy seems to suggest *Pa2* as a feature of intuition.

Some philosophers may still argue that they often have intuitions with general contents, for instance, Ernest Sosa seems to believe we have intuition that "2+2=4", "no sphere is a cube" and "nothing is numerically self-diverse" (Sosa, 1998, p. 260); Wisniewski reports that he has strong (though wrong) intuition on "Given a choice, most people prefer less pain to more pain", "A person first comprehends an idea and then decides whether or not it is true", "Given two options (call them A and B), if a person prefers option A over option B, then that person should also reject option B in favor of option A" (Wisniewski, 1998, p. 47); and some philosophers also claim that they have intuitions on "knowledge entails belief" and "knowing

something entails that one couldn't easily have been wrong about it". (Nagel, 2007, p. 793) Some philosophers would say they have intuitions with general contents and these intuitions are often elicited by the general propositions themselves. Examples seem not hard to find in philosophical discussion. Would these examples be sufficient to convince us to cast off *Pa1* and *Pa2*?

First, as mentioned above, it seems doubtful whether those philosophers really have *sharp* intuitions on those general propositions.

Besides, it has to be emphasized again that *Pa1* and *Pa2* are not necessary features for intuition. It is still possible for intuitive feelings to be elicited by general propositions and with general contents. The features only describe an interesting phenomenon that it is *more common* for intuitive feelings to be elicited by particular cases and with particular contents. It seems we need a fair amount of counterexamples, at least sufficient to show that it is equally likely for us to have intuitive feelings with general contents, to cast off both *Pa1* and *Pa2*.

Moreover, it is possible to explain why philosophers have intuition with general contents in the way compatible with *Pa1* and *Pa2*. It is possible that when we have intuitions on general propositions, there are some intuitions with particular contents underlying them. It seems that there are three possible situations when we have intuitions on general propositions:

(i) clear negative intuition: when we encounter a general proposition, we clearly notice that there are counterexamples for the proposition and the details of the counterexamples. Thus we have strong negative intuitive feelings to the proposition. For example, when someone says 'an action is morally right if and only if it maximizes the happiness', one may quickly think of a case that it is wrong for a group of children laugh at a child without the child's knowledge. Even though utilitarianism can have a further reply to this case, thinking of the case by itself causes one's strong intuitive feelings against utilitarianism at that time. An antagonist provides a clear counterexample to argue against our beliefs on certain general propositions seem to elicit our negative intuitive feelings to that proposition in the similar way mentioned.

(ii) vague negative intuition: it is also possible for us to be unclear on the details of counterexamples, but to believe there are counterexamples to the general propositions. In this situation we try to construct counterexamples to the general propositions in our mind but unsuccessful at filling in the details to the counterexamples. Thus we have negative intuitive feelings on the proposition but weaker than the intuitive feelings with clear examples. Using 'an action is morally right if and only if it maximizes the happiness' as example again, one may start to think of a counterexample and the person believes he/she can construct a

counterexample for this principle. Even though, unfortunately, the details of example are unclear, the person is convinced by the cases in his/her mind and thus have negative but weaker feelings to the propositions.

(iii) vague positive intuition: it is also possible for someone to attempt to find a counterexamples for a general proposition but fail in all his/her attempts. The person then believes he/she is unable to find a counterexample for the proposition and gives up. Thus the person has positive but also weaker intuitive feelings on the general propositions. It is weaker intuition since it seems if an antagonist provides a counterexample to the general proposition which the person never think of, the person's intuitive feelings probably are altered to the opposite side.

It is unclear whether intuitive feelings on general propositions are as strong and compelling as some philosophers claim, but it seems possible for what they call 'intuition' to be reduced to intuitive feelings on particular cases and thus compatible with the features of *Pa1* and *Pa2*.

The thesis admits there are intuitive feelings on general propositions elicited beyond the three situations mentioned above, but they seem to be rare. As long as it seems less common for intuitive feelings to be elicited by general propositions and with general contents, a good theory needs an explanation for *Pa1* and *Pa2*.

2.4 Plasticity

In spite of the general robustness and immediateness of intuitive feelings, it seems possible for us to have different intuitive feelings on the *same* case in different conditions. The thesis will argue that intuitive feelings have the feature of *plasticity*, which means intuitive feelings are changeable in their strength or position on the same case in different conditions.

It must be specified what the thesis means by *different conditions* here. Plasticity of intuitive feelings of a person is interesting only if the person has different intuitive feelings on the *same* case or proposition even though he/she makes the judgments under *different conditions*. The conditions that lead the subjects to make judgments on *different* cases and thus have different intuitive feelings should be excluded from evidence in supporting plasticity. For example, imposing extensive cognitive load on the subjects may cause some difficulties for the subjects in understanding the vignettes. The subjects probably understand differently when they are not imposed with the cognitive load, thus it is not surprising for them to make different responses on the vignette with exact same words. This kind of performance error should be excluded from our interest. However, if the subjects are making judgments when they feel anger or disgust but their understanding of the case is unaffected, the subjects are responding to the

same case. Having different feelings here counts as an example supporting plasticity.

Plasticity is a controversial feature of intuition in philosophy. Experimental philosophers of course believe that the results of their studies, which will be discussed below, reflect the feature of 'philosophical intuition'. Thus intuition seems to be *plastic* for them. Some advocates of appealing to intuition, on the other hand, do not believe the results really reflect intuition they are really interested in. As intuition seems to them an immediate, striking and robust feeling, some advocates may even believe it is impossible for intuition to change. Otherwise such feelings should not be counted as intuition. For example, Bealer emphasizes an important difference between belief and intuition is the plasticity. Bealer thinks belief is highly changeable but intuition is not. He believes that our intuition cannot change, even in strength. He says: "[b]elief is highly plastic; not so for intuition. For nearly any proposition about which you have beliefs, authority, cajoling, intimidation, and so forth can, fairly readily, insinuate at least some doubt and thereby diminish to some extent, perhaps only briefly, the strength of your belief. But seldom, if ever, do these things so readily diminish the strength of your intuitions … [S]ome people believe [intuitions] are rather plastic; I do not." (1998, p. 208) Nevertheless, at the

same time, Bealer clearly notices that whether intuition is *plastic* is still a controversial issue in philosophy.

It seems unlikely to have general agreement on this feature in philosophy. The evidence will have to be sought from empirical studies. It is worth emphasizing here that the feature of plasticity means it is *possible* for intuitive feelings to have changes. The thesis does *not* attempt to argue that *all* intuitive feelings are changeable.

The first piece of evidence suggesting plasticity is from a large body of studies in developmental psychology, which are also discussed in the section of *fallibility* (2.1). It is found that young children tend to perform poorly in *false belief tasks*, but amazingly there is a great development for them in a few years. (Mossler, Marvin, & Greenberg, 1976; Wimmer & Perner, 1983; Gopnik & Astington, 1988; Gopnik & Slaughter, 1991; Wellman, Cross, & Watson, 2001) Using the task of distinguishing *ignorance* and *false beliefs* as example, Ruffman (1996) designs a task for children similar to *false-belief task*: a child and a doll are shown a red and a green candy on a dish first. The doll then leaves the room. While the doll is outside the room, the experimenter moves the red candy into a box. When the doll is back, the experimenter conceals both candies from the sight of the doll. The doll only gets the message that 'a candy is moved into the box'. The child is then asked what the

doll thinks the colour of candy in the box is.

Similar to the *false-belief task*, children under five seem to think the answer is transparent to the doll. Thus most of them answer that the doll thinks the candy in the box is red. Children above seven perform well in this task. Most of them correctly answer that the doll does not know what the colour of the candy is. Surprisingly, children aged between five and seven, who seem to already grasp the notion of false belief, tend to give the answer that the doll thinks the colour of candy is green.

The results suggest that children have a great development of the notion of ignorance and false beliefs starting from four. Other tasks also suggest that children have development on understanding desires of the others. Since these children have great improvements on their performance on the tasks, it seems reasonable to think that the intuitive feelings of children dealing with these tasks change within a few years. It seems to be evidence supporting the idea that it is possible for intuitive feelings to change.

The findings are, however, possibly to be explained by the fact that young children are unable to have good understanding of the tasks. If it turns out that young children's poor performance due to the misunderstanding of the tasks, it seems unfair to interpret their improvement of performance as change in intuitive

feelings.

The studies on adults probably could avert such an objection. In psychological studies on adults, it is also found that the subjects can have different intuitive feelings on the same case. An example is the studies on *framing decision*. It is possible for the subjects to have diverse feelings on different descriptions (frames) to the objectively same case. For example, there are two frames of the same case in a study mentioned by Tversky and Kahneman:

Survival frame

"Surgery: Of 100 people having surgery 90 live through the post-operative period, 68 are alive at the end of the first year and 34 are alive at the end of five years.

Radiation Therapy: Of 100 people having radiation therapy all live through the treatment, 77 are alive at the end of one year and 22 are alive at the end of five years."

Mortality frame

"Surgery: Of 100 people having surgery 10 die during surgery or the post-operative period, 32 die by the end of the first year and 66 die by the end of five years.

Radiation Therapy: Of 100 people having radiation therapy, none die

during treatment, 23 die by the end of one year and 78 die by the end of five years." (Tversky & Kahneman, 1986, pp. 254-255)

The subjects are asked to choose between the two kinds of medical treatments. The results find that there are significantly more subjects who choose radiation therapy in the mortality frame then in the survival frame. However, both survival and mortality frame are in fact describing objectively the same case. It seems reasonable to assume that the subjects tend to give different responses if they are asked to respond under another frame. There are similar studies which find that the subjects make judgments differently on the objectively same case but under different frames, for example different response patterns to the problem considering saving 200 of 600 people or letting 400 of 600 people die (Tversky & Kahneman, 1981), or the choices between 25% fat and 75% lean. (Keren, 2007) As the subjects respond differently on the different frames of the objectively same case, it seems reasonable to think that the subjects' intuitive feelings and thus judgments are changeable under different frames of the same case.

It is also found that *ordering effect* could possibly affect subjects' judgments on the same vignette. In a study of Swain, Alexander and Weinberg (2008), the subjects are asked to make judgments on whether the protagonist in the *truetemp*

case has knowledge. Truetemp case is a case about a protagonist who has a reliable ability to unreflectively notice the temperature outside, but he never checks if he correctly notices the temperature outside. Is he counted as knowing the temperature? This vignette is expected to elicit readers' intuitive feelings to judge that the protagonist does not have knowledge and thus provide support for arguing against *externalism* in epistemology. But in the study, the subjects are divided into different groups and asked four vignettes in different order. In one group the subjects are asked to judge a clear case of knowledge before judging the truetemp case. In another group the subjects are asked to judge a clear case of non-knowledge first. In other groups the subjects are asked to respond other cases first.

The results show that the subjects have a tendency to ascribe knowledge to the protagonist in truetemp case if they are asked to judge on a clear case of non-knowledge first, while the subjects who are asked to judge on a clear case of knowledge first show the opposite tendency. It seems the ordering of vignettes is not a factor that seriously affects the subjects' understanding of the vignettes, but it seems to be a factor that affects the subjects' judgments and thus intuitive feelings. This ordering effect seems also to occur in moral intuitive feelings. The subjects' responses may be influenced by merely putting different versions of the

trolley case first. (Liao, Wiegmann, Alexander, & Vong, 2012) The results seem to provide support for us to think that it is possible for our intuitive feelings to have changes.

Cullen (2010) has worries particularly on Swain et al.'s studies. He worries that the subjects in Swain et al.'s studies misinterpret four vignettes as related and thus give different responses when they are presented different vignettes first. Cullen replicates the survey on only two vignettes, truetemp case and a clear case of non-knowledge in Swain et al.'s studies, and sees whether there is an *ordering effect* on these two vignettes. Cullen emphasizes in the instruction of the studies that the subjects should consider the vignettes *independently*. The results find that the subjects have the similar tendency to ascribe knowledge to the protagonist in the truetemp case in both orders. It seems to be a study suggesting that Swain et al.'s studies may have some flaws.

However, Cullen's study may oversimplify Swain et al.'s studies. In his replication of the studies, Cullen surveys only on two cases, the truetemp case and a clear case of non-knowledge. But the most significant difference in the subjects' responses is on the judgments of truetemp case between judging a clear case of knowledge first and a clear case of non-knowledge first. Judging the truetemp case first seems not to have such significant difference with judging a clear case of

non-knowledge first in both Cullen's and Swain et al.'s studies. To have a fair replication, Cullen seems to need at least three cases in the survey. Besides, influence on the subjects' responses in Swain et al.'s studies may be complicated. It is natural for Cullen to have different results if he simplifies the studies. But as the vignette of truetemp case is objectively same case even in different orders, as long as it is not found that the subjects systematically misunderstand the vignette due to different orders, it seems to be evidence suggesting that it is possible for our intuitive feelings on the *same* case to change.

Wheatley and Haidt (2005) have interesting studies on the subjects' moral judgments. In the studies, Wheatley and Haidt hypnotize the subjects to feel disgust when they read a neutral word like *often* or *take*. After the hypnotization, the subjects are asked to make moral judgments on a series of vignettes. It is found that when the subjects make judgments on the vignettes that contained the word for which they are hypnotized to feel disgust, the subjects tend to make more severe judgments. Again the subjects seem to judge on the objectively same case, but it seems still possible for them to make different judgments and have different intuitive feelings under hypnotization.

There are a number of studies give support to the idea that disgust feelings affect our moral judgments and probably intuitive feelings. (Haidt, Koller, & Dias,

1993; Nichols & Knobe, 2007; Schnall, Haidt, Clore, & Jordan, 2008) It is also found that feelings of fear could affect the subjects to make harsher moral judgments. (Rosenblatt, Greenberg, Solomon, Pyszczynski, & Lyon, 1989) Some other studies suggest that it is possible for us to think a statement is true merely due to the fact that the statement seems familiar to us. (Begg, Anas, & Farinacci, 1992) We may also over-ascribe outcome knowledge to the protagonist in the vignette only because we are told what the outcome turns out to be. This tendency is known as *hindsight bias*. (Fischhoff, 1975)

These studies seem to show that it is possible for our judgments of the same case to be affected under different conditions. The changes of judgments seem not to be because of misunderstanding. It seems to be strong evidence suggesting that intuitive feelings are also possible to have changes.

2.5 Variability

The fifth feature of intuition the thesis intends to argue is *variability*. Variability, roughly, means that it is possible for intuitive feelings on the *same* case to vary from group to group. It must be emphasized that, similar to *plasticity*, this feature is interesting only when the subjects have different intuitive feelings on the *same* case. Nothing is interesting if the subjects are making different judgments on *different* cases.

Can different groups of people have different intuitions on the same case? It is still a controversial issue in philosophy. Again experimental philosophers of course believe the results of studies reflect the existence of group differences in intuition, while some advocates of intuition believe it is possible for experimental philosophers' studies to have flaws. For example, different responses from different cultures may be explained by misunderstanding of the vignettes due to verbal disagreement of a concept in the vignettes. (Bealer, 1992; Goldman, 2007; Sosa, 2007b) The argument is discussed in the section of the argument of irrelevance (1.2.4) and will be discussed in the section of Bealer (3.1) and Sosa (3.2). Therefore the thesis will not go too deep into the philosophical discussion in this section.

Variability seems to be a controversial feature in philosophy. Evidence has to

be found in empirical studies. There are ample amount of studies finding that the judgments of the subjects vary from group to group. The subjects in different cultural background, age, socio-economic status (SES) or gender groups are able to have different response patterns to the same question. The variation of responses in these different groups will be examined in turn.

In psychology, there is a complaint that some studies often have surveys focusing on subjects that Henrich et al. (2010) termed WEIRD (Western, Educated, Industrialized, Rich, and Democratic), while ignoring subjects from other cultures. It is interesting to find the variation of responses on various aspects of the subjects from different culture. For example, Kohlberg (1969) was one of the earliest psychologists to suggest that young children have development in understanding of the notion of morality. Children were found to hold a similar moral theory that “acts that get punished are wrong; acts that get rewarded are good” (Stage 1 and 2) at first, but they quickly develop to hold the theory that “acts that others approve of are good; acts that others condemn are bad” (Stage 3) (Haidt, 2001, p. 822), though some later studies suggest that some young children in fact do not believe in the theory of stage 1 and 2. (Damon, 1977; Turiel, 1983; Laupa & Turiel, 1986) In some other studies, it is found that although the WEIRD subjects have a tendency to pass through those several stages of development, subjects from non-Western cultures

do not show such a tendency in their responses. (Henrich, Heine, & Norenzayan, 2010, p. 73)

Moreover, a series of psychological studies consistently suggests that the subjects from different cultures have different preferences on cognitive style. Western subjects prefer the *formal* cognitive style, which is labeled as analytic, rule-based and relatively slower; while East Asian subjects prefer the *intuitive* cognitive style, which is labeled as holistic, experienced-based and relatively faster. (Nisbett, Peng, Choi, & Norenzayan, 2001; Henrich, Heine, & Norenzayan, 2010) For example, in a study of Norenzayan et al. (2002), they ask the European American and Korean subjects to judge whether an argument is *valid* on four types of arguments, namely *valid/believable*, *valid/nonbelievable*, *invalid/believable* and *invalid/nonbelievable* arguments. Here the thesis just offers an example of arguments from the studies:

Valid/nonbelievable

"Premise 1: All things that are made of plants are good for the health

Premise 2: Cigarettes are things that are made of plants

Conclusion: Cigarettes are good for the health" (Norenzayan, Smith, Kim, & Nisbett, 2002, p. 674)

Even though the conclusion that 'cigarettes are good for the health' is

nonbelievable, the argument is in fact following *Modus Ponens* and thus should be *valid*. To judge this argument as invalid due to the fact that the conclusion is nonbelievable is known as the *belief bias effect*. In the study Norenzayan et al. find that there are significantly more Korean subjects prone to this bias and judge this kind of nonbelievable valid arguments as invalid. As in the test question Norenzayen et al. find that Korean subjects make the similar response pattern with European Americans in judging abstract arguments, it seems two groups of subjects do not have radically different logical ability. It seems reasonable to view the results as evidence that shows that the two groups of subjects have different preferences for different cognitive styles, namely the formal and intuitive cognitive styles.

Furthermore, it is also found that the subjects from different cultural groups are prone to have different biases. Western subjects are more likely to be subject to the *fundamental attribution error*, which is the tendency to overattribute behavior to the character of a person rather than the influence of environment (Ross, 1977), while East Asian subjects tend to exhibit *hindsight bias*, which is the tendency to believe that a known outcome is unavoidable in retrospect. (Fischhoff, 1975)

As it is possible for subjects from different cultural groups to have radically different preferences on cognitive styles and to be prone to have different types of error, it seems natural that the subjects from different cultural groups may also

possibly have different intuitive feelings on the same question.

Inspired by Nisbett's psychological studies on cultural differences, Weinberg, Nichols and Stich look for direct differences of intuition in philosophy. Weinberg et al. (2001) have a series of surveys on the subjects from different cultural groups. They asked the subjects to respond to famous thought experiments in epistemology and find that the subjects in different cultural groups have diverse response patterns in some of the thought experiments. For example, East Asian or Indian subjects are significantly more willing to attribute knowledge to the protagonist in the Gettier case than Western subjects.

There is also a significant difference in responding to *Dretske's Zebra-in-Zoo case* between subjects from different cultural groups. The *Zebra case* is a case about a protagonist who successfully recognizes that the animal in the zebra cage is a zebra, though it is possible that the animal in the zebra cage is a mule that is painted to look like a zebra. If the animal is in fact a cleverly painted mule, the protagonist would still identity the animal as a zebra. The subjects are asked whether the protagonist in this case knows that the animal in the zebra cage is a zebra. It is found that there is a significantly higher proportion of subjects from the Indian subcontinent who ascribe knowledge to the protagonist than Western subjects. The results from Weinberg et al. seem to strongly suggest that it is

possible for epistemic intuitions between subjects from different cultural groups to differ.

Let us briefly revisit the argument of irrelevance since it has been deployed extensively against these studies for variability of intuition. There are other explanations for the different responses of the subjects in the studies. For example, Cullen (2010) has reasonable worries that, first, the subjects may misunderstand the question. The two choices Weinberg et al. give to the subjects are that the protagonist 'really knows' or 'only believes' something. Cullen finds that, surprisingly, the subjects respond differently when they are given the choices that the protagonist 'knows' or 'does not know' something, compared with the choice between 'really knows' or 'only believes' something. Cullen believes the difference in response patterns is due to the misunderstanding of the surveyed question. If the responses of the subjects are merely judged with a misunderstanding of the question, it seems that the results are not reflecting what we are interested in, namely the subjects' intuitive feelings on the vignettes.

Second, Weinberg et al. asked the subjects to respond to a forced-choice question. Cullen finds that although there is a significant result in a forced-choice question, it is possible to have completely different results by using Likert scales. If there is no significant tendency for the subjects' judgments when using Likert scales,

it seems inappropriate to interpret the forced-choice results as reflecting that the subjects have certain intuitive feelings on the vignettes.

Moreover, the studies from Nagel, San Juan and Mar (2013) survey more than two hundred undergraduate subjects on different types of vignettes in epistemology, including eight versions of Gettier cases. Nagel et al. find that although there are variations in responding to different versions of Gettier cases, the difference seems not to be systematically related to cultural background or genders of the subjects. It seems to be evidence suggesting that it is possible for Weinberg et al.'s results to be found due to poor survey conducting method or accident. It is possible that epistemic intuitive feelings in fact exhibit no cultural variation.

Stich (2012) directly replies to Nagel's worries. Nagel suggests Weinberg et al.'s results may be found due to accident, for example some group of the subjects may be less interested in answering the philosophical thought experiments. Thus Weinberg et al.'s results may not truly reflect the subjects' intuitive feelings on the vignettes. Stich points out that most of the studies have tried hard to control the factors, for example, the experimenters emphasize what strategy they want the participants to use. (Norenzayan, Smith, Kim, & Nisbett, 2002) As long as there are feasible controls in the experiments, it seems unreasonable to believe the results

do not truly reflect the subjects' feelings. There are always possibilities that may prevent us from drawing any interesting conclusion from the results. If these possibilities could be used in arguing against Weinberg et al.'s studies, it seems the same argument could also apply to Cullen's and Nagel et al.'s studies. Stich complains about Nagel's strategy of 'selectively challenging data'. Stich has an interpretation of Nagel's practice of dealing with the data from experiments:

> "If the data supports my view, all is well. If the data does not support my view, think up some possibility that, if it obtained would give us a reason to discount the data. No need to show that that possibility does obtain. The mere possibility that it obtains is enough to conclude that the data does not really pose a problem for my hypothesis." (Stich, 2012, p. 19)

It seems Nagel and Cullen can suggest us to take the results of their studies into consideration at most, but it seems there should be more evidence for us to think that Weinberg et al.'s results are totally irrelevant to the epistemic intuitive feelings.

There are also studies on the cultural variation of moral judgments. One of the studies is conducted by Haidt, Koller and Dias (1993). Haidt et al. ask the subjects to evaluate on several harmless but offensive acts, such as cleaning the bathroom with the national flag, and disgusting acts, such as having sexual intercourse with a

dead chicken before eating it. Haidt et al. find that in some of the harmless-offensive acts, the difference of judgments on seriousness of the acts between high-SES group and low-SES group of subjects is significant in the US, while subjects in Brazil show less significant difference between different SES groups. Additionally, children in Brazil and the US also show a different response pattern. Children in Brazil, in both high- and low-SES group, and low-SES children in the US tend to judge more severely on harmless-offensive acts than high-SES children in the US.

The results of the studies mentioned show systematically different response patterns between the subjects from different cultural backgrounds. It seems reasonable for us to believe that the subjects from different cultural backgrounds are able to have different intuitive feelings on *some* vignettes.

In the same studies (Haidt, Koller, & Dias, 1993), moreover, the results significantly reveal the different response patterns between the subjects from high-SES group and low-SES group. The subjects from low-SES group in both Brazil and the US generally give more severe moral judgments on harmless but offensive acts than high-SES group of subjects. Low-SES subjects tend to judge that the harmless-offensive acts are more serious, should be stopped or punished and the

rules prohibiting such acts should be universalized, while high-SES subjects show the alternate tendency.

Besides, in the studies of Weinberg, Nichols and Stich (2001), they also find that in judging some of the vignettes in epistemology, low-SES subjects seem to be more willing to ascribe knowledge to the protagonist, compared with high-SES subjects. The results of systematically diverse response patterns seem to suggest that it is possible for the subjects from different SES groups to have different intuitive feelings.

Haidt et al.'s studies also find an age difference of responses in moral judgments of harmless-offensive acts. Children seem to generally judge more severely on these acts than adults. Children seem to think harmless-offensive acts are more serious and the rules prohibiting the acts are universalizable, while adults seem to be less willing to universalize such rules.

Nichols (2002; 2004) also has similar results in surveying children's and adults' moral judgments on some transgressions. They are asked whether a transgression is permissible, how serious the transgression is, whether the transgression is permissible if the authority allowed to do so and the reasons why the transgression is not permissible. It is found that children and adults have different attitudes

towards the disgusting transgressions. Children tend to respond that the disgusting transgressions, for example “Bill is sitting at a dinner party and he snorts loudly and then spits into his water before drinking it” (2002, p. 229), are not permissible even if the authority allowed it. The transgressions are more serious than conventional transgressions and the rule should generalize over the world. On the other hand, although adults also tend to respond that the disgusting transgressions are more serious than conventional transgressions and authority independent, but the rules are not generalizable over the world. It is clear that children and adults have different response patterns on their moral judgments. The developmental psychology mentioned in 2.1 and 2.4 also reveals children and adults have different judgments in ascribing beliefs. Children consistently perform poorly in false belief task but have great improvement in performance in several years. It seems reasonable to think that in responding to the same vignette, it is possible for subjects from different age groups to have different intuitive feelings.

The variability of intuitions is also shown in other aspects, for example, the gender difference. There are findings that indicate that there may be a radical gender differences in responding to the Gettier cases. (Buckwalter & Stich, 2011) The studies from Norenzayan et al. also have an additional finding that females

tend to use the intuitive reasoning process more than males. (Norenzayan, Smith, Kim, & Nisbett, 2002, pp. 681-682)

Intuitions may also vary across groups with different psychological characteristics. In some studies (Nichols, 2002; Nichols & Knobe, 2007), the experimenters divide the subjects into high and low *disgust-sensitivity* groups. The experimenters ask them to judge on the seriousness and authority dependence of the transgression. The studies find that the subjects in the high disgust-sensitivity group tend to think the disgusting transgressions are more serious and independent from authority, while the subjects in the low disgust-sensitivity group judge differently. In addition, it is found that the subjects with different psychological traits may have different judgments on whether determinist universe is compatible with moral responsibility. (Feltz & Cokely, 2009) The results of all these studies seem to suggest that it is possible for different groups of people to have different intuitive feelings on the same vignette.

Although a large body of studies suggests that it is possible for subjects from different groups to give different response patterns, some philosophers may still believe the results do not necessarily support the variability feature of intuition. As it is a controversial feature of intuition, a good theory of intuition should either (i)

accept and explain the variation of the responses or (ii) demonstrate how the different response patterns are not reflecting different intuitive feelings of the subjects, and provide good reason for us to believe in such a possibility. These will be mainly discussed in chapter 3.

2.6 Heterogeneity

In traditional discussion of intuition in philosophy, intuition seems to be assumed to be a cohesive natural kind of mental state. Most philosophical views in the past tend to have the single capacity conception of intuition. The possibility of *heterogeneity* of intuition, which suggests different intuitive feelings may in fact be generated by diverse psychological processes, is often ignored.

There are a number of philosophers still do not notice or deny such possibility. (For review see (Nado, 2012)) For example, as we will discuss in the later chapter, George Bealer seems to assume intuition is a unified mental state. He believes intuition is "a sui generis irreducible, natural (i.e. non-Cambridge-like) propositional attitude that occurs episodically." (Bealer, 1998, p. 213) As in his several papers, he seems to argue for the reliability of intuition as a whole without noting the possibility of heterogeneity of intuition, it seems reasonable to interpret his view as having single capacity conception of intuition.

Joel Pust also seems to have single capacity approach of intuition in his mind. He believes that intuition is "a distinct kind of mental state with their own 'intellectual' phenomenology" (Pust, 2000, p. 31) and "a genuinely basic faculty distinct from sense-perception, and on no worse initial footing than our other natural faculties." (Pust, 2000, p. 119) It seems also reasonable to interpret his view

as assuming a single capacity approach to intuition.

Nevertheless, as there is an increasing body of studies providing evidence suggesting the heterogeneity of intuitive feelings, some philosophers clearly take the possibility of heterogeneity into consideration. For example, one of the specific theses Sinnott-Armstrong and Wheatley (2012) hold is that moral judgments are not unified by brain mechanisms. There are also some experimental philosophers who carefully restrict their interpretation of their results to only reflect a particular sort of intuitive judgments, such as epistemic intuition or intuition about reference. (Weinberg, Nichols, & Stich, 2001; Machery, Mallon, Nichols, & Stich, 2004) Although heterogeneity is still not a generally accepted feature of intuition in philosophy, it would not be a controversial feature. As a growing body of empirical studies supports the heterogeneity of intuition, there are some philosophers who notice this possibility and seem to agree that a good theory of intuition has to take this possibility into consideration. (Sosa, 2007a; Weinberg, 2007; Stich, 2012) It is expected that the heterogeneity approach will get increasing attention and acceptance in philosophical discussion. It seems that a good theory of intuition should be capable of explaining the heterogeneity, or at least compatible with this possibility.

There is large amount of empirical evidence supporting the heterogeneity feature of intuitive feelings. This feature is generally revealed on different realms of intuitive feelings, including mathematics and logical intuitive feelings. (For review see (Nado, 2012)) In this section, for convenience, the thesis will consider only the evidence supporting the heterogeneity of moral intuitive feeling. It does not mean that the heterogeneity feature is an exclusive feature for moral intuitive feelings but not for intuitive feelings generally.

Moral intuitive feelings seem to dissociate from logical and linguistic abilities. There is a famous story of Phineas Gage.[11] Gage had damage to his *ventromedial portion of the frontal lobes*, mainly to his *orbitofrontal cortex* (OFC), and started to have anti-social behaviors without any impairment to his reasoning or linguistic abilities. (Damasio, 1994; Dolan, 1999; Singer, 2005) Patients who have impairment to the same area also show increasing tendency to perform anti-social behaviors. These patients seem to have normal reasoning abilities, but they are unable to have apposite emotional responses to lives lost or to endangerment of others. Antonio Damasio summarizes this situation as "to know, but not to feel." (Damasio, 1994, p. 45)

Anderson et al. (1999) also reports that two patients who have prefrontal

[11] Note that the case of Phineas Gage has been debunked. The thesis only aims to use it to introduce the selective impairments, but not use it to support heterogeneity.

damage, particularly to orbitofrontal cortex, in their childhood also show such anti-social behaviors. In the studies, these two patients perform normally in IQ tests, which can plausibly be seen as a reasonable measure of logical and linguistic ability, but are deficient in the ability to make the moral/convention distinction and in apposite moral reasoning. The moral reasoning of the patients seems to mainly concern avoiding punishment. (Anderson, Bechara, Damasio, Tranel, & Damasio, 1999; Dolan, 1999; Greene & Haidt, 2002) The studies from Blair (1995) also suggest that it is possible for psychopaths who have intact cognitive abilities to be unable to make the distinction between moral and convention transgressions. These studies seem to provide evidence for dissociating moral intuitive feelings from logical and linguistic abilities. The studies seem also to suggest a heterogeneous approach in considering moral intuition, logical intuition and linguistic intuition (grammatical and semantic intuitions). (i.e. This approach means that we have to assess the reliability of different types of intuition separately.)

A second piece of evidence for heterogeneity comes from the activation of different specific brain regions in making different types of judgments. Although there are some brain areas that are generally activated in making different types of judgments, there are still some specific brain areas activated regarding different

types of judgments. Evidence is provided by the *repetitive transcranial magnetic stimulation* (rTMS) and *functional magnetic resonance imaging* (fMRI) studies. rTMS is the technique to use pulses to temporarily inactivate certain brain regions, in order to see whether a temporary lesion of a certain brain area could affect specific function. The technique of fMRI can help us to notice the activation of specific brain regions by detecting the flow of blood in the brain. This technique helps psychologists to identify the link between certain brain regions and specific functions.

Regarding the realm of linguistics, it is found that two specific brain regions are related to language expression and interpretation. Paul Broca famously has studies of patients who have some language expression impairments. He finds that the patients have similar lesions of a certain area of the frontal lobe. It seems that this certain area of the brain is largely related to the language utterance, which is called *Broca's area* now. Some linguists (e.g. Chomsky) may have a further conjecture that "Broca's area and its closely associated areas (44-47) contain a 'phyletic' neural substrate of language that would account for *universal grammar*." (Fuster, 2008, p. 369) In the more recent studies, by using the rTMS, it is found that temporary inactivation of Broca's area slows down the utterance of verbs (though it does not significantly affect the utterance of nouns) of the subjects. (Cappelletti, Fregni,

Shapiro, Pascual-Leone, & Caramazza, 2008) It is suggested that Broca's area mainly concerns the expression of thoughts in the form of speech and signs. (Gerrig & Zimbardo, 2010)

In addition, *Wernicke's area*, which is located in the temporal lobe, is found to be related to the ability of interpreting written and spoken language. A lesion of this area is found to affect the understanding of language. (Gerrig & Zimbardo, 2010) These two specific areas seem largely associated with our linguistic abilities in both expressing and interpreting language. The areas are found to be specific to our language abilities, which is different from the activation of brain areas in making logical or moral judgments.

Regarding reasoning ability, humans activate different brain region from linguistic related areas. There are various different brain regions activated when making logical related judgments. The *prefrontal cortex*, which is located at the anterior frontal lobe, is found to be largely related to judgments, planning, relational reasoning and integration of information. This part of the brain is also suggested to be essential for abstract and complex reasoning. (Damasio, 1994; Waltz, et al., 1999; Bunge, Wendelken, Badre, & Wagner, 2005; Fuster, 2008)

In a series of fMRI studies, it is found that, similar to making logical judgments, there are various brain regions activated when making moral judgments. (Moll,

Oliveira-Souza, Bramati, & Grafman, 2002; Moll, Oliveira-Souza, & Eslinger, 2003; Greene & Haidt, 2002) Some of the activated regions when making moral judgments overlap with the areas activated when making logical judgments, for example the *frontopolar cortex*, which serves the function of making more abstract reasoning or judgments. But some of the activated regions are vastly different from making logical and linguistic judgments, which are mainly linked with making emotional responses, such as the *orbitofrontal cortex*, which is associated with automatic social-emotional responses, and the *amygdala*, which is located at the temporal lobe, is believed to be part of the limbic system and to control human's emotional responses. (Moll, Oliveira-Souza, & Eslinger, 2003; Gerrig & Zimbardo, 2010) The activation of diverse brain regions between making moral judgments and logical or linguistic judgments seem to suggest we are also using diverse mental processes in generating these different types of intuitive feelings.

Interestingly, even if we focus within the realm of moral judgments, it is still possible for the judgments to be generated by diverse mental processes. There is a popular view according to which our moral judgments are made by dual processes, namely affective and cognitive mechanisms. In the theory of *social intuitionism*, for example, affect plays an important role in making moral judgments. Social

intuitionists believe that we often make moral judgments first and then search for reasons. Haidt vividly describes this process as the emotional dog chasing its rational tail. Affect, in their theory, comes before and influences our moral judgments, but this does not mean that reasoning is meaningless in making moral judgments. In the theory, reasoning takes part in justification of the judgments and communication with other people. It is possible for the reasoning process, although it comes after the judgments, to have influence on other people's affect and judgments. (Haidt, 2001) Thus it seems to suggest both affective and cognitive mechanisms take part in making moral judgments.

fMRI studies could provide evidence supporting the view that there are dual processes in making moral judgments. In the studies from Greene and his associates (2001), they find that the subjects activate different brain regions when answering *personal* and *impersonal* moral dilemmas. In making judgments on personal moral dilemmas, which are dilemmas involving taking direct actions on a person, such as pushing a fat man off a footbridge, the subjects are found to have increased activity in the brain regions related to affect. Conversely, in making judgments on impersonal moral dilemmas, which are dilemmas involving only indirect actions on a person, such as flipping a switch or pressing a button, the subjects are found to have activation in the brain regions different from answering

personal moral dilemmas. (Greene, Sommerville, Nystrom, Darley, & Cohen, 2001; Singer, 2005; Cushman, Young, & Greene, 2010)

In addition, as it is believed that the affective mechanism is intuitive and automatic, which requires less reflection time and produces emotional responses, while the cognitive mechanism makes slower reasoning, which is easier to lead to utilitarian judgments, Greene et al. (2008) have another study to investigate whether moral judgments are really jointly determined by these two mechanisms. They impose cognitive load on the subjects when the subjects are judging different moral dilemmas. The cognitive load is expected to force the subjects to have deeper thinking into the moral dilemmas and to use the cognitive mechanism in moral judgments, which means it is expected to lead to increased tendency to make utilitarian responses under cognitive load. As expected, the subjects under cognitive load were more likely to produce utilitarian responses, compared with the subjects who were not imposed with cognitive load.

The studies from Koenigs et al. (2007) also provide evidence for dual processes in moral judgments. Patients who have lesions in the ventromedial prefrontal cortex could be expected to be deficient in using affective mechanisms in making moral judgments. Koenigs et al. found that these patients are not totally unable to make moral judgments, but more likely to make utilitarian judgments. It seems to

suggest that moral judgments are in fact determined by both mechanisms.

In the studies from Nichols and Knobe (Nichols, 2002; Nichols & Knobe, 2007), the high disgust-sensitivity subjects make harsher judgments to the disgusting transgressions than low disgust-sensitivity subjects. It is plausible to interpret the results as differences in preference for affective and cognitive mechanisms. It seems natural to think that the affective mechanism is more dominant in making judgments for people who have high disgust-sensitivity, while the cognitive mechanism is more dominant for people who have low disgust-sensitivity. The results are compatible with such a thought.

There are more empirical findings suggesting that it is possible for us to make moral judgments by using distinct brain regions. (For review see (Sinnott-Armstrong & Wheatley, 2012; Nado, 2012)) This section only presents a few of these studies and mainly focuses on the realm of moral judgments, but evidence should be strong enough in supporting the heterogeneity feature in other judgments of the subjects. Thus heterogeneity seems to be a well-supported feature or possibility of intuitive feelings.

Part II

Chapter 3: Theories of Intuition

In the previous chapter, the thesis has introduced and argued for a list of features of intuition. In this chapter, the thesis aims to show how we can apply those features in selecting good theories of intuition. The thesis will scrutinize several diverse theories of intuition. Although the titles of the following sections are each named after a particular philosopher, they should also represent philosophers who hold similar views on intuitions.

In the following sections, the thesis will first introduce the main ideas of the theories, and then evaluate whether they are good theories of intuition by using the list of features in chapter 2. The strategies for evaluating theories of intuition will run like this: for each feature, the theories of intuition have to choose between (1) accepting and giving a good explanation for the feature, since a good theory of intuition should not merely be compatible with the feature but also explain it well; and (2) rejecting and replying to the studies suggesting such feature.

Disagreement with a feature will not necessarily mean the theory is not a good theory. The thesis will evaluate whether the theory replies to the studies naturally and well. But if the theory can only respond to the feature by relying on the argument of irrelevance (IA), which is the argument suggesting that it is impossible

for empirical research to directly study philosophical intuition, it seems very possible that the theory has a different target from our discussion. Since the thesis views 'intuition' as robust, striking, rapid feelings generated by apprehending propositions or thought experiments, without any conscious inference processes, it seems possible to study intuition by empirical studies. Therefore, a theory that has to rely on IA in explaining the results of empirical studies seems to be not a full and good theory of the type of intuition that we are interested in.

There are two things worth noting here. First, it seems that most of the philosophical theories examined in this chapter are only interested by giving analyses of the notion of intuition. The theories do not have an explanatory goal for the features listed in chapter 2, thus it is common to find that the theories are silent on some features when merely reading the original passages. The thesis will find whether the theory could potentially offer a direct explanation for the feature if no direct responses are found in the original passages. If it is unclear how the theory could explain the features, the thesis will then evaluate whether the theory is consistent with the features. Consistency with the features is a good start for a full theory, but we must also be reminded that there are still some details that the theory needs to fill in.

It must be emphasized that the thesis does not argue that the theories are

false if they cannot offer explanation for the features. The theories may be true. But as mentioned in 1.2.2, the thesis is interested in seeking good and valuable theories. The theories would not be the one we are seeking if they are not successful in explaining the features and making accurate predictions for intuition.

Second, for space reasons, the thesis will have less discussion of the features that do not pose threats to the theories and the theories do not have particular responses to it. For example, the feature of novelty is not a well-discussed feature in most theories. Thus it is hard to find relevant explanation from the theory directly. However, most of the theories can easily offer a natural and uninteresting explanation for this feature, like the new cases are involved in the concepts we already have. Therefore the thesis will skip the discussion of novelty in most theories. The feature will mainly be discussed in the section of Lewis's theory. (3.3)

3.1 George Bealer

George Bealer believes philosophy has autonomy and authority outside the realm of science: the subject matter of philosophy cannot be taken over by the sciences, and the answers given by philosophy to philosophical questions at least weigh the same as the answers given by sciences. Bealer argues for the autonomy and authority of philosophy (1998) and the existence of a priori evidence (1999), and also argues against empiricism. (1992) Bealer's arguments are built mainly on his theory of intuition. He believes that intuition is characteristic philosophical evidence, only intuition can be used in answering the central questions of philosophy, and intuition should have distinctive evidential value besides of the empirical experimental evidence.

Intuition is an important component of Bealer's theory. The first interesting thing which has to be examined is: which kind of experience is he targeting as intuition? Bealer seems to have discussion of two concepts of intuition, one which understands intuition in a loose sense and another which understands intuition in a stricter sense. On the one hand, he ostensibly characterizes his target as intellectual seeming. He emphasizes intuition is not a kind of mysterious immediate striking experience. For the term intuition:

> "We do not mean a magical power or inner voice or special glow or any

other mysterious quality. When you have an intuition that A, it *seems* to you that A." (Bealer, 1998, p. 207)

The term 'seems' used here clearly means *intellectual seeming* for Bealer. That someone has an intuition that A means that one has intellectual seeming that A without any sensory or introspective knowledge about the truth of A. (Bealer, 1996, p. 268) Bealer has a description of how we feel when we have an intuition about de Morgan's laws: "when you first consider one of de Morgan's laws, often it neither seems true nor seems false; after a moment's reflection, however, something happens: it now just seems true." (Bealer, 1998, p. 207) This example reveals that Bealer on the one hand believes intuition could be elicited under *normal conditions*, which means intuition should *not* be any *far-out* experience. This characterization of intuition seems to suggest that Bealer has a similar target to the target the thesis discussed in the introductory part (1.2.1), namely the immediate experience generated by apprehending propositions or thought experiments without any conscious inference processes under normal conditions.

Although Bealer emphasizes intuition is a non-mysterious source of evidence, he in fact also holds another understanding of intuition. For Bealer, as intuition is an intellectual seeming without any help from sensory or introspective knowledge, Bealer calls his targeted intuition 'a priori intuition' or 'rational intuition', which has

to be distinguished from 'physical intuition'[12], beliefs, common sense, judgments and others. (1992; 1996; 1998) The main differences between rational intuition and the others are: (1) rational intuition mainly concerns "whether a case is possible (logically or metaphysically), and about whether a concept applies to such cases" (Bealer, 1998, p. 207); and (2) rational intuition presents itself as necessary, while the others do not. However Bealer honestly adds:

> "I am unsure how exactly to analyze what is meant by saying that a rational intuition presents itself as necessary. Perhaps something like this: necessarily, if x intuits that P, it seems to x that P and also that necessarily P. But I wish to take no stand on this." (1998, p. 207)

Although Bealer is unsure how to accurately express what means by 'present itself as necessary', it seems apparent that to have judgments or common sense that P would not be a kind of intellectual seeming to us that 'necessarily P'. Therefore, Bealer's *rational intuition* clearly has to be distinguished from physical intuition, beliefs, judgments and the like.

Then, why does Bealer's rational intuition present itself as necessary, or why it can be treated as basic evidence? Bealer gives the answer that *rational intuition* has

[12] Physical intuition is a kind of seeming concerning "what would happen in a hypothetical situation in which physical, or natural, laws are held highly idealized", like "when a house is undermined, it will fall." (1998, p. 207) This type of intuition has to rely on our sensory or introspective experience and has nothing to do with necessities (e.g. an undermined house *must* fall).

a reliable modal tie to the truth. (1996; 1998; 1999) Why does rational intuition have a reliable modal tie to the truth? Bealer gives the answer that it is true by definition. In order to have rational intuition, one is required to possess a concept determinately, which means one has to understand a concept in the full sense. Bealer further explains what he means by 'understand a concept in the full sense':

> " A subject possesses a concept in the full sense iff (i) the subject at least nominally possesses the concept and (ii) the subject does *not* do this with misunderstanding or incomplete understanding or just by virtue of satisfying our attribution practices or in any other weak such way." (1998, p. 222)

As rational intuition requires the subjects to have full understanding of a concept and elicit the intuition under *high quality cognitive conditions*, it is natural that when one has a rational intuition about a concept, it is impossible for one to be wrong about that concept. Therefore, rational intuition for Bealer, by definition, has a reliable modal tie to the truth.

This concept of intuition, in which intuition has a reliable modal tie to the truth, clearly differs from what Bealer characterizes intuition earlier in a loose sense. It is clear we should not confuse the two concepts of intuition. The former one is intellectual seeming derived from complete understanding of a concept and has to

be elicited under high quality cognitive conditions. The latter one is immediate feelings toward certain thought experiments or propositions that can be elicited under normal cognitive conditions.

Most of the time, Bealer seems to talk about intuition in the strict sense. And as the main aim of his papers is to argue for the autonomy and authority of philosophy, rational intuition, which is the intuition in the strict sense, is an important component of the argument as one of the basic sources of evidence in philosophy. Basic evidence is required to have a tie to the truth, so only the concept of rational intuition could serve for Bealer's purpose, intuition in the loose sense could not replace 'rational intuition' in the argument. It is inapposite to interpret Bealer's intuition as intuition in the loose sense. Therefore, the thesis will take rational intuition as what Bealer really means by 'intuition'.

In this sense of intuition, it is clear that Bealer does not want fallibility to be a feature of intuition, despite his direct acceptance of the fallibility in several places, which was also mentioned in the fallibility section (2.1). For example:

> "Like sense perceptions, intuitions can (at least occasionally) be mistaken: for example, our intuition regarding the naïve comprehension axiom is evidently mistaken." (Bealer, 1992, p. 104)

> “From the logical and semantical paradoxes we know that intuition can be mistaken. So the (early modern) infallibilist theory of intuition is incorrect.” (1998, p. 202)
>
> “I have an intuition – it still seems to me – that the naïve comprehension axiom of set theory is true; this is so despite the fact that I do not believe that it is true (because I know of the set-theoretical paradoxes).” (1998, p. 208)

Bealer says he has an intuition on naïve comprehension axiom, but he also mentions that he believes that the axiom is false. Therefore it shows that Bealer accepts intuition to be fallible in some cases. However, the term ‘intuition’ used here seems to be used in the loose sense, Bealer in several other places emphasizes that intuition is fallible locally or in more holistic way, but it does not show that intuition in his relevant sense, or rational intuition, could not have strong modal tie to the truth.

> “But, despite their fallibility, intuitions on my view nevertheless have a certain kind of strong modal tie to the truth. This tie is not ‘local,’ however, since individual intuitions can be mistaken. Nor is the tie an ordinary holistic tie: I accept the possibility that some hypothetical subject’s best efforts at the theoretical systematization of his intuitions might be

> mistaken. Rather, the tie is relativized: specifically, it is relativized to theoretical systematizations arrived at in relevantly high quality cognitive conditions. Such conditions might be beyond what individual human beings can achieve in isolation." (1998, p. 202)

If the term 'intuition' is used in the strict sense, in Bealer's relevant sense, it seems intuition is infallible, since for a striking feeling to be rational intuition, the subject has to generate the feeling through complete understanding of a concept and under high quality cognitive conditions. 'Intuition' in this sense is, by definition, necessarily correct. Fallible intuition, for example intuition on naïve comprehension axiom, could be explained as intuition that does not involve possessing a concept determinately or is not elicited under high quality cognitive conditions. In the strict sense of intuition, neither intuitions about the naïve comprehension axiom, nor the judgments of the subjects tested by the psychological studies, is rational intuition. In his own words:

> "[I]f the subject's intuitions lacked this sort of tie to the truth, that would only show that the subject did not determinately possess those concepts (or that the subject's cognitive conditions were not sufficiently good)." (1996, p. 269)

Therefore, the falsity of these intuitions or judgments is not evidence

supporting the claim that rational intuition is also fallible, but merely showing that they are not rational intuition. Bealer emphasizes that his targeted intuition could not be tested by empirical studies:

> "Although [empirical] studies evidently bear on 'intuition' in a less discriminating use of the term (e.g., as a term for uncritical belief), they tell us little about intuition in the relevant sense … The thesis that intuitions have the indicated strong modal tie to the truth is a philosophical (conceptual) thesis not open to empirical confirmation or refutation." (1998, p. 202)
>
> "Many philosophers believe that the empirical findings of cognitive psychologists such as Wason, Johnson-Laird, Rosch, Nisbett, Kahneman, and Tversky cast doubt on [intuitions'] epistemic worth. But, in fact, although these studies bear on 'intuition' in an indiscriminate use of the term, they evidently tell us little about the notion of intuition we have been discussing, which is relevant to justificatory practices in logic, mathematics, philosophy, and linguistics … empirical investigators have not attempted to study intuitions in the relevant sense." (Bealer, 1998, p. 213)

In arguing for the strong modal tie between rational intuition and the truth,

Bealer clearly does not want fallibility to be a feature of rational intuition. His theory, then, has to respond to the studies supporting the fallibility of intuition. The general strategy to respond to the studies, however, relies on what we have discussed in the introductory part, the argument of irrelevance (IA). Bealer tends to argue that the studies supporting the fallibility of intuition may not reflect what the features of rational intuition really are. Thus it seems the fallibility of *rational intuition* (intuition in the strict sense) is not well-supported by the studies.

Using the radical version of IA that targeted intuition is nearly completely inaccessible by the empirical studies or by an individual provides easy responses to the empirical studies. If the studies suggest a certain unwanted feature of rational intuition, Bealer can simply reply that the subjects in the studies do not possess the concept determinately or judge under high quality cognitive conditions. However, as Bealer's characterization of rational intuition and his reliance on IA, it seems clear that Bealer discusses different intuitions from us. More importantly, this radical version of IA poses three other problems to Bealer's theory.

First, it is mentioned Bealer uses 'intuition' in two senses, namely the loose sense and the strict sense. In his usage of intuition in the loose sense, his targeted intuition seems to be similar to what is targeted as 'intuitive feelings', which is non-mysterious and could be elicited under normal cognitive conditions. Intuitive

feelings are not a far-out experience from the ordinary philosophical practice. It seems very possible for empirical studies to test our intuitive feelings and provide evidence to support whether intuitive feelings have such and such features. However, in discussing the reliability of intuitions, Bealer seems to replace the intuitive feelings by intuition in the strict sense, which he calls rational intuition. Bealer then argues that the empirical studies are silent on this far-out concept 'rational intuition'. He seems to want to change the subject of the discussion from intuition in the loose sense to intuition in the strict sense. He argues that rational intuition has the features he attributes to it, but the features cannot be tested or refuted by empirical studies. We should not confuse these two concepts of intuition, intuitive feelings, which is intuition in the loose sense, and rational intuition, which is intuition in the strict sense. Bealer has to choose which concept of intuition he is really interested in.

Two concepts of intuition would not be a big problem for Bealer's theory. It is clear that Bealer is more interested in the discussion of rational intuition, but not intuition in the loose sense. However, this choice leads to a more serious problem. As Bealer mentions that rational intuition has to be elicited under high quality cognitive conditions, and "[s]uch [high quality cognitive] conditions might be beyond what individual human beings can achieve in isolation" (Bealer, 1998, p.

202), it seems dubious that we have experienced rational intuition at all. It is possible that at this time in history humans still have not had an experience that can satisfy Bealer's criterion for rational intuition. Could we have some ways to classify which immediate feelings are rational intuitions? If there are no such methods for classification, it seems plausible that 'rational intuition' is merely a conceived concept. The theory of a conceived concept named 'rational intuition' could not be a good candidate of theory of intuition that we are interested in.

Bealer does give us some criteria for classifying rational intuition, which are the feelings generated under high quality cognitive conditions and by possessing a concept determinately. The criterion involved the proposition intuited has to be true, or called as success conditions. The success conditions, however, make the theory fall into a Cummins-like dilemma.[13] Based on Bealer's definition, if a feeling is rational intuition, it must not be false; if the feeling is false, it must not be rational intuition. But, then, how can we classify which feelings are rational intuition in practice? Bealer has to choose: either we have methods to classify rational intuition beyond success conditions, or there are no other ways to identify rational intuition.

[13] Cummins (1998) points out a difference between the instruments in science and intuition in philosophy. In science, the instruments have to be tested through calibration. However, in philosophy, there is no calibration for our intuition. The advocates of appealing to intuition have to choose either (i) we have an independent method knowing whether the content of intuition is true; or (ii) we do not have a method to calibrate intuition. If we have an independent method to know whether the content of intuition is true, intuition becomes useless in justifying the propositions. If we do not have a method to calibrate intuition, we should not use it as evidence in philosophy.

Bealer could argue that there are no other ways to classify rational intuition. To classify rational intuition, then, we have to know whether the content of a feeling is true beforehand. However, if we already know whether the content of a feeling is true or not, we do not need rational intuition in justification anymore. The main aim of Bealer is to argue for the autonomy and authority of philosophy. He definitely needs both the modal tie between rational intuition and the truth, and the justificatory role of rational intuition. Bealer should not choose this option.

Another option Bealer can choose is to claim that we have some other independent ways in classifying rational intuition. Bealer has not, in fact, offered any such independent method of classifying rational intuition. He may give some phenomenology that intuition is robust, striking intellectual seeming that presents itself necessary for classification, but these features are only able to classify intuition in the *loose sense* for us, but not *rational intuition*. Bealer's theory has the responsibility to offer an independent method for the classification of intuition, but it seems hard for Bealer to find one.

As Bealer has rational intuition but not intuition in the loose sense in mind, it is natural for him to not believe in the plasticity and the variability of rational intuition. Since rational intuition is generated under high quality cognitive

conditions and by possessing a concept determinately, such rational intuition cannot generate different responses to the exact same vignette. Otherwise one of the responses seems not to be generated under high quality cognitive conditions or by possessing a concept determinately. In the similar vein, if two groups of subjects really generate the feelings under high quality cognitive conditions and by possessing a concept determinately, it seems impossible for two groups of the subjects to have different rational intuition on the exactly same case. It is possible for at least one group of the subjects to be unable to have rational intuition, or the two groups of subjects are in fact dealing with different cases.

In responding to the empirical studies supporting the plasticity and the variability of intuition, Bealer may use the general strategy of adopting the radical version of IA mentioned above. The main problems of adopting IA have been discussed in the introductory part and several paragraphs before. The thesis will not repeat them here. Besides this general strategy, it is worth noting that Bealer actually has direct responses to the studies suggesting variability.

In responding the studies suggesting variability, Bealer seems to adopt what Sosa calls *verbal disagreement* to some extent in responding to some of the studies suggesting variability. This strategy suggests that the difference in the judgments from two groups of subjects may due to a different understanding of the same

vignette. Two groups of subjects have verbal disagreement on the concepts contained in the vignette. The subjects may in fact deal with different cases. Therefore it is natural for them to have different or even conflicting judgments and the conflicting responses do not necessarily show that it is possible for rational intuition to be in conflict.

Take the example of the *Galileo paradox of infinity*. The paradox asks us to judge which of the following series of numbers: (i) 1,3,5,7,9 … ; or (ii) 1,2,3,4,5 … has fewer members in it. It seems natural to think series (i), the odd numbers, has fewer members than series (ii), the natural numbers, but we know the answer is both series of numbers have the same number of members. Bealer argues that he has both intuitions on this case: (i) has fewer members than (ii); and (i) and (ii) have the same number of members, but he does not think either that his intuitions are conflicted or that one of the intuitions is false. Bealer rather argues that there are in fact two senses of fewer-than. In one sense, we know that the members of natural numbers include both odd numbers and even numbers, so it seems to us that natural numbers should have more members than odd numbers. Bealer calls it the fewer-than in proper-subset sense. In another sense, we also know that for any members in (ii) we can find a one-to-one corresponding member in (i). In this no-one-one-correspondence sense, (i) and (ii) have the same number of members.

(1992) Therefore, even if we have ostensibly different/conflict feelings on the same question, it does not necessarily suggest that it is possible for intuition to have variation. The different judgments may merely due to different understandings of a concept.

Bealer does not have extensive discussion on particularity and heterogeneity. It has to be reminded that there are two senses of particularity. Intuition (*Pa1*) seems to be more easily elicited by particular cases; and (*Pa2*) seems easier to have particular contents. Bealer defines the target of rational intuition as "whether a case is possible (logically or metaphysically), and about whether a concept applies to such cases." (Bealer, 1998, p. 207) He also emphasizes the reliability of particular intuition, saying: "the on-balance agreement among our elementary concrete-case intuitions is one of the most impressive general facts about human cognition" (1998, p. 214) It seems reasonable to think that Bealer believes in *Pa1* as a feature of rational intuition, but it is unclear whether Bealer agrees that *Pa2* is also a feature of rational intuition, since Bealer has several examples of intuition with general contents, like the intuition on the naïve comprehension axiom. Although Bealer's theory may be compatible with particularity, the theory is silent on the reason for the feature.

Heterogeneity is also a feature that seems less discussed by Bealer. Bealer seems to assume that intuition is a single, cohesive natural mental state, as he defines intuition as “a sui generis, irreducible, natural (i.e., non-Cambridge-like) propositional attitude that occurs episodically.” (Bealer, 1998, p. 213) Although this definition may be open to other interpretations that are compatible with heterogeneity, namely that it is still possible for the propositional attitude to be elicited through diverse mental processes, in the papers discussing intuition (1992; 1998; 1999), Bealer shows a consistent tendency in arguing for the reliability of rational intuition as a whole. It seems reasonable to interpret Bealer’s theory as assuming a single conception of intuition. Though it seems possible for Bealer’s theory to be compatible with the feature of heterogeneity through modification, it is still unclear how his theory could explain the reason for heterogeneity.

It is also worth noting several other similar views of intuition in this section. Kirk Ludwig, similar to George Bealer, believes intuition is elicited from the conceptual competence, or in Bealer’s term ‘possessing a concept determinately’. Ludwig says that he uses “’intuition’ to mean an occurrent judgment formed solely on the basis of competence in the concepts involved in response to a question about a scenario, or simply an occurrent judgment formed solely on the basis of

competence in the concepts involved in it (in response, we might say, to the null scenario).” (Ludwig, 2007, p. 135)

Ludwig’s theory of intuition is different from Bealer’s on the topic of necessity. Intuition, for Ludwig, needs not present itself as necessary. (Ludwig, 2007, p. 136 n18) Ludwig seems to hold a more moderate account of intuition than Bealer. However, as noted in the introductory part, Ludwig’s theory of intuition also largely relies on the argument of irrelevance (IA). Ludwig emphasizes the concept of ‘ipso facto intuition’. ‘Ipso facto intuition’ means “ipso facto judgments which express solely the subject’s competence in the deployment of the concepts involved in them in response to the scenario” (Ludwig, 2007, p. 144), which is similar to Bealer’s rational intuition that has to be elicited by possessing a concept determinately. Ludwig’s theory seems also to import success conditions in classifying ipso facto intuition and using the same strategies as Bealer in responding the list of features in chapter 2. Thus Ludwig’s theory also seems to face similar serious problems to Bealer’s.

Laurence BonJour is also an advocate of appealing to intuition. He believes that intuition is a feeling that a proposition *seems* to be necessary: the proposition directly and immediately seems to us to be true in any possible world without any inference processes. (BonJour, 1998, pp. 106-107) BonJour also believes that

intuition is a priori and that it provides evidence. Intuition is a priori in the sense that it does not need to involve other types of evidence, as he says: "an act of rational insight or rational intuition … depends upon nothing beyond an understanding of the propositional content itself." (BonJour, 1998, p. 102)

Unlike Bealer, BonJour holds a more moderate account of intuition. He believes intuition is fallible and defeasible though the contents of intuition 'seem' to us necessarily true. BonJour argues that even if proposition P is false, one is a priori justified to believe in P as long as one intuited that P. "[I]t is enough that [a priori] justification be capable of warranting belief where experience is silent." (BonJour, 1998, p. 121) The thesis will not go too deep into BonJour's theory, but it seems his theory is more compatible with the list of features than Bealer's.

To sum up, Bealer's theory largely relies on the radical version of IA in responding to the studies suggesting unfavorable features of intuition. This approach leads his theory to face serious problems. Although his theory may be compatible with particularity and heterogeneity, it seems his theory can hardly provide a reason for these two features. Bealer's theory also appears to target a far-out concept of intuition. Thus his theory is probably not a good theory of intuition that we are interested in.

3.2 Ernest Sosa

Ernest Sosa is an also advocate of the method of appealing to intuition, but Sosa certainly has different understanding of the term 'intuition' than George Bealer. Sosa views intuition as, briefly, *an inclination to judge/assent* to certain propositions by merely understanding the proposition.[14]

Sosa starts introducing his theory of intuition by objecting to the naïve definition for intuition as 'apprehension without reasoning'. This definition is clearly not enough for philosophical discussion, since it does not exclude some perceptions and introspections without conscious process of reasoning. Sosa then has further modification to this definition. In Sosa's earlier view, he seems to think that philosophical intuition mainly deals with abstract propositions. Thus he defines intuition in the following way:

> "At t, it is intuitive to S that p iff (a) if at t S were merely to understand fully enough the proposition that p (absent relevant perception, introspection, and reasoning), then S would believe that p; (b) at t, S does understand the proposition that p; and (c) the proposition that p is abstract." (1998, p. 259)

[14] Bealer (1998, pp. 233-234) interprets Sosa's view (1996) as "a general reduction of seemings" to inclination to believe. But this comment cannot accurately reflect Sosa's view. Sosa in his later papers (1998; 2007a; 2007b) explicitly intends to distinguish between intuition and other sorts of experience. Sosa seems not to be interested in the general reduction of all kinds of seemings.

Intuition is an inclination to believe a proposition elicited by sheer understanding of that proposition. This view does not have too many changes in his more recent papers. In one of his later papers, he says: “On my proposal, to intuit that p is to be attracted to assent simply through entertaining that representational content.” (2007b, p. 101)

However, there seem to be two main differences in Sosa’s later view. First, in Sosa’s earlier paper, he seems to think that genuine intuition targets abstract propositions. (1998) In Sosa’s later view, the idea that the target of intuition has to be abstract seems to be less emphasized. (2007a; 2007b) Sosa is more specific on the target of intuition and starts to argue that intuition in his relevant sense is an inclination to believe modal propositions. He says:

> “[T]he content [of rational intuition] is explicitly or implicitly modal (i.e. attributes necessity or possibility) … there is no very deep reason. It’s just that this seems the proper domain for philosophical uses of intuition.” (2007b, p. 101)

Another main difference is that Sosa seems to emphasize a competence component of intuition in his later theory. In the earlier version of Sosa’s theory, Sosa often has discussion of what he calls *ostensible intuition*, and makes the analogy between intuition and *ostensible perception*. (1996; 1998) We ostensibly

perceive a bent stick in water. Although the stick is straight and we know it is straight, it still *ostensibly* seems to us that the stick is bent in water. Similarly we ostensibly intuit that, using Bealer's example, the naïve comprehension axiom is true. Even if the axiom is false and we know it is false, it still ostensibly seems to us and has attraction for us to believe that it is true. It seems that in the earlier version of Sosa's theory, Sosa uses the term 'intuition' to mean intuition in the loose sense (i.e. 'ostensible intuition' (1996)) and focuses on discussing this type of intuition.

In later papers, Sosa puts more efforts in emphasizing the notion of competence. He narrows down his discussion to rational intuition, and makes clear the differences between rational intuition, propositional intuition (which is intuition with propositional content) (2007a) and empirical intuition (which concerns only the physical world, for example the principles of folk physics). (2007b) Sosa argues that rational intuition is more special in the sense that he imports competence conditions into this concept. For example:

> "S intuits that p if and only if S's attraction to assent to <p> is explained rationally by two things in combination: (a) that S understands it well enough [competence], (b) that <p> is true." (2007a, p. 52)
>
> "The intuition is *rational* if and only if it derives from a competence, and the content is explicitly or implicitly modal (i.e. attributes necessity or

possibility" (2007b, p. 101)

It seems that, similar to Bealer, Sosa also focuses on different senses (i.e. strict sense and loose sense) of intuition in his earlier and later papers. To be fair, in evaluation of Sosa's theory, the thesis will take both concepts of intuition into consideration. But it seems Sosa tends to understand and argue for the evidential value of intuition in the sense of rational intuition rather than ostensible intuition.

Sosa apparently accepts fallibility as a feature of intuition, both for ostensible intuition and rational intuition. In his earlier discussion, Sosa seems to use the terms 'intuition' and 'rational intuition' to mean *ostensible intuition*, which is intuition in loose sense. He gives an example of the grip of paradox where intuition is fallible. it is possible for us to have the same strength of 'rational intuition' on both "(a) if from a place with a sand dune one removes a grain with no other effect on the sand, then a sand dune will remain in that place; and … (b) a place entirely devoid of sand contains no sand dune." (1998, p. 258) He adds "[e]ach of these seems indeed a proper object of *rational intuition*. Each is an abstract proposition believed just in virtue of being understood; no perception, introspection, or reasoning is required. [emphasis added]" (1998, p. 258) Sosa probably agrees that surely one of these 'rational intuitions' has to be false. However, it is important to

note that the term ‘rational intuition’ used here seems to mean intuition in loose sense (i.e. ostensible intuition), as Sosa uses this term just after he has made an analogy between intuition and ostensible perception and Sosa later does not specify his usage of the term ‘rational intuition’. It seems that in his earlier theory, even if Sosa uses the term ‘rational intuition’, he is in fact meaning ostensible intuition. Therefore, although in one place he has direct acceptance of the feature of ‘rational intuition’:

> “Actually, we have long known of the fallibility of apparent rational intuition, even in the best conditions of alertness, normality, and reflection time” (1998, p. 261);

and mentions the notion of *competence* once after the acceptance, it seems more apposite to interpret the ‘rational intuition’ Sosa used here by ostensible intuition, since it seems to be what Sosa really means in his earlier theory. In Sosa’s earlier discussion, he focuses on arguing intuition’s evidential value but not its infallibility. He makes the analogy between perception and intuition. As perception is also fallible and acceptable to be one of our evidence sources, it seems we have to treat intuition the same as perception.

Sosa focuses on ostensible intuition in earlier discussion, this point would be clearer if compared with the definition of rational intuition he offers in the later

papers. (2007a; 2007b) Sosa describes intuition in the loose sense as having several features, including the feature of fallibility. He says "[propositional intuition's] content can be false; there can be false intuitions." (2007a, p. 52) However, as also noted above, in Sosa's definition of rational intuition, he seems to import both competence and success conditions. (2007a, p. 52; 2007b, p. 101) This definition of rational intuition seems to us that Sosa intends to argue for the high reliability of rational intuition. This is a natural move for Sosa's theory. As Sosa argues for the evidential value of rational intuition, it seems rational intuition had better be highly reliable. Therefore, it is natural for Sosa to import both competence and success conditions into the notion of rational intuition.

But does this move mean that Sosa believes rational intuition is infallible? Clearly not. Sosa directly accepts the fallibility of rational intuition, he says:

> "Justified introspective and rational intuitions can be false, as can perceptual intellectual seemings and even justified perceptual beliefs." (2007a, p. 57)

However, as Sosa defines in later papers (2007a, p. 52), if rational intuition is derived from competence and the content of it has to be true, how can rational intuition be compatible with the feature of fallibility? In explaining the feature, Sosa makes an interesting analogy between fallible rational intuition and

misremembering. Suppose we have a definition for retentive memory of <p> that:

> "At t, the subject believes <p> and at t', later than t, the subject believes <p> because she believed <p> at t." (2007a, p. 57)

Then, does it counts as misremembering something, when at t' you believe your friend lives on 31st floor because at t you believe your friend is lives on 33rd floor? In one sense, following the definition, it does not count as misremembering, since it is not even a case of memory! But in our common sense, we allow there is fallible memory. Therefore this case seems to be a case of misremembering.

Rational intuition is *fallible* in a sense similar to misremembering for Sosa. In one sense, following the definition of rational intuition (2007a, p. 52), it seems impossible for the content of rational intuition to be false. Thus if there is false intuition, it is necessarily not rational intuition. Bealer (1996) and Ludwig (2007) argue for the high reliability of intuition in this way. Conversely, Sosa (2007a), following common sense, intends to allow the fallibility of rational intuition. He argues that rational intuition is fallible in the sense similar to the case of misremembering. Even if rational intuition is derived from competence and the content of rational intuition <p> is true, but it is fallible because it is possible for us to think we rationally intuit that <p'>, which is very similar to <p>, and <p'> is false. In order to be compatible with our common sense, Sosa intends to include this kind

of fallible rational intuition into his notion of rational intuition. Thus he modifies his definition of rational intuition in the following way:

> "S rationally intuits that p if and only if S's attraction to assent to <p> is explained by a competence (an epistemic ability or virtue) on the part of S to discriminate the true from the false reliably (enough) in some subfield of modally strong propositional contents that S understands well enough, with no reliance on introspection, perception, memory, testimony, or inference (no further reliance, anyhow, than any required for so much as understanding the given propositional content)." (2007a, p. 58)

This modification of the definition seems to be tantamount to waiving the success conditions in Sosa's theory. His theory only requires rational intuition to be reliable enough in distinguishing false intuition from good intuition. It seems fairly clear that Sosa's theory accepts and is compatible with the fallibility of rational intuition. He may also agree that some of the empirical studies reveal the fallibility of rational intuition.

A worry is, as Sosa's theory requires rational intuition to be elicited from a competence, how can we classify rational intuition or a competence besides knowing whether the content of the intuition is true? Similar to Bealer, Sosa has to choose between either there is another method of classifying rational intuition/a

competence, or there are no other methods beyond knowing that the content of intuition is true. If there are no other methods, we have to know whether its content is true before we know whether a feeling is elicited from rational intuition/a competence. If we already know whether the content of a feeling is true, we do not need rational intuition/a competence in justifying the content of a feeling anymore.

Sosa's theory, nevertheless, could afford to make another choice. Unlike Bealer, Sosa does not hold the success conditions strictly. He modifies his definition for rational intuition to rule out the infallibility of rational intuition. Although he also faces the problem of classifying the feelings derived from competence, he can accept to find a method to classify which feelings are derived from competence beyond the truth of their contents. It seems the dilemma would not be a serious threat for Sosa's theory. The only worry is whether Sosa could give us a method of classifying rational intuition beyond knowing the truth of the content in practice.

Regarding plasticity, Sosa seems to accept this feature for intuition. In replying to the studies of ordering effects in epistemic intuition from Swain, Alexander and Weinberg, Sosa accepts that the studies may reveal a certain feature for intuition, but disagrees with the conclusion Swain et al. draw from their studies that Swain et

al. “contend that this instability undermines the supposed evidential status of these intuitions.” (Swain, Alexander, & Weinberg, 2008, p. 138) Sosa again makes the analogy between perception and intuition. He says:

> “[T]he effect of priming, framing, and other such contextual factors will affect the epistemic status of intuition in general, only in the sort of way that they affect the epistemic status of perceptual observation in general … The upshot is that we have to be *careful* in how we use intuition, not that intuition is useless.” (Sosa, 2007b, p. 105)

It seems clear that Sosa would accept the feature of plasticity for intuition. It is also not hard for his theory to explain the plasticity of intuition, as he defines intuition as an inclination to believe certain proposition based on merely understanding of the proposition, and this kind of inclination is hardly believed to be impossible to change. What he disagrees with is the idea that the plasticity of intuition implies that intuition is useless. An interesting question would be: is rational intuition also allowed to have the feature of plasticity? Would the plasticity of a feeling mean the feeling is not derived from a competence? It seems Sosa does not have a direct reply to these questions. A guess is that Sosa would also allow rational intuition to have the feature of plasticity according to our common sense, similar to what he has done in the part of fallibility.

In responding the studies suggesting the variability of intuition, Sosa often worries whether the studies could really reveal the sort of intuition we are interested in. Recall that the variability of intuition we are interested in is two groups of subjects having different intuitions to the exact *same* vignette or proposition. Sosa worries that it is possible that many studies on variation are eliciting the feelings of two groups of subjects on *different* vignettes or propositions. In responding particularly to the studies from Weinberg, Nichols and Stich (2001), Sosa (2005) argues that the cultural difference in Gettier cases or zoo cases may due to the unspecified details in the vignettes, two-forced choice response and verbal disagreement.

As not all details are specified in the vignette, Sosa thinks that it is possible for different groups of subjects to fill in different details in the vignette and different groups of subjects are then responding to different cases. For example, different groups of subjects may import different background assumptions about American corporations. Some of the subjects may think it is very likely that a protagonist who long owned an American car will continue to buy an American car again, while some of the subjects may not. If the subjects are really responding to the same vignette with different interpretations, it seems the studies are not in fact testing

what we are interested in.

Besides of the possibility of importing different details into the vignette, Sosa argues that the studies have a limitation in forcing the subjects to choose between whether the protagonist 'really knows' or 'only believes'. The subjects may want to choose the third choice like "we are not told enough in the description of the example to be able to tell whether the subject knows or only believes" (2005, p. 13) This worry about the third-person approach of studying intuition has been discussed in the introductory part and would not be discussed at length here. However, there are other studies which do not force the subjects to choose between two choices but also reveal group differences in the responses. How will Sosa respond to those studies?

Sosa has a general worry about the studies that the results may only reveal verbal disagreement between the subjects but not the differences of intuition. For example, the term 'knowledge' may in fact pick out different concepts in different cultures. Sosa also proposes this possibility in responding to other studies. (2007b) For example in the studies from Nichols and Knobe (2007), they are asking the subjects to judge whether the protagonist is responsible for his/her acts if he/she is in the determinist universe. The results find that the subjects in the high disgust-sensitivity group are more willing to judge that the protagonist is

responsible for his/her acts than those in the low disgust-sensitivity group. Sosa points out that there are two senses of 'moral responsibility': one is the attributability sense, another is the accountability sense. It is possible for different groups of subjects to hold moral responsibility in different senses and thus to give different responses to the same vignette. Therefore the results may not reflect what the intuition of the subjects really is.

Although Sosa in many places worries whether the studies could really reflect the variability of intuition, he does not explicitly say that he believes intuition cannot possibly vary from group to group. In fact, Sosa seems to believe that there can be a variation of intuition in strength. He says "[t]here may be more or less variation in the strength of the intuition, but either everyone who intuits either way intuits that p or else everyone who intuits either way intuits that not-p." (2005, p. 107) However, in general, Sosa seems to have negative attitude to the variability of intuition. We can see a reason why he hesitates to accept the variability of intuition: if two groups of subjects really have conflicted intuition, it seems to reflect that at least one group of subjects is giving false judgments. Sosa does not want to define rational intuition in the radical sense that Bealer does or to say that one group of subjects does not have competence to derive rational intuition. Therefore it seems natural for Sosa to explain the variation of responses by verbal disagreement.

However, Sosa's theory in fact can be compatible with the feature of variability. Sosa can argue by pushing his analogy of perception further. It would be generally agreed that we have perceptual competence, even though our perception can go wrong in for example the Müller-Lyer illusion. (Figure 3) And regarding the Müller-Lyer illusion, there can also be differences between subjects in different cultural groups. It is found that the San foragers of the Kalahari are less likely to be affected by the Müller-Lyer illusion. Participants from Evanston, by contrast, are significantly more easily affected by the illusion. (Segall, Campbell, & Herskovits, 1966; Henrich, Heine, & Norenzayan, 2010)

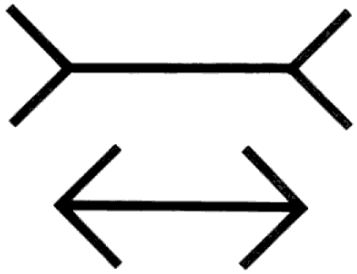

Figure 3 The Müller-Lyer illusion. Many people have a tendency to percept the segment above is longer than the segment below.

Although it is possible for perception to have differences in different cultural groups, and though some of the responses are true and some of them are false, it does not prevent us from thinking that different groups of subjects still have competence in perception and use perception as evidence. Likewise, even if there are conflicting intuitions in a certain case, it does not prevent us from treating intuition as evidence in other cases.

The main problem with Sosa's theory comes from particularity. Sosa seems not

to notice both types of particularity, especially in his earlier theory. In Sosa's earlier theory of intuition, the target of intuition is 'abstract propositions'. As most of his examples for intuition show, for example "that 2+2=4; that no sphere is a cube; that nothing is numerically self-diverse" (1998, p. 260), the 'abstract proposition' in his sense seems to mainly focus on 'general propositions'. He may not believe it is easier for intuition to be elicited (*Pa1*) by particular cases or (*Pa2*) with particular contents, as he also says: "Intuition gives us direct insight into the general and abstract." (1998, p. 265)

Of course we may sometimes have striking immediate feelings on some abstract propositions, but it seems more frequent for us to have intuition on particular cases. Take an example from Nichols and Knobe again:

> "In [deterministic universe], a man named Bill has become attracted to his secretary, and he decides that the only way to be with her is to kill his wife and 3 children. He knows that it is impossible to escape from his house in the event of a fire. Before he leaves on a business trip, he sets up a device in his basement that burns down the house and kills his family. Is Bill fully morally responsible for killing his wife and children?" (Nichols & Knobe, 2007, p. 670)

It seems very possible for us to have certain immediate striking feelings in

responding to this case, probably on Bill is fully morally responsible for his acts. It seems common for us to refer this kind of experience as intuition. Sosa would think it is also a kind of intuition, as he believes the studies from Weinberg, Nichols and Stich targets to intuition to certain extent. But how does Sosa's theory explain the occurrence of this kind of intuition? In Sosa's earlier theory, it seems such striking feeling could not be treated as intuition, since "Bill is fully morally responsible for his acts" seems neither an abstract nor general proposition.

In Sosa's later theory, although it does not require intuition to be abstract and general, it also seems to have difficulties in explaining the occurrence of this kind of intuition. Suppose we have attraction to assent to the proposition that "Bill is fully morally responsible for his acts". Can we have such inclination due to sheer understanding of the proposition that "Bill is fully morally responsible for his acts"? It seems could not be happened if we have not encountered the details of the vignette. This proposition is also not a modally strong proposition, that "Necessarily, Bill is fully morally responsible for his acts". Sosa's theory seems to ignore this kind of intuition, which seems commonly treated as intuition. The theory is hardly compatible with and unable to explain the particularity of intuition.

On heterogeneity, although Sosa explicitly notices this kind of objection to his theory:

> “From an everyday point of view all the things you have in mind share a certain feature. We are inclined to believe them spontaneously. But on my view this does not indicate a common source of all these inclinations (as there is in the case of all the perceptual sub-sources). The processes leading to these inclinations are not sufficiently similar to each other to constitute a homogeneous natural (or objective) kind. The real sources are as different as memory, subliminal perception, wishful thinking, prejudice and rational intuition.” (Sosa, 2007a, pp. 66-67)

In Sosa’s reply to this objection, he does not have direct responses to the feature of heterogeneity. It is also unclear how Sosa’s theory can explain or be compatible with the feature. More work has to be put into explaining this feature of intuition.

To conclude, Sosa’s theory of intuition is compatible with and able to have explanation for fallibility, plasticity and variability, but the theory is incompatible with or missing some important details for particularity and heterogeneity. If the theory can do more work in modifying the account according to and explaining the features of particularity and heterogeneity, it would seem to be a quite good candidate for a theory of intuition.

3.3 David Lewis

David Lewis has a more direct and simpler approach to understanding intuition. He clearly says that "'intuitions' are simply opinions … some are commonsensical, some are sophisticated; some are particular, some are general, some are firmly held, some less. But they are all opinions." (1983, p. x)

Intuitions are simply opinions/beliefs. More specifically, it seems plausible to interpret Lewis's view as the view that intuitions are the retrieval of pre-existing opinions/beliefs. In another discussion from Lewis, he says:

> "One comes to philosophy already endowed with a stock of opinions. It is not the business of philosophy either to undermine or to justify these pre-existing opinions, to any great extent, but only to try to discover ways of expanding them into an orderly system." (1973, p. 88)

In Hilary Kornblith's interpretation of this passage, Kornblith thinks 'pre-existing opinions' here means intuitions for Lewis. Kornblith says "Russell and Lewis are in agreement about proper philosophical method: we start with our *intuitions*, and then we try to systematize them at best we can. [emphasis added]" (Kornblith, 2006, p. 11) Although there may be other interpretations for Lewis's theory, for convenience this section will only consider the interpretation that 'intuition' means *retrieving pre-existing opinions*.

In more recent discussion, Peter Van Inwagen (2001) also makes a similar claim. He says:

> "Our 'intuitions' are simply our beliefs – or perhaps, in some cases, the tendencies that make certain beliefs attractive to us, that 'move' us in the direction of accepting certain propositions without taking us all the way to acceptance. (Philosophers call their philosophical beliefs intuitions because 'intuition' sounds more authoritative than 'belief.') Our beliefs have all sorts of sources and can very easily be wrong." (Van Inwagen, 2001, p. 149)

Lewis and Van Inwagen seem to think that it is an easy and uncontroversial approach in understanding intuition. Both of them do not have excessive use of the term 'intuition' or explicit discussion on it at length. But we can easily see this theory has advantages in explaining several features for intuition.

To reduce intuition to merely the retrieval of past belief or opinion can have an easy explanation for fallibility, plasticity and variability. It seems uncontroversial that the content of our beliefs or opinions could be false. It seems also uncontroversial that our beliefs and opinions could be easily influenced by our

emotions or the quality of cognitive conditions. It is also natural for different groups of subjects to have different patterns of beliefs or opinions. The theory of assimilating intuition with merely the retrieval of past belief or opinion seems to have direct and easy explanations for these three features of intuition.

However, it is less clear how the theory is able to explain other features of intuition. First, regarding heterogeneity, if intuition really is merely the retrieval of past belief, the theory seems unable to explain why different intuitions may be generated from diverse mental processes. Using fMRI studies done by Greene and his associates (2001) as an example, the subjects activate different brain regions in judging (i) personal and (ii) impersonal moral dilemma. Suppose we have two past beliefs/opinions that (i) 'we should not push the fat guy off the footbridge to save five people' and (ii) 'we should flip the switch in order to save five people though kill one'. It is less clear that how Lewis's theory could explain why the subjects are activating different brain regions in retrieving past beliefs (i) and (ii).

Second, concerning particularity, Lewis's theory seems unable to offer a good explanation for the feature, especially on the second type of particularity, which means it is easier to have intuitions with particular content. To illustrate, suppose

we have two past beliefs/opinions. One with general content that 'knowledge is not merely justified true belief', and one with particular content that a protagonist in a certain Gettier case does not have knowledge. It seems that it is easier to have latter intuition than the former, general one. Lewis's theory seems unable to provide a good reason why it is easier to retrieve our past beliefs/opinions with particular content but not past beliefs/opinions with general content.

Most importantly, as Bealer (1998, p. 209) also notes, viewing intuition as merely retrieval of past beliefs/opinions seems to be incompatible with the feature of novelty. It seems uncontroversial that subjects could have immediate striking feelings to newly constructed cases that the subjects have not encountered before. For example, the subjects who have not encountered Gettier cases before may have immediate striking feelings on a certain Gettier case. It seems not plausible that the subjects already have past beliefs/opinions on that Gettier case and are retrieving those beliefs/opinions during judging. Lewis owes us an explanation of how his theory is compatible with the feature of novelty, or of why we should not view such non-past beliefs/opinions as intuition.

This direct and simple theory for intuition, to view intuition as merely

pre-existing opinions/beliefs, seems unable to provide a good explanation for the features of intuition. Of course Lewis and Van Inwagen's theory of intuition can be interpreted as "the tendency that make certain beliefs attractive to us" (Van Inwagen, 2001, p. 149) or the feeling derived from background knowledge or beliefs (3.4). These interpretations of their views seem to be similar to the theories discussed in other sections. Therefore, the thesis only chooses to discuss the interpretation of retrieval of past beliefs/opinions, and leaves the related discussion of other interpretations to other sections.

3.4 Hilary Kornblith

One of the possible interpretations of Lewis's theory is to view intuition as feelings derived from background beliefs. This interpretation of Lewis's theory seems to be very similar to the theory held by Hilary Kornblith. In Kornblith's view of intuition, intuition is, briefly, the *judgments derived from background theories or concepts*.

Before we get into the details of Kornblith's theory, it seems worth noting which kind of experience Kornblith refers to as intuition. In *Knowledge and its Place in Nature*, Kornblith starts to introduce his theory of intuition by the example of appealing to intuition in philosophy. Kornblith believes that it is uncontroversial that we appeal to intuition in Gettier cases, Searle's case of American soldier and the like in philosophy. (2002, pp. 4-5) He says "I will take intuition to be pinned down by the paradigmatic examples of it given above …" (2002, p. 8) At first glance, it seems Kornblith refers intuition to the similar target with this thesis.

This kind of intuition, Kornblith believes, is derived from our background knowledge/theories. (1998; 2002) He makes an analogy between a rock collector and a philosopher. A rock collector makes judgments by "find[ing] [if] a rock meeting certain conditions, it would (or would not) count as a sample of a given kind." (2002, p. 12) The rock collector makes more accurate judgments when

he/she has better understanding of the features of rocks. But how about rock collector's judgments at an early stage? Kornblith believes the judgments are derived from background knowledge of the rock collector. He says:

> "Background knowledge will play a substantial role in determining a first-pass categorization of samples." (2002, p. 13)

After having more practice and a more sophisticated theory of rocks, the rock collector will get to have more accurate judgments on rocks.

Likewise, Kornblith seems to believe the practice of appealing to intuition in philosophy works similarly with the rock collector's analogy. Taking epistemic intuition as example, epistemologists are making judgments on whether a case (such as Gettier case) meets certain conditions and whether it counts as a sample of 'knowledge'. The cases in epistemology to epistemologists are analogous to the rocks to rock collector. Certain conditions of 'knowledge' seem to come from epistemologists' background knowledge/theories. Although the practice of eliciting intuition from background knowledge/theories seems quite similar to what some philosophers call conceptual analysis, Kornblith emphasizes this kind of judgments is in principle nothing more than rock collector's judgments, they are a posteriori but not a priori. He says "All such [rock collector's] judgments, however obvious, are a posteriori, and we may view the appeal to intuition in philosophical cases in a

similar manner." (2002, p. 12)

Kornblith, unlike Alvin Goldman and Frank Jackson, uses intuition to mean not merely untutored judgments derived from background knowledge, but also to include those judgments derived from sophisticated theories. In his criticism to Alvin Goldman's theory, Kornblith clearly allows intuition to refer to some theory-contaminated judgments:

> "The worry about 'theory contamination' which Goldman raises is not, I think, unreasonable. Rather, what I mean to be suggesting is that the move to pre-theoretical intuition is, perhaps, the wrong solution to the problem … It is not influence by background theory which is the problem … A problem arises only when the background theory which influences our intuitions is mistaken." (2007, pp. 33-34)

Kornblith in other passages may be less clear on this point. For convenience, the thesis will interpret Kornblith means intuition to include the judgments derived from sophisticated theories. This interpretation will not make a huge difference in evaluation of Kornblith's theory.

An important thing worth noting is Kornblith seems to believe that the target of our intuition is something internal, about our background

knowledge/beliefs/concepts, since he thinks that intuition is the judgments derived from background knowledge. This internal investigation can be linked to external phenomenon if we have accurate background knowledge/beliefs. Kornblith again explains by using his analogy to rock collector:

> "Although I am asked a question about rocks, I answer it by enquiring into what I believe. This is a perfectly reasonable thing to do if I have good reason to think that my current beliefs are accurate, or if I do not have access a better source of information. By looking inward, I answer a question about an external phenomenon. This, to my mind, is what we do when we consult our intuitions." (2002, pp. 14-15)

Someone may disagree with this interpretation for Kornblith's view on intuition, since Kornblith in another place says the view that intuition is used in understanding our concepts is misleading:

> "Now it is at this point that many philosophers will be tempted to bring in talk of concepts and conceptual analysis: in appealing to our intuitions, it will be said, we come to understand the boundaries of our shared concepts. But I don't think this way of seeing things is illuminating. By bringing in talk of concepts at this point in an epistemological investigation, we only succeed in changing the subject: instead of talking

about knowledge, we end up talking about our concept of knowledge." (2002, pp. 9-10)

Reading this passage as a whole, it seems that Kornblith does not mean viewing the target of intuition as something internal is misleading. As Kornblith believes knowledge (and also morality) is a natural kind, he believes it is misleading to change the subject of epistemology from knowledge itself to our concept of knowledge. Thus this passage does not conflict with the view that intuition targets our beliefs/concepts. This point seems to be made clearer in Kornblith's later paper:

> "Appeals to intuition are designed to allow us to illuminate the contours of our concepts. By examining our intuitions about imaginary or hypothetical cases, we should be able to come to an understanding of our concepts of, for example, knowledge and justification." (2006, pp. 11-12)

In Jennifer Nagel's interpretation of Kornblith, she also reads Kornblith in a similar way:

> "Hilary Kornblith allows that Bealer, Goldman, and Pust may be right to claim that a person's epistemic intuitions are a valuable source of evidence about her concept of knowledge; however, Kornblith draws a sharp distinction between the project of finding out about our concepts of knowledge and the project of finding out about knowledge itself."

(Nagel, 2007, p. 804)

As Kornblith believes knowledge is a natural kind and we are able to investigate it directly through other practices, he thinks that we should directly study knowledge itself in epistemology, but not the concepts of knowledge and justification. Thus he says:

> "[O]ur concepts of knowledge and justification are of no epistemological interest. The proper objects of epistemological theorizing are knowledge and justification themselves, rather than our concepts of them … If we wish to have a genuine understanding of knowledge itself, we need to look at the phenomenon, not our concept of it." (2006, p. 12)

Therefore, for Kornblith, it seems intuition does not play any important role of studying knowledge in epistemology, since we have other more direct method in studying knowledge itself. Kornblith believes intuition can still play a role in the place that about more obscure things, for example "what magnetosomes represent" (1998, p. 137), but not for epistemology and morality. This section is only interested in Kornblith's account of intuition, only concerning the target of intuition in Kornblith's sense, it seems reasonable to interpret Kornblith as viewing intuition targeting our internal beliefs/concepts.[15]

[15] Bealer makes the inaccurate interpretation that Kornblith holds the account that "intuitions are identified with a 'raising-to-consciousness' of nonconscious background beliefs". (Bealer, 1998, pp.

Viewing intuition as judgments derived from background knowledge/beliefs has advantages in explaining fallibility, plasticity and variability. On fallibility, it is obvious that intuitions of the naïve may go wrong, since our background beliefs are probably false at an early stage. Therefore Kornblith emphasizes that "judgment guided by accurate background theory is far superior to the intuitions of the naïve." (2002, p. 14) How about, then, the intuition derived from accurate background theory? It seems Kornblith would believe this kind of intuition is also fallible. Although the background theory could become more accurate theory through continuous modification, it is less likely for the theory to become perfect. It is still possible for intuition derived from the accurate but not perfect theory to go wrong. Kornblith's theory is compatible with the feature of fallibility and seems to offer a good explanation for it.

Regarding plasticity, Kornblith allows intuition to have changes with the progress of background knowledge/theory. For example, we have naïve intuition derived from a background belief that <p>, but when we have a more accurate theory that leads us to think not-<p>, our intuition may then change from <p> to

209, 234) It seems more likely to be the interpretation of David Lewis's account but not for Kornblith.

not-<p>. Thus Kornblith says after his description of the judgments from the rock collector:

> "So too, I want to say, with appeals to intuition in philosophy. These judgments are corrigible and theory-mediated." (2002, p. 13)

Despite Kornblith's acceptance of plasticity, this possibility of changes in intuition seems not to be similar to another type of plasticity we have in mind. For example, our judgments to the exactly same vignette may have changes due to merely the cleanness of environment. (Schnall, Haidt, Clore, & Jordan, 2008) It seems there are not any systematic differences of background theory between different groups of subjects, but the studies find that the subjects in dirty room make more severe moral judgments than the subjects in a normal room or a clean room. The results seem to suggest that the cleanness of the environment or the feelings of disgust may have influence on the subjects' intuitive feelings. This type of plasticity, however, seems not to happen because of the changes in background theory of the subjects. Would Kornblith allow this type of plasticity and how he can explain this feature of intuition?

Kornblith does not explicitly reply to plasticity of intuition in this sense, but it seems his theory of intuition can allow this type of plasticity. One possibility is to say humans' judgments can be influenced by various factors like affect. It is natural

for intuition, which is also one kind of judgments, to be affected by disgust feelings. Kornblith's theory probably can be compatible with the plasticity, but it seems better to have more explanation of the feature.

In explaining variability, Kornblith's theory can also offer us an easy explanation. Kornblith points out that there is sometimes for our intuitions to have general agreement with each other. He believes this phenomenon can be explained by common knowledge or beliefs held by us.

> "The extent of agreement among subjects on intuitive judgments is to be explained by common knowledge, or at least common belief, and the ways in which such background belief will inevitably influence intuitive judgment, although unavailable to introspection, are none the less quite real." (2002, p. 13)

This explanation for general agreement of intuition seems also able to explain the variability of intuition between different groups of subjects. It seems very possible that different groups of subjects have different common background knowledge or beliefs. Thus one group of subjects may have a response pattern consistently different from another group of subjects. Kornblith's theory can allow the variability of intuition and can offer an easy explanation for the feature.

The main problem with Kornblith's theory comes from its lack of explanations for particularity and heterogeneity. Kornblith probably has some degree of particularity of intuition in mind, on the first type of particularity that (*Pa1*) intuition is easier to be elicited by particular cases. As most of examples of appealing to intuition in philosophy he gives are intuitions on particular cases, he says: "This method of appeal to intuitions about cases has been used in every area of philosophy, and it has often been used with subtlety and sophistication." (2002, p. 5) Kornblith may notice that it is easier for intuition to be elicited by the particular cases. The problem is, Kornblith's theory seems not to have an explanation of why it is easier to have intuition from particular cases.

Moreover, on the second type of particularity, which means (*Pa2*) it is easier to have intuition with particular content, it is less clear how Kornblith's theory can have explanation of this feature. Recall that Kornblith believes that intuitions are judgments derived from background knowledge/beliefs. Suppose we have a background belief that 'knowledge is justified true belief that is justified non-accidentally'. Of course we can derive a Gettier intuition that a protagonist under Gettier situation does not have knowledge from this belief. However, when we are asked 'is JTB sufficient for knowledge?', it is less likely for us to have intuition

that ‘JTB is not sufficient for knowledge’. If intuition is the judgments derived from background knowledge/beliefs, it seems unclear why it is easier to have intuitions with particular content (Gettier cases) but not with general content (JTB conditions). Kornblith’s theory owes us an explanation of this type of particularity.

On heterogeneity, Kornblith’s theory may be compatible with the feature, but the problem is, like most other philosophical theories, the theory does not offer an explanation for this feature.

It is worth mentioning the theory from Michael Devitt before closing this section. Devitt is an advocate of appealing to intuition, though he also views intuition as a posteriori. He says:

> “The naturalist does not deny ‘armchair’ intuitions a role in philosophy but denies that their role has to be seen as a priori: the intuitions reflect an empirically based expertise at identification” (Devitt, 1994, p. 564 n27; 2005)

Devitt distinguishes two kinds of intuition, the most basic intuition and the richer intuition. The most basic intuition is the intuition in identifying whether a concept applies to an instance. For example, suppose we have a concept of F and we are interested in knowing the nature of a kind F, the most basic intuition helps

us to identify what counts as Fs and non-Fs. After the identification, we may have a richer intuition about what is common and exclusive for Fs. (Devitt, 2006)

These intuitions, though they may easily go wrong at early stage, become more reliable through having a better theory or through practice. We may become expert and reliable in identifying certain kind of Fs, although we are unable to explain how we use such ability. It may be similar to the case that we become expert in typing, but we cannot explain how we type fast and accurately. Devitt gives an example of a paleontologist:

> "Consider, for example, a paleontologist in the field searching for fossils. She sees a bit of white stone sticking through gray rock, and thinks 'a pig's jawbone'. This intuitive judgment is quick and unreflective. She may be quite sure but unable to explain just how she knows. We trust her judgment in a way that we would not trust folk judgments because we know that it is the result of years of study and experience of old bones; she has become a reliable indicator of the properties of fossils." (Devitt, 2006, p. 492)

This theory of intuition may have some difficulties in explaining plasticity and variability. Regarding plasticity, suppose we are identifying 'moral acts' through our concept of 'morality', why is it possible for our identification to be influenced by, for

example, the dirty environment of the room? Though Devitt's theory may be compatible with the feature, it seems the theory needs a clear explanation for the feature.

Besides, it seems Devitt's theory also needs more explanation of variability. Suppose two groups of subjects are shown in the result of a test question to have very similar concepts of, for example, knowledge. Why is it possible for two groups of subjects to have different response patterns on some vignettes in epistemology? (Weinberg, Nichols, & Stich, 2001) Devitt's theory seems also lack an explanation of this feature, though it may turn out to be compatible.

To conclude, although Kornblith's theory can be compatible with most of the features and have good explanation on some of the features, the theory is unclear on how it can explain the second type of particularity and heterogeneity. There are still gaps in his theory in explaining those features. Thus the theory is not currently a good candidate for a complete theory of intuition.

3.5 Timothy Williamson

The final theory the thesis introduces in this chapter is the theory from Timothy Williamson. Williamson's theory of intuition is also simple. He thinks that there is nothing distinctive of the state we call intuition. 'Intuition' used in philosophy is in fact nothing more than 'judgments'. To have intuition is the same as *applying the ordinary capacities for making judgments*.

Williamson thinks that philosophers often call their judgments 'intuition' simply because they run out of arguments. By saying that the judgments are 'intuitive', the judgments would seem to be more authoritative and justified. However, it does not suggest that intuition has any mysterious power of tracking the truth. There is nothing special for the 'philosophical intuition'. There are no sharp distinctions between philosophical intuition and non-philosophical judgment. As Williamson says:

> "[S]o-called intuitions are simply judgments (or dispositions to judgment); neither their content nor the cognitive basis on which they are made need be distinctively philosophical." (2007, p. 3)
>
> "[Metaphilosophical talk of intuitions] conceals the continuity between philosophical thinking and the rest of our thinking. So-called intuitions involve the very same cognitive capacities that we use elsewhere." (2004,

p. 152)

The rapid, robust feelings of intuition to certain propositions, for Williamson, are nothing more than the conscious inclination to believe that certain proposition. He also believes that the term ‘intuition’ will unavoidably include the belief or inclination to believe that is irrelevant to philosophical interests, since we are unable to distinguish them.

> “Does a belief or inclination to believe with an inappropriate causal origin, such as wishful thinking, count as an intuition? We do not want such beliefs or inclinations to believe to carry weight in philosophy. But that is explicable quite independently of whether we classify them as intuitions. Wishful thinking is as relevant to the epistemology of intuition as misperception is to the epistemology of perception.” (2007, pp. 217-218)

Williamson offers an example of the Gettier intuition and describes how we finally have the ‘intuition’ on Gettier cases by applying the ordinary capacities for making judgments. To judge that the protagonist in a certain Gettier case does not have knowledge, we in fact make two types of modal judgments:

> “First, we must make a judgement of possibility: the case could have occurred (as described neutrally, without use of ‘know’ or cognate terms). Second, we must make a counterfactual conditional judgement: if the

> case had occurred, then the subject would have had a justified true belief that Q without knowing that Q. Together, these two judgements entail another judgement of possibility: that there could have been someone who had a justified true belief that Q without knowing that Q. That result is inconsistent with the principle that, necessarily, one knows that Q if and only if one has a justified true belief that Q, and thereby forces the rejection of the analysis of knowledge as justified true belief, because analyses are understood as implying statements of necessary and sufficient conditions. Thus one way of objecting to the use of such cases to establish epistemological conclusions is to raise doubts about the kinds of modal thinking on which it rests." (2004, pp. 110-111)

It seems reasonable to interpret Williamson as viewing intuition as our ordinary judgments. For Williamson, there seem to be no huge differences between 'I intuit that p' and 'I judge that p'.

This view of intuition can offer good explanation for many features of intuition. First, it is clear that this theory of intuition is compatible with the feature of fallibility. It is uncontroversial that it is possible for our judgments to be false. Williamson also explicitly accepts this feature for judgments that most philosophers

call ‘intuition’:

> “Our fallibility about our evidence is unavoidable; we have no alternative but to muddle through at best we can.” (2004, p. 152)
>
> “Metaphilosophical talk of intuitions … feeds the methodological illusion of an incontestable starting-point, if not of intuited facts, then of facts as to what we intuit. There is no such starting-point; evidence can always be contested” (2004, p. 152)

In Williamson’s explanation for the fallibility of intuition, he seems to apply the evolutionary approach. We need to have quick judgments for survival but the judgments do not lead us to have true theories. He says:

> “Such unreflective discriminations have survival harsh environments, where quick decisions are needed … Although the physical theory embedded in our intuitions has to be approximately correct in its predictions over a limited range of practically important cases, we do not expect it to match or even resemble the true physics in its representation of the underlying reality. Why should we expect intuition to do much better elsewhere?” (2004, p. 114)

This explanation for the fallibility of judgments reminds us of a series of studies of heuristics from Tversky and Kahneman. The description of heuristics and

the explanation of the fallibility of heuristics are similar to the explanation that Williamson offers. It seems also a possible interpretation for Williamson's theory viewing that intuition is merely heuristics, which are the judgments made by cognitive shortcuts. The thesis will leave the discussion of this possible interpretation for Williamson's theory to later in this section.

Regarding plasticity and variability, Williamson's theory can also offer an easy explanation for them. As Williamson views intuition as ordinary judgments, beliefs or inclination to believe, it is not surprising that the judgments/beliefs/inclination to believe can possibly change. Likewise, variability can be easily explained. For example, since intuition is the judgments made by applying our ordinary capacities, the judgments may be easily influenced by the preference of cognitive style from different cultural groups. (Norenzayan, Smith, Kim, & Nisbett, 2002) It is unsurprising that the judgments/beliefs vary from group to group.

On heterogeneity, Williamson's theory seems to have a natural and good explanation for it. In Williamson's view of intuition, it is possible for the term 'intuition' to refer to a group of judgments. For example, the 'Gettier intuition' in his example is in fact refers to two types of modal judgments. It is possible for other

types of ‘intuition’ to refer to different groups of judgments. It is unsurprising that different types of intuition may be generated from diverse mental processes. Even for ostensibly the same type of intuitions (e.g. moral intuition), they can in fact involve different types of judgments. Thus it is also possible for them to be generated from diverse mental processes.

Unfortunately, Williamson’s theory lacks an explanation for particularity, especially on the second type of particularity that (*Pa2*) it is easier to have intuition with particular content than general content. In applying ordinary capacities of making judgments, it seems we do not have a tendency to make more judgments with particular content or with general content. We can easily have judgments on, for example, ‘smoking is bad for John’ and ‘smoking is bad for the health’. However, consider the Gettier cases again, we often have two judgments from the cases: (i) a certain protagonist in Gettier case does not have knowledge; and (ii) JTB is not sufficient for knowledge. The philosophers often refer only the judgment (i) to intuition but not the judgment (ii). It seems easier to have judgment (i) through the case but not the judgment (ii). Why does this happen if intuition is also applying ordinary capacities for judgments? Although Williamson’s theory is compatible with the feature, the theory seems not to have a direct explanation for the feature.

Moreover, Williamson seems to overemphasize that intuition is nothing more than judgments. There is a worry that reducing intuition to judgments may ignore the features that are exclusive for intuition. Taking the judgments (i) and (ii) mentioned above as example, it seems clear that we are more likely to make the judgment (i) with rapid, robust feelings, while the judgment (ii) would not be made with such feelings. It is worth reminding that there are still some differences between judgments and intuitions, for example, "[j]udgments are a kind of occurrent belief; as such, they are not seemings." (Bealer, 1998, p. 210) There seem still some phenomenological differences between 'I have intuition that p' and 'I judge that p'. Williamson may be right that having an intuition is merely an application of our ordinary capacities of making judgments, but it seems misleading to say that intuition is simply judgments. We should not ignore intuition is rapidly and robustly generated. Some exclusive features of intuition have to be noted in his theory.

To sum up, Williamson's account of intuition seems to be compatible with most of the features and able to have natural explanations for them. Unfortunately, those explanations are not offered in detail and the theory seems unable to give us a direct explanation for the feature of particularity. Moreover, Williamson's theory

seems to oversimplify intuition and ignore the exclusive features for intuition. It may make his account less attractive as a good theory of intuition. Nevertheless, since it seems possible to interpret Williamson's theory as viewing intuition as heuristics, Williamson may modify his account according to psychological account of intuition. (4.1) The psychological theory of intuition seems to have a more accurate characterization of intuition and can help Williamson's theory to fill in the details for explanations of the features. The discussion of the psychological account will be the main focus of the next chapter.

Chapter 4: Psychological Theory of Intuition

4.1 Dual Processes of Reasoning

Philosophical theories of intuition may not be false, but it seems there are gaps that need to be filled in. It is also unclear how the theories can help us in making prediction of intuition. In order to find the ways to fill in the gaps of the theories, it may be good to look at the discussion on intuition from another aspect, for example from the aspect of psychology.

Psychologists in fact sometimes have discussion of intuition. In the psychological conception of intuition, the term 'intuition' seems to be used in the sense similar to Williamson (i.e. one type of ordinary judgments). Some psychologists construct theories of this type of judgments or of the system that generates this type of judgments. These theories are what the thesis calls the psychological theory of intuition.

Saying that psychological theory can fill in the gaps of explaining the features of intuition, there may initially be several worries about this suggestion. First, how can we translate psychological terminology into philosophical terminology? It seems inappropriate to translate philosophical usage of the term 'intuition' into the psychological usage of 'intuition', since we notice that psychologists sometimes use the term in much looser sense than we use it in philosophy to mean, for example, a

guess.

Additionally, it seems that psychologists have ostensibly disorganized discussion on intuition-related topics. Psychologists often use various different terminologies in the discussion, for example, associative system and rule-based system; experiential system and rational system; heuristic processing and analytic processing. In the discussion, psychologists rarely use the term 'intuition', or use the term in a very loose sense. It seems hard to find a suitable theory in psychology that can account for philosophical intuition at first glance.

Nevertheless, psychologists in fact have a systematic discussion on an intuition-related topic. The main focus of their discussion actually surrounds two types of mental processes, namely the *system 1* and *system 2*. Roughly, system 1 is often labeled to have the general features of being "associative, holistic, automatic, relatively undemanding of cognitive capacity and rapid", while system 2 is labeled as "rule-based, analytic, controlled, relatively demanding of cognitive capacity and slow." (Stanovich & West, 2000, p. 659) Sometimes the judgments made by system 1 would also be attributed the features of being more affect-related and robust than the judgments made by system 2. (Epstein, 1994, p. 711)

Various terminologies are actually introduced by the psychologists in their dual-process theories of reasoning. The terminologies can be organized into these

two types of mental processes. For example, associative system, experiential system and heuristic processing can be organized into the group of system 1, rule-based system, rational system and analytic processing can be organized into the group of system 2. (Stanovich & West, 2000, p. 659) Although there may be slightly different meanings between different terminologies grouped into system 1 (or 2), most of them share the general features for system 1 (or 2). Different dual-process theories may have disagreements on some trivial issues, but the core of the dual-process theories is suggesting that our judgments are made by two diverse types of mental process.

There is a large body of empirical evidence supporting the dual-process theories. (For review, see (Epstein, 1994)) In the studies, psychologists find clues suggesting that there are really dual processes of reasoning. The judgments with the features of system 1 are often made faster than the judgments with the features of system 2. Sometimes the judgments of system 2 override the judgments of system 1. Sometimes the two systems jointly determine the decisions. But the results clearly suggest that there are dual processes of reasoning.

For example, there are the jelly-bean experiments which ask the subjects to draw a jelly bean from a bowl. The subjects who can draw a red jelly bean will be

awarded money. There are two bowls for the subjects to draw from: a small bowl which contains one red jelly bean out of ten and a large bowl which contains ten red jelly beans out of a hundred. This means that both bowls have the same probability of winning. However, the results find that most of the subjects have a preference to draw from the large bowl. Although some subjects noticed that both bowls have the same probability of winning, some of them report that it seems to them more likely to draw a red jelly bean from the large bowl, since there are more red jelly beans in it. (Kirkpatrick & Epstein, 1992)

The subjects also show the preference for greater number of red jelly beans in the unequal probabilities version of the jelly-bean experiments. In this version of the experiment, most subjects prefer to draw from a large bowl that contains less than ten red jelly beans out of a hundred (<10% of winning), rather than choosing from a small bowl, which contains one red jelly bean out of ten (10% of winning). Some of the subjects even prefer to draw from the large bowl when there are only five red jelly beans out of a hundred in it (5% of winning). Many subjects who made the non-optimal choice report that they have conflicted feelings. Although they know the small bowl has an objectively greater probability to win, they still feel they have better chance to win by drawing from the large bowl. Some of the subjects who made the optimal choice also report that they in fact override their

preference to draw from large bowl. (Denes-Raj & Epstein, 1994)

The reports of the subjects on conflicting feelings between subjective feelings on winning chance and objective probabilities seem to suggest there are really two parallel systems operating in determining the judgments. One system concerns the subjective feelings on the chance to win. The system is automatic and more affective. It seems to have features more similar to system 1. Another system concerns the objective probabilities. The system is more rational and it seems to have features more similar to system 2. Some of the subjects report that they override the subjective feelings on winning chance. The reports also seem to suggest that the former system generates judgments prior to the latter system. The latter system concerning the objective probabilities seems to be relatively slower than the former system. But we still need more evidence in thinking the judgments from two systems are really generated in this sequential order.

There are the studies asking the subjects to report their first three thoughts of vignettes about unfortunate accidental events. The studies find that the first thought of the subjects often seems to have the supposed features of the judgments derived from system 1, while the third thought seems to be more similar to the judgments made by system 2. For example, when the subjects imagine themselves as a protagonist in an accident, their first thought is more affective and

to blame the others. But the third thought would become more rational and accept some of the responsibility to the accident. (Epstein, 1993)

The results of these studies support the dual-process theories at least in the way that there seem really to be two diverse mental processes in making judgments. A number of psychologists may believe the studies also provide evidence revealing some features of two processes of reasoning: one is more rapid, automatic and affective, which is similar to the judgments made by system 1; another one is slower, controlled and seem to be affect-free, which is similar to the judgments made by system 2. Both systems can make judgments separately, but they sometimes jointly operate in making decisions.

It seems apparent that there is a systematic discussion among the psychologists on dual-process theories of reasoning. But how is it related to philosophical discussion on intuition? It seems there are still some difficulties in translating 'philosophical intuition' into psychological terminologies. Nevertheless, if the psychological theory fits the features of philosophical intuition, then it seems a good reason for thinking that the psychological theory could serve as an account of philosophical intuition, even if it appears on the surface that philosophers and psychologists are talking about different things. As the thesis mentioned in the

introductory part (1.2.1), the thesis uses the term ‘intuition’ as the immediate striking feelings elicited from apprehending of propositions or thought experiments, without any conscious inference processes. This kind of feelings are often described as rapid, robust, automatic, relatively undemanding of cognitive capacity and elicited through unconscious processes. It seems the general features of system 1 in psychology match most of these basic features of intuition in philosophy. It seems reasonable to think that the discussion of system 1 in psychology is not totally unrelated to philosophical discussion of intuition.

As a suggestion, it seems worth to examine the psychological explanation for the list of features of philosophical intuition. Let us stipulate that the ‘psychological conception of intuition’ will refer to a feeling derived mostly from system 1. It seems one of the plausible interpretations of the psychological account of philosophical intuition. We may see how this account explains the list of features offered in chapter 2.

4.2 Explanation for the Features

Similar to the philosophical theory of intuition, psychological theory has to be evaluated through examining its explanation of the list of features listed in chapter 2.

Regarding fallibility, it is clear that psychological theory is compatible with this feature of intuition. The fallibility of system 1 is long known and widely noted by a number of psychologists. Since system 1 is often viewed as a system processing information more efficiently and effortlessly to make quick judgments but giving less weight to the accuracy of judgments, the system is described as making tradeoff between the accuracy and the time taken in thinking. (Kahneman, Slovic, & Tversky, 1982) There are many studies in psychology showing that the judgments made by system 1 sometimes go wrong, including the studies mentioned in chapter 2.1, a series of studies on heuristics principles by Kahneman and Tversky, the studies finding that human's judgments are subject to hindsight biases (Fischhoff, 1975), fundamental attribution errors (Ross, 1977) and beliefs bias effects. (Norenzayan, Smith, Kim, & Nisbett, 2002, p. 673)

How does the psychological theory give an explanation for this feature of intuition? An explanation is quite similar to how Williamson explains the feature. System 1 is used for survival purposes. The system processes the information more

efficiently by giving up accuracy in order to make quick judgments. This tradeoff between accuracy and time for thinking helps humans to survive in harsh environments. Through a long history of evolution, the system gains its value for human survival. However, the evolution of system 1 only secures its value for survival, but not its value for leading us to the truth.

Another explanation for fallibility is implied by the psychological theory. Since system 1 is relatively undemanding of cognitive capacity, it is not surprising that the system may sometimes make inaccurate judgments. To illustrate, let's use the theory of heuristics as an example. The theory proposes that we process information more efficiently by using a set of unconscious shortcut methods (heuristics principles), the principles help us to largely reduce the time taken in thinking and making decisions. However, these principles are not perfect. They may sometimes lead us to make the wrong judgments. Both reasons seem to be natural and plausible. The psychological theory seems to provide two good reasons why intuition has the feature of fallibility.

The psychological theory also seems to be compatible with and can offer good explanations for both of the two types of particularity. For the first type of particularity that (*Pa1*) intuition seems easier to be elicited by the particular *cases*

but not abstract, general principles: as some psychologists believe that system 1 is more concretive and affective, we can find the system more easily responds to "concrete exemplars and narratives". (Epstein, 1994, p. 713) Why can the affective feature of system 1 also explain how the feelings derived from system 1 are more easily elicited by narratives (particular cases)? It is because narratives more easily influence our emotion than abstract principles. Narratives are found to be "emotionally engaging and represent events in a manner similar to how they are experienced in real life, involving location in place and time, goal directed characters, and sequential unfolding." (Epstein, 1994, p. 711) Therefore, it is natural for us to more easily have the feelings derived from the system 1, which is more concretive and affective, from narratives (particular cases).

The second type of particularity, that (*Pa2*) it is easier for intuition to be elicited with particular content but not general content, can also be explained by the concretive feature of system 1. As the system 1 is less available for the abstract representations, it seems harder for the feelings derived from system 1 to have more abstract content. It seems more likely for the feelings derived from system 1 to be elicited with concrete content, since system 1 "encodes experience in the form of concrete exemplars and narratives, and operates according to a set of inferential rules." (Epstein, 1994, p. 713) Thus it is reasonable to think that the

feelings are more likely to be elicited with particular content.

There is a group of psychologists (e.g. Bruner) who emphasize the distinction between two types of mental representation, namely narrative and propositional. These two types of mental representation can also be grouped into system 1 and 2 roughly. This view has some additional features for narrative thought besides the general features of system 1. Narrative thought (roughly system 1) is believed to be more story-like and specific than propositional thought (roughly system 2). (Epstein, 1994, p. 713) If these additional features are also features for system 1, it seems natural for the feelings derived from system 1 to more easily have particular content.

The theory of heuristics can also provide an explanation for the feature of particularity. One of the heuristics is availability, which is a shortcut for making judgments by the assessing availability of instances. (Kahneman, Slovic, & Tversky, 1982) It suggests that sometimes we make quick judgments by concerning the particular instances that are available to us. If the heuristic of availability is not rarely used in deriving the feelings from system 1, it seems reasonable to assume the particularity of intuition.

Since system 1 is a holistic and affective system, it can also provide an

explanation for plasticity. One kind of plasticity of intuition is on similarity and familiarity. There are studies finding that the similarity and familiarity of a proposition may attract us to regard it as true. More specifically, the subjects have a tendency to judge a proposition true if they encountered that proposition before or if that proposition is similar to a true proposition. (Begg, Anas, & Farinacci, 1992) As system 1 is more holistic, it seems the system 1 would be more likely to be influenced by similarity and familiarity in making judgments than system 2. The fact that we can become more familiar with a proposition <p> over time might explain how we can intuit not-<p> at one time and <p> at a later time. The studies seem to have natural results in confirming the feature of system 1.

In addition, regarding another type of plasticity that intuition may have changes with the disgust or fear feelings, as system 1 is a more affective system, it is not hard for it to explain why emotion can influence our immediate judgments derived from system 1. The framing effect of judgments, the hypnosis studies conducted by Wheatley and Haidt and the other studies can have a good explanation by the affective feature of system 1.

Moreover, Horowitz (1998) notes that the framing effect can also be explained by prospect theory. Since gains and losses have different 'decision weight' subjectively, it is natural for the subjects to have different feelings towards the

frame concerning gains (lives saved) and the frame concerning losses (lives lost). As the judgments derived from system 1 are affective, it is no surprise that the judgments/feelings derived from system 1 could be affected by the subjective feelings concerning different frames.

The dual-process theory may also provide a natural explanation for variability. It is suggested that how the subjects feel, and how compelling the feelings are, are dependent on the degree of dominance of system 1. Different groups may have different degrees of preference for system 1. The differences in preference may lead to different feelings derived by system 1 on the exact same case. For example, in the studies from Norenzayan et al. (2002), they suggest that there is a tendency for East Asian subjects prefer the intuitive cognitive style, which is similar to system 1, while Western subjects prefer the formal cognitive style, which is similar to system 2.

Although the judgments generated from system 1 seem to be unified, it is not impossible for system 1 to make judgments by using diverse mental processes. First, in the theory of dual processes of reasoning, it is possible for system 1 and 2 to have interaction and to make judgments jointly. Both systems may link to different

brain regions. In making a judgment, which brain regions are activated depends on what systems we are using. Choosing which system has more privilege in judgments also depends on whether the problem contains affective elements, or requires the subjects to think deeply. Therefore it seems natural for the subjects to use different brain regions in making different types of judgments. Even if they are making the same type of judgments, like moral judgments, it is possible for two vignettes to contain different degrees of affective elements, thus the subjects may respond to them by using system 1 to different degrees.

Besides, there are some views suggesting that system 1 is not a unified mental process. For example, Jonathan Evans notes that both Thomas Wilson and Keith Stanovich think that "System 2 appears to be a more coherent and consistent concept in the generic dual-system theory than does System 1 because multiple systems of implicit cognitive processes exist." (Evans, 2008, p. 263) It seems to suggest that system 1 could more or less be separate cognitive capacities. If the views that system 1 is also a heterogeneous kind are correct, it seems system 1 matches and could provide reason for the heterogeneous feature of intuition.

The psychological theory of intuition does not merely accidentally match the basic features that philosophical intuition has. It can also be compatible with the list

of features offered in chapter 2 and provide natural and detailed explanations for them. It seems to suggest that the psychological theory can be evaluated as one of the good candidates for the theory of intuition.

4.3 Conclusion

In the introductory part, the thesis mentioned that it aims to provide a method for selecting a good theory of intuition, and further to try to find such a theory. We specified our targeted intuition as immediate striking feelings elicited from apprehending propositions and thought experiments. The features of the feelings are listed and argued for in chapter 2. The features are the criteria for selecting a good theory of intuition. Unfortunately, in the evaluation of philosophical theories in chapter 3, we find that although many of the theories are compatible with the features and possibly true, they cannot provide detailed explanations for the features. Some of them even cannot be compatible with the features. There are gaps in the theories have to be filled in. Thus it seems hard for us to treat the theories as good theories of intuition.

We can see a possible theory of philosophical intuition in another subject, which is the dual-process theory introduced in chapter 4. The psychological theory, unlike the philosophical theory of intuition, is not merely compatible with the list of features provided in chapter 2. The theory also provides natural, detailed and good explanations for philosophical intuition. Although it is arguable whether we can simply translate 'philosophical intuition' to 'the feelings derived mostly from system 1' in psychology, the psychological account matches and is able to explain most of

the features listed in this thesis, which seems to be a good reason to believe the psychological theory could serve as an account of philosophical intuition, even if it appears on the surface that philosophers and psychologists are talking about different things. Therefore, the psychological theory seems to be a candidate for good theories of philosophical intuition. As this theory is compatible with several philosophical theories introduced in chapter 3, it may help to fill in the gaps of philosophical theories.

What if the psychological theory is really a generally accepted theory of intuition? What could this conclusion contribute to the current debates on intuition? We may think of its contribution in two ways. First, as mentioned in the introductory part, a good and valuable theory of intuition has to make accurate predictions on intuition. It may be unclear that what predictions the philosophical theories could make about intuition, but some predictions can be easily drawn from psychological theory. One plausible prediction is as follows: as intuition is more robust when conditions produce affect, if the words chosen in a vignette are more emotional, it is expected that more people will report their intuitions are stronger in responding to the vignette, as opposed to people who are responding to another vignette which contains only neutral words. The robustness of their judgments

should be stronger and reflection time should be faster than others. The theory could also make some other predictions about intuition, but additional details are beyond the scope of this thesis.

Second, the theory offers answers to some of the main disputes on intuition, for example, on its reliability, its evidential status and whether philosophy ought to use intuition as methodology in the future. The theory explains how intuition is fallible. It mentions intuitive feelings will lead us to make wrong judgments under some conditions, for example when the subjects are required to make the judgments while their emotions are affected, under limited responding time or cognitive load. It is clear that we should use reliable intuition but not unreliable intuition (e.g. intuition generated when emotion is seriously affected) as evidence. However, in doing philosophy, what we really interested in is the truth but not what we feel. When we make judgments on thought experiments, we are not required to make the judgments under limited responding time or cognitive load. If it turns out that the judgments of system 2 are generally more reliable than the judgments of system 1, it seems good to question why we need the judgments of system 1 to be evidence for a theory. One possible suggestion from this theory is, philosophy could ignore intuition in the future and we should weigh more on the experts' opinions who have deep thoughts, which are presumably from system 2, on certain subject

matters.[16]

There are probably some philosophers disagree with these conclusions suggested by the theory. Then the philosophers have to show us some evidence that discourages us from believing the theory, such as evidence that indicates that the theory makes some inaccurate predictions on intuition. Alternatively, they might build up another good theory of intuition. It may still be controversial which theory we should believe if there are many theories that could offer good explanations for the features, but at least we argue for the theory of intuition on the same ground.

The most important thing is, the thesis is suggesting a method of evaluating the theories of philosophical intuition. Chapters 3 and 4 of this thesis are examples of evaluating theories through their explanation of the features. Following this method we probably could find the theories that can explain most of the features of intuition, and thus can satisfy the desiderata for a good theory of intuition. It is suggested that we have to restrict our discussion of intuition according to a good

[16] Some of the judgments philosophers tend to call 'intuition' may actually end up being system 2 judgments. Therefore what they have discussed may not really be intuitions after all. In that case, we could continue to use such judgments in studying philosophy, but it is suggested to stop calling such judgments 'intuitions' in the future.

theory of intuition, and it is believed that our discussion of intuition can have progress by having such restriction.

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