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# Edith Stein and Tania Singer: A Comparison of Phenomenological and Neurological Approaches to the ‘Problem of Empathy’

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## ABSTRACT

This paper compares Edith Stein’s phenomenological approach to empathy in *On the Problem of Empathy* (1917) with that of more recent neurological explanations of empathy, broadly exemplified by Tania Singer’s (2006) work. Given that we are dealing with two different methodologies that reflect the general debate that exists between phenomenology and natural science (neurology), a consideration of ‘method’ will be discussed prior to our comparative analysis of Stein and Singer’s account of empathy. In conclusion, we argue that Stein’s phenomenological understanding of empathy provides the most comprehensive description of the act of empathy to date for neurologists to ‘reflect’ on.

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## Introduction

Edith Stein’s *On the Problem of Empathy*<sup>1</sup> was published in 1917 and represents one of the earliest phenomenological treatises on inter-subjectivity. Her supervisor Edmund Husserl had become interested in the question of inter-subjective experience around 1911 when he began his work on the natural attitude.<sup>2</sup> According to Moran, Husserl noticed that ‘connected with the focus on the ego necessarily comes the problem of the experience of other egos, of alter egos, the experience of the ‘foreign’, the ‘strange’, the ‘other’ (*Fremderfahrung*) in general’.<sup>3</sup> Husserl recognised that accounting for how we experience the foreign was problematic, especially after his discovery, around 1908, of the absolute mode of existence of one’s own actual consciousness in immanent perception and the contingency of the mode of being of things given to outer perception upon the harmony of one’s actual (conscious) experiences, a position which he later publishes in terms of his famous ‘reduction’ of the ‘natural attitude’ to the ‘transcendental-phenomenological attitude’ in *Ideas I* (1913). And yet, the experience of the ‘other’ is, nevertheless, an experience, and as such, open, at least in principle, to phenomenological analysis. Thus Husserl adopted the term ‘*Einfühlung* (in-feeling)’ from Theodor Lipps to describe this experience; however, Husserl understood *Einfühlung* (empathy) in a manner different from Lipps. It appears, therefore, that although Husserl had not formulated a precise account of *Einfühlung* (before 1917), he followed Stein’s characterisation of empathy as published in *On the Problem of Empathy*.<sup>4</sup> In fact, Stein’s publication of *On Empathy* predates Husserl’s own published reflections in this regard in *Ideas II*.<sup>5</sup>

Stein believed empathy was a ‘founding act (*eine Art erfahrender Akte*)’,<sup>6</sup> in the Husserlian sense: that is to say; empathy is a kind of foundation for other acts that is indispensable for their execution. More significantly for Stein, however, empathy is a founding act *sui generis*;<sup>7</sup> and so, it cannot be defined in any other terms except with reference to the kind of experience it is, i.e., it cannot be reduced to other, similar acts of consciousness, such as, memory, expectation,

sympathy or fantasy (see Section III). According to Stein, then, empathy is a kind of act which allows us to experience the ‘foreign’ individual. For Stein, we ‘sense-in’ or ‘in-feel’ (*Ein-fühlung*) the ‘foreign’. In this way, we have a primordial experience which is led by non-primordial content. This acknowledges the experiential fact that ‘we can *live in* the other’s experience in an intuitive manner but [we] don’t undergo that experience [ourselves] in an original fashion.’<sup>8</sup>

It has been ninety years since Stein’s publication of *On Empathy*. In the intermittent years there have been major scientific developments many of which were due to the work of Albert Einstein and to the advancement of quantum physics.<sup>9</sup> In terms of neurology the study of the living brain became increasingly possible with the advent of PET and fMRI<sup>10</sup> technologies. With these technologies scientists and psychologists can now analyse the human brain *in vivo* (i.e., in real time) as it actually encounters the ‘foreign’ individual. Tania Singer’s article ‘The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research’ (2006) characterises, in many respects, the neurological research to date in relation to empathy.<sup>11</sup>

Singer’s approach to the topic of empathy (and mind reading), however, is quite different to Stein’s phenomenological approach. Singer’s approach reflects and advances natural-scientific method and findings, whereas Stein’s approach develops the phenomenological method of inquiry proposed by Husserl. This difference in methods was one that Husserl himself encountered in the development of his own phenomenological method of inquiry. In order to compare Stein’s phenomenological insights and Singer’s neurological accounts of empathy, it will be of importance to outline the main features of the various methods deployed, with a view to finding out what either approach can offer to the other’s findings. Thus the following section will focus on general methodological issues concerning natural science and phenomenology. Then Stein and Singer’s analyses will be compared in subsequent sections. In conclusion, we shall argue that Stein’s phenomenological approach can offer neurologists a comprehensive account of empathy that will aid them insofar as they ‘reflect’ on scientific explanations.

## I

### Methodological Considerations: Natural Science v. Phenomenology

As noted above, phenomenological and neurological approaches to empathy are difficult to relate because of the different methodologies they employ. The father of the phenomenological method, Edmund Husserl (1859-1938), broke away from the purely positivist orientation dominant in natural science for philosophy, in favour of giving weight to subjective experience as the source of all of our knowledge. As such, Husserl’s ‘turn away’ from positivism places his phenomenological method of analyses in conflict with the natural-scientific method of scrutiny which emphasises an objective-realist approach to knowledge. Neurology is founded on the scientific methodology of explanation. It tests a hypothesis by observing causal connections, carrying out experiments and by publishing reports of findings which can subsequently be tested and compared in any similar controlled environment (e.g. a laboratory). Scientific knowledge is

built up by continuous testing and refinement of the proposed hypothesis and this hypothesis constantly seeks out falsification as outlined by Popper.<sup>12</sup>

While the scientific method has tended to be streamlined, although depending on the situation variations do arise, the phenomenological method did undergo development by Husserl. In fact, Husserl's turn towards transcendental idealism did come as a shock and a surprise to some of his students. Thus it is important to note the main differences between Husserl's 'early' descriptive-psychological approach in the *Logical Investigations* (1900–01) and his 'later' transcendental-phenomenological stance in *Ideas I* (1913). Furthermore, as Husserl developed phenomenology and gained a following, his followers developed phenomenology in varying and different directions to both the early and late Husserl. Thus, a brief outline of this background of Husserl's 'early' and 'late' phenomenology, with particular concern for the development of Husserl's phenomenological method of inquiry, will be undertaken prior to considering Stein's methodological stance.<sup>13</sup>

### (i) Husserl's Early Phenomenological Method

Husserl's movement away from the positivist philosophy of his time brought him into the subjective realm and face to face with the questions of consciousness, perception and meaning. In the *Logical Investigations* Husserl maintains that consciousness has a 'meaning-conferring role'.<sup>14</sup> In this way, we actively interpret what we are given as *content*. As such it is due to the 'activity of consciousness that a certain design (or arabesque) or a certain sound appears to us as a meaningful word.'<sup>15</sup> This according to de Boer is the first appearance of the concept of *constitution* i.e., consciousness is shown to play a role in the constitution of what appears. As perception is a mode of access through which things 'appear' to consciousness, Husserl came to the position that perception was a constitutive activity:

in perceiving the subject is directed to the perceived object *via* the sensations (*Empfindungen*) [...].<sup>16</sup> Husserl places a great deal of emphasis on the difference between immanent colour-sensations (*empfundene Farbe*) and objectively perceived colour. The former is '*erlebt*' and immanent, while the latter is transcendent.<sup>17</sup>

This again raises a central issue that creates problems for comparing the methodology of phenomenology and the methodology of the 'natural sciences' (neurology). For Husserl the objectively perceived colour is not to be understood as a turn to the object in a philosophical realist way (e.g., as an accidental modification of a substance). In fact, the perceived colour, from a descriptive-psychological point of view, is 'nothing but a sensation interpreted in a transcendent or objective sense'.<sup>18</sup> The existence of the external world is thus 'bracketed' for descriptive-psychological methodological considerations, and so, any questions or interest in the objective colour in a realist sense i.e., as existing independently of one's actual experiences, is placed outside of the early phenomenological (descriptive-psychological) manner of inquiry. In this regard, the question of the origin of the sensation, and how such a coloured object arises for the experiencing subject, is not addressed or considered. Examining the origin of such sensation and sense-perception, rather, is regarded as a 'metaphysical' matter 'which does not fall within the domain of what is phenomenologically given'.<sup>19</sup> Phenomenologists are thus precluded from the kind of investigations

which are undertaken by the natural sciences, such as, for instance, in the science of physics, on methodological grounds. As one commentator puts it:

(It appears that Husserl, like Brentano, [considers] the real, independently existing thing to be the object of physics (in later terminology, *das physikalische Ding*). It lies ‘behind’ the perceived phenomena and is the cause of the sensations. Consequently, Husserl is realist at this point, *but not in virtue of the doctrine of intentionality [of consciousness]*. The intentional object is not identical with the real object in the sense of the independently existing object.<sup>20</sup>

In this respect, therefore, Husserl wishes to remain faithful to the Cartesian starting-point by proceeding only from that which is phenomenologically given, i.e., the sphere of consciousness and *its* objectivities. Any questions pertaining to the existence of ‘extra-mental things’ are thereby consigned to metaphysics. Thus, for the early Husserl, as De Boer notes:

This means that, though the technical terms are still absent, there is in the *Logical Investigations* an [descriptive-psychological] epochē and a disconnection of the existence of the extra-mental object. *And here ‘reduction’ has the meaning which it is so often wrongly said to have in the first volume of the Ideas; putting within brackets the real existence of the object.*<sup>21</sup>

The question of transcendence, formulated in terms of ‘how can I gain access to the external world’, still, however, remains a problem for the early Husserl since implementation of the descriptive-psychological *epochē*, as de Boer acutely points out, ‘does not solve the problem but eliminates it. It is an emergency measure which limits itself to the given (consciousness plus *cogitata*), because the real question cannot be answered.’<sup>22</sup> In other words, by maintaining the position that any questions or issues pertaining to the extra-mental existence of things is not to be taken into consideration, on methodological grounds, in any descriptive-psychological or phenomenological analyses of intentional consciousness and its objectivities, ‘the problem of transcendence’, in Husserl’s early investigations, ‘is evaded rather than solved.’<sup>23</sup> The implementation of this descriptive-psychological *epochē*, nevertheless, still assumes that there is an external world of things in existence outside of one’s actual intentional consciousness. Only later did Husserl realise that this presupposition of the existence of the external world that he himself subscribed to in his early thinking is a thoroughly unphenomenological and untested *hypo-thesis* (of the natural attitude) about the existence of world in and of itself. So, from this interpretation of Husserl, we can conclude that there is an underlying realism in the early Husserl, and it is one that is based on what Husserl later calls the ‘prejudice of an independent, absolutely existing world’.

#### (ii) Husserl’s Later Phenomenological Method

The later Husserl moves forward to consider the prejudice of the existing world<sup>24</sup> and to demonstrate the point that, as de Boer comments,

the presupposition of a naturalistic ontology — i.e. the (hypo) thesis of the natural attitude — has no phenomenological foundation. It is an illusion. The true presupposition (ground) of the world is consciousness. This is the Copernican revolution in ontology which Husserl desires to bring about by the transcendental reduction. The effect of this transcendental reduction or epoche is not that being is

put within brackets, as was the case in the *Logical Investigations*. What is put within brackets is a particular, absurd interpretation of being! [...] Husserl [is now] able to say that the reduction does not imply the loss of anything at all. What is lost is a mere naturalistic prejudice and its insoluble problem of transcendence. [...] The thing of physics [...] is not an independent reality behind the phenomenal world, but a particular formal interpretation of the latter; it is a conceptual cloak (*Ideenkleid*) which should not be taken ontologically as 'true nature'.<sup>25</sup>

Husserl moved consciousness away from nature as such and thereby held that matter was not the foundation of consciousness. Since one's own actual consciousness is a necessary (pre-)condition for the very appearing of the world of things to consciousness, then '(T)he existence of a [absolutely independent] nature *can not* condition the existence of consciousness'.<sup>26</sup> In this way, the view of consciousness as being part of nature is now replaced by a comprehensive view of idealism based on phenomenology. Through the therapeutic act of the reduction of the natural attitude to the transcendental-phenomenological attitude, then, the 'explanatory sciences of nature and consciousness are not rejected but freed from their implicit, naturalistic philosophy.'<sup>27</sup>

### (iii) Stein's Position with regard to Husserlian Methodology

Edith Stein among others disagreed with Husserl's movement towards transcendental idealism. Many from the Munich school saw phenomenology as a realist philosophy of pure description of objects and emphasised the objective truth discoverable through close description of the essential features of such objects, i.e., descriptive-*eidetic*-psychological analyses. Regarding the early followers of Husserl's descriptive-*eidetic* phenomenological analyses, Dermot Moran remarks that,

An elegant expression of this outlook can be found in Reinach's 'Concerning Phenomenology?' essay of 1914 and in Roman Ingarden's later study, *On the Motives Which Led Husserl to Transcendental Idealism*. These students did not follow Husserl in his reductions and transcendental idealism, a position Husserl later characterised as 'empirical phenomenology' as opposed to his 'transcendental' phenomenology. In 1907 a group of students at Göttingen founded a similar circle of phenomenology, the Göttingen Philosophy Society, led by Theodor Conrad and including Hedwig Conrad-Martius, [...] Jean Héring, Fritz Kaufmann, [...] Winthrop Bell, [...] Roman Ingarden, [...] Alexandre Koyré, and Edith Stein.<sup>28</sup>

In the case of Edith Stein the methodology of phenomenology does not preclude the reality of the external world or the perception of one's own body which is an object of outer perception also, but in keeping with Husserl's early descriptive-psychological methodology questions pertaining to the external world is bracketed. Even when Stein considers the reality of the psycho-physical individual she does so from the sphere of pure consciousness.<sup>29</sup> Given that her descriptive analysis of the 'body', both in its living and physical dimensions, brings her to reflect on the causal processes that are given to consciousness, many believe she has not remained totally faithful to the 'early' phenomenological reduction.<sup>30</sup> However, that being said, it does appear valid that Stein can legitimately analyse the realm of the causal from the 'sphere of pure consciousness' as she experiences 'that' (i.e. causal) reality as it is 'given' to the stream of (an incarnate) consciousness.<sup>31</sup>

### III

#### Stein's Understanding and Analysis of Empathy (*Einfühlung*)

It is in the second chapter of *On Empathy* that Stein descriptively analyses 'the essence of the act of empathy' (*das Wesen der Einfühlungsakte*). She begins her analysis by discussing the relationship between outer perception and empathy. This in turn leads on to her consideration of the primordial experience we have of our own conscious deliberations (such as perception, sensation) and the non-primordial content that we experience in a primordial fashion (empathy). Then she moves to outline how empathy differs from memory, expectation and fantasy. The chapter continues with a discussion of the distinction between empathy and fellow-feeling (sympathy). It is at this juncture that the differences between Stein's and Lipps' position vis-à-vis empathy are stated. The concluding sections of the chapter consider genetic theories of the comprehension of foreign consciousness and finally Scheler and Münsterberg's theories of comprehension of foreign consciousness. For all intents and purposes we will follow most of the chronological structure of the chapter to facilitate our outline of Stein's understanding of empathy.

##### (i) Primordality

Stein understands empathy to be an 'act which is primordial<sup>32</sup> as present experience though non-primordial in content'.<sup>33</sup> She highlights what she means by this by describing the process as follows:

While I am living in the other's joy, I do not feel primordial joy. It does not issue live from my 'I'. Neither does it have the character of once having lived like remembered joy. But still less is it merely fantasised without actual life. This other subject is primordial although I do not experience it as primordial. In my non-primordial experience I feel, as it were, led by a primordial one not experienced by me but still there, manifesting itself in my non-primordial experience.<sup>34</sup>

Primordial acts are given to us in a direct way as they issue live from the 'I' as such. Empathy is characterised as being non-primordial, in this way, a feeling of joy, sadness, guilt, regret maybe issuing live from my 'I' in the present moment but when I encounter the 'joy' of another individual 'I' am aware that it (the joy of the 'other') is not flowing presently from my 'I' in an original fashion.<sup>35</sup> Thus, we are capable of differentiating the primordial and non-primordial experience of 'joy' and as such 'I' can come to identify *my* 'I' as the pole of experience. This distinction is prior to my constitution of myself as a self but it brings about the phenomenological manifestation of the 'I'. So by having such 'awareness' we can decipher between our own experience and the experience that is brought about in us in relation to others. From this perspective we are aware of feelings which issue primordially and those that do not arise or emanate *live* from our 'I'. The problem Stein now encounters is how do we distinguish empathy from other acts that are given to us non-primordially such as memory and fantasy? As she states:

There is a well-known analogy between acts of empathy and acts in which our own experiences are given non-primordially. The memory of a joy is primordial as a representational act now being carried out, though its content of joy is non-primordial.<sup>36</sup>

(ii) *Memory*

So how do we distinguish between empathy, memory and fantasy given they are analogously non-primordial in content? In terms of remembered joy we do not experience it as alive *per se*. In fact remembered joy is experienced ‘as once having lived but not now alive’. As Stein outlines:

the past memory of ‘joy’ has the characteristic of a former ‘now’ which is remembered. The ‘I’ as such becomes the ‘subject’ of the act of remembering, and in this act of representation, the ‘I’ can look back at the past joy. The present ‘I’ and the past ‘I’ face each other as subject and object. They do not coincide, though there is a consciousness of sameness.<sup>37</sup>

Furthermore, Stein outlines that ‘it is possible for me to represent a past situation to myself and be unable to remember my inner behaviour in this situation.’<sup>38</sup> So memory can have the character of doubt, conjecture, or possibility, but never the character of *being*.<sup>39</sup> The experience of joy in empathy is given to us as having *being*, i.e., we do not experience the doubt that arises with the experience of memory.

(iii) *Fantasy*

In terms of fantasy Stein tells us that the ‘I’ producing the world of fantasy is experienced primordially while the ‘I’ living in that world (of fantasy) is experienced non-primordially. Fantasised experiences allow us to meet ourselves as in memory, i.e. to meet an ‘I’ which ‘I’ recognise as myself. For fantasy as in the case of memory there is a connection between the primordial and non-primordial content in what we might call the ‘stream of the “I”’. But empathy is an experience of a foreign ‘I’ as such and in this way there is not a complete connection between our primordial and non-primordial experience in the ‘stream of the “I”’. In other words, there should be a disconnection between the primordial experience and the non-primordial experience which issues from a foreign ‘I’. Stein develops this position in relation to Lipps.

(iv) *Stein’s discussion of Lipps’ position vis-à-vis Empathy*

Stein notes that Lipps’ theory of empathy in general agrees with her position in many respects. She outlines that Lipps depicts empathy as an ‘inner participation’ in foreign experiences. However, Lipps stresses that empathy is akin to memory and expectation. From what we have outlined above it is clear to see that at these points Stein will diverge from Lipps’ position. Stein does not believe that there is a complete coincidence with the ‘remembered, or expected, or empathised “I,” that they become one’.<sup>40</sup> In this regard Lipps has failed to distinguish between the following two acts:

- (i) being drawn into the experience at first given objectively and fulfilling its implied tendencies with
- (ii) the transition from non-primordial to primordial experience.



A memory is entirely fulfilled and identified when one has followed out its tendencies to explication and established the experiential continuity to the present. But this does not make the remembered experience primordial as Lipps maintains.<sup>41</sup> Stein elaborates the difference between her position and Lipps in an example that all of us can ‘empathise’ with to a greater or lesser extent – going to the circus we see an acrobat perform what we consider dizzying feats at dizzying heights. For Lipps, when we see the acrobat we become ‘one’ with him/her. But for Stein we would not be ‘one’ with the experience of the acrobat but ‘at’ the acrobat. In this way, Stein says we do not go through the acrobat’s motions but *quasi*. Stein stresses that Lipps does not go so far as to say that one would outwardly go through the acrobat’s motions [...] but the inward dimensions are still a problem for Stein. According to Stein, the inward movements do not correspond to the movements of the body, the experience that ‘I move’ is not primordial, it is non-primordial for the seated individual. But through the non-primordial movement one feels led, accompanied by the acrobat’s movements.<sup>42</sup>

The major fault in Lipps’ account is brought via the delusion of self-forgetfulness. In this case one forgets the self to any object, with a dissolution of the ‘I’ to the object. This happens when the ‘I’ being entertained by the acrobat becomes merged with the acrobat. Thus, strictly speaking for Stein, empathy is not a feeling of oneness as it is for Lipps.

(v) *Empathy and Imitation*<sup>43</sup>

Now that Stein has differentiated empathy from ‘fellow-feeling’ or ‘sympathy’ she moves to consider empathy and *imitation*.

A child seeing another crying cries, too. When I see a member of my family going around with a long face, I too become upset. When I want to stop worrying, I seek out happy company. We speak of the contagion or transference of feeling in such cases. It is very plain that the actual feelings aroused in us do not serve a cognitive function, that they do not announce a foreign experience to us as empathy does. So we need not consider whether such a transference of feeling presupposes the comprehension of the foreign feeling concerned, since only phenomena of expression can affect us like this. On the contrary, the same change of face interpreted as a grimace certainly can arouse imitation in us, but not a feeling. It is certain that as we are saturated by such ‘transferred’ feelings, we live in them and thus in ourselves. This prevents our turning toward or submerging ourselves in the foreign experience, which is the attitude characteristic of empathy.<sup>44</sup>

Stein notes that it is possible to be affected by imitation and contagion as such but we are not affected in the sense that we sub-merge ourselves into the other individual. On the contrary the feeling may be ‘transferred’ to us and as such we *live in* them and therefore in *ourselves*. We have not merged with the foreign individual to become ‘one’ with them as Lipps contends. In this way imitation does not serve as a genetic-causal explanation of empathy.<sup>45</sup> Imitation seems to happen in an automatic way and does not necessarily arouse a feeling in us as such. Stein differentiates between imitation and ‘affective empathy’ when she realises that ‘the same change of face interpreted as a grimace certainly can arouse imitation in us, but not a feeling’. In terms of neurological research a number of findings have outlined that ‘affective empathy’ is brought about through imitation via mirror neurons (we will consider imitation and mirror neurons in more detail presently).

In sum, Stein's theory of empathy is a phenomenological account of *the way* we experience the foreign individual. It makes use of an epistemological distinction, based upon descriptive-psychological analysis, of the distinction between our primordial experience and the non-primordial content given to us from 'without'. In her inquiry Stein realises that there are problems with Lipps' account precisely in the area of primordially. Stein contends that Lipps, wrongly, holds that there is a 'oneness' in empathy that allows a merging with the foreign individual such that we 'forget' (in the sense that we un-constitute or lose our personal identity) ourselves. For Stein, the primordial nature of our empathetic experience prevents such a merging. However, she does note that it is possible to be taken over by contagion or imitation but contra Lipps she argues that we still are not 'one' with the other individual. While we can be 'saturated by [...] "transferred" feelings, we live in them and thus in *ourselves*'. Our primordially is maintained.

#### IV Neurological Considerations—Singer's Account

Neurological explanations of empathy garnered new insight from the discussion of 'mirror neurons'<sup>46</sup> published by Gallese *et al.* in 1996.<sup>47</sup> It has been eleven years since scientists first noticed the function of these mirror neurons in the macaque monkey brain. As Gallese remarks:

About ten years ago we discovered in the macaque monkey brain a class of premotor neurons that discharge not only when the monkey executes goal-related hand actions like grasping objects, but also when observing other individuals (monkeys or humans) executing similar actions. We call them 'mirror neurons'.<sup>48</sup>

What Gallese noticed was that the observation of an object-related hand action (such as when you see someone lift an object) leads to the activation of the *same* neural network active during its actual execution. In this way, 'action observation causes in the observer the *automatic* activation of the same neural mechanism triggered by action execution.'<sup>49</sup> In 2006 Tania Singer undertook a literature review of the scientific advances over the past decade and the implications for future research.<sup>50</sup> It is without doubt that the study is in its infancy<sup>51</sup> but from early research Singer believes we can account for mirroring or 'empathising' on two levels – mental and affective.

##### *(i) Theory of Mind (Mentalising)*

Singer informs us that there are distinctive areas of brain structuration for different forms of empathising.<sup>52</sup> As such she distinguishes between those components involved in mentalising (with regard to the thoughts, intentions and beliefs of others) and those which are involved in 'feeling' or 'affective' states.<sup>53</sup> Singer restricts her definition of empathy to its association with feelings (brain structures developed earlier in ontogeny are considered in this regard). In contrast mentalising (which refers to higher-order activities such as intentions, beliefs etc.) develop late in brain structural growth. As she states in her abstract:

Social neuro-science has recently started to investigate the neuronal mechanisms underlying our ability to understand the mental and emotional states of others. In this review, imaging research conducted on theory of mind (ToM or mentalising) and empathy is selectively reviewed. It is proposed that even though these abilities are often used as synonyms in the literature these capacities represent different abilities that rely on different neuronal circuitry. ToM refers to our ability to understand mental states such as intentions, goals and beliefs, and relies on structures of the temporal lobe and the pre-frontal cortex. In contrast, empathy refers to our ability to share the feelings (emotions and sensations) of others and relies on sensorimotor cortices as well as limbic and para-limbic structures. It is further argued that the concept of empathy as used in lay terms refers to a multi-level construct extending from simple forms of emotion contagion to complex forms of cognitive perspective taking.<sup>54</sup>

This distinction between mentalising and empathy is somewhat artificial in the sense that mentalising and affective mirroring are both organic structures of a holistic reality – the human brain. Singer realises this when she considers that mentalising and empathising are not only separate but intertwined.<sup>55</sup> Psychological and scientific research vis-à-vis mentalising predates studies on mirror neurons by about twenty years.<sup>56</sup> The early studies concentrated on monkey brain activity. More modern research has made use of the advances in technology to examine human adult brains<sup>57</sup> by means of fMRI and PET imaging. The experiments involved scientists using stories, cartoons, picture sequences and animated geometric shapes in order to examine the human brain in action.<sup>58</sup> The stories, cartoons etc. represented in different ways the intentions, beliefs and desires of others.<sup>59</sup> According to Singer:

the studies have repeatedly given evidence for the involvement of three brain areas: the temporal lobes, the posterior superior temporal sulcus (STS) and most consistently an area in the medial pre-frontal lobe (mPFC).<sup>60</sup>

Interestingly, it was discovered that although the medial pre-frontal lobe (mPFC) was found to be involved when we mentalise about the thoughts, intentions or beliefs of others it also was discovered to be involved when we are attending to our own mental states.<sup>61</sup> Therefore, it has been suggested that this area may subserve the formation of ‘decoupled’ representations of beliefs about the world.<sup>62</sup> One question, which now confronts us is – by what means or by what process is this mirroring activated? In other words what is the causal mechanism that stimulates mirroring?<sup>63</sup> Recent research is outlining that we have the ability to represent other people’s goals and intentions by the mere *observation* of their motor actions.<sup>64</sup> Thus observation or perception activates brain structures. In this way, we become aware of an action and can bring its teleology to ourselves, i.e. we are capable of knowing that a builder with a hammer is going to hammer a nail while a bank robber with a hammer is most likely going to use it as a weapon.<sup>65</sup> In terms of evolutionary theory this provides a great advantage to humans as they can bring an action to conclusion before it concludes in real time thereby providing us with the possibility of taking immediate action to avoid danger. What Singer contends is that ‘the discovery of mirror neurons demonstrat[s] that a translation mechanism is present in the primate brain and automatically elicited when viewing others’ actions’.<sup>66</sup> In this way, the mirror system might underlie our ability to understand other people’s intentions by providing us with an *automatic* simulation of their actions, goals and intentions.<sup>67</sup>

From observing (perceiving/ imitating) the motor actions<sup>68</sup> of the other individual we are led as it were to understand their mentalising. The intentional attitudes of other individual's are in general hidden from us — we do not have direct access to a person's 'personal realm' unless we have the ability to mind read. However, through the actions of others we automatically imitate them to ourselves. This is undoubtedly a highly adaptive process — as it happens without conscious effort as such and provides information about our environment allowing us to determine how safe or dangerous it may be. Moreover, being automatic it allows us to respond in a timely fashion to imminent danger, if and when it presents itself. Motor action is a vehicle through which we gain access to 'mentalising'.

(ii) *Affective Empathy*

Singer now turns her attention to what we might call affective empathy and highlights that:

In addition to the ability to understand the mental states (propositional attitudes) of others, humans can also empathise with others, that is, share their feelings and emotions in the absence of any direct emotional stimulation to themselves. Humans can feel empathy for other people in a wide variety of contexts: for basic emotions and sensations such as anger, fear, sadness, joy, pain and lust, as well as far more complex emotions such as guilt, embarrassment and love.<sup>69</sup>

Empathy is undoubtedly necessary for the successful creation of an affective bond between mother and child and later between family members, partners, social groupings and communities. In terms of affective empathy Singer gives the following definition:

At this point it is important to stress that although empathising is defined as 'affect sharing' the affective state in self and others is not simply *shared* but has to be induced in the self by the perception or imagination<sup>70</sup> of an emotional state in another person and, even if it feels similar, is nevertheless distinguishable from the same feeling originated in ourselves.<sup>71</sup>

But we are faced with the question again of how is the human being able to understand what someone else is feeling? There is no emotional or sensory stimulation of our own body to provide information as such. Influenced by perception-action models of motor behaviour and imitation, Preston and de Waal proposed a neuro-scientific model of empathy, suggesting that observation or imagination of another person in a particular emotional state automatically activates a representation of that state in the observer with its associated autonomic and somatic responses.<sup>72</sup>

So as with the other cases of mentalising and motor action the human brain seems to just be able to mirror in terms of perceiving the foreign individual. Singer highlights that 'imaging studies in the past two years have started to investigate brain activity associated with different empathic responses in the domains of touch, smell and pain.' Like mental and motor mirroring:

the results have revealed common neural responses elicited by the observation of pictures showing disgusted faces and smelling disgusting odours oneself,<sup>73</sup> likewise by being touched [...] and observing videos of someone else being touched.<sup>74</sup> Whereas the former study observed common activation in anterior insula (AI)

cortex, a cortex which has been found to be associated with the processing and feeling of disgust, the latter study identified common activation in secondary somato-sensory cortex (SII), a part of the cortex involved in processing and feeling the sensation of touch.<sup>75</sup>

### *(iii) Empathising Pain*

In relation to pain some studies outline that there are unique networks in empathy for pain.<sup>76</sup> In experiment, couples were recruited allowing the assessment of empathy *in vivo* by bringing both partners into the same scanner environment. Brain activity was then measured in the female partner while painful stimulation was applied either to her own or to her partner's right hand via electrodes attached to the back of the hand. Both subjects saw their hands and the hands of their partners, colours were fired pointing to which hand was going to receive the stimulation and whether it would be painful or non-painful. This procedure enabled the measurement of pain-related brain activation (the pain-matrix), when pain was applied to the scanned subject or to her partner (empathy for pain).<sup>77</sup>

The results suggest that some parts, but not the entire 'pain-matrix', were activated when empathising with the pain of others. Activity in the primary and secondary somato-sensory cortex was only observed when receiving pain. These areas are known to be involved in the processing of the sensory-discriminatory components of our pain experience, that is, they indicate the location of the pain and its objective quality.<sup>78</sup>

Interestingly the bilateral AI, the rostral anterior cingulate cortex (ACC), brainstem and cerebellum were activated when subjects either received pain or a signal that a loved one experienced pain. These are the areas of the brain that are involved in the processing of the affective component of pain.<sup>79</sup>

Thus, both the experience of pain to oneself and the knowledge that a loved partner is experiencing pain activates the same affective pain circuits.<sup>80</sup>

Singer sums up the findings and notes that they suggest that we use representations reflecting our own emotional responses to pain to understand how the pain of others feels. Moreover, this ability to empathise may have evolved from a system which represents our own internal feeling states and allows us to predict the affective outcomes of an event for ourselves and for other people.<sup>81</sup>

So in terms of neurological insights as outlined by Singer *et al.* we can note that there are a number of areas where mirror neurons operate. They operate in response to motor actions in an automatic way so that we can prepare to respond quickly to action. In terms of mentalising we present the internal states of others to ourselves, we can do this by perceiving what another is doing (usually through their motor actions). Then there is mirroring in terms of affective empathy where there is no direct action or contact as such – we merely mirror or take on the emotions of others. We will consider this last point further in relation to automatic and appraisal models of empathy. Before moving to our analysis of Stein's position vis-à-vis neurological insights we will outline a summary overview of the various brain structures involved in mirroring.

(iv) Summary of brain structuration involved in ‘mirroring’

**Various Brain Areas Concerned with ‘Mirroring’**

Motor (imitation)	Mentalising	Affective empathy
Pre-Motor neurons Macaque Monkey (STP)	Temporal poles Posterior superior temporal sulcus (STS) Medial pre-frontal lobe (mPFC) <sup>82</sup>	anterior insula (AI) cortex <sup>83</sup> anterior cingulate cortex (ACC) Somato-sensory Cortex (SII) (feel pain <i>per se</i> ) <sup>84</sup>

**Empathising Another’s Pain**

Pain felt by individual	Pain empathised
‘pain matrix’ & Somato-Sensory cortex	‘pain matrix’ only

**IV**

**Consideration of the Possibility of Bridging ‘Methodologies’**

From the perspective of the phenomenological reduction we have invariably turned away from the ‘natural attitude’ and as such the phenomenological reduction has moved epistemology from ‘without’ to ‘within’. As Sonja Rinofner-Kreidl explains:

Due to the phenomenological reduction, epistemology cannot be considered an integrated part of positive science. Any epistemological analysis requires a foregoing shift of the object domain, leaving behind scientific research fields [...] Analysing objects of diverse kinds (which is the task of empirical science) is not identical or ‘continuous’ with analysing the way objects appear to us (which is the task of philosophical science) [...] A phenomenological critique of knowledge need not take any scientifically achieved knowledge as a premise of its own investigation. Neither does it make use of deductive-axiomatic explanations nor does it identify some privileged foundation in order to justify the objective validity of the knowledge we actually possess. Instead, it is interested in the meaning structure lying beneath all our knowledge claims. The phenomenological reduction does not establish a *tabula rasa* situation for analysing pure consciousness [...] phenomenologically understood, epistemology investigates the forms of (valid) intentional relations to objects.<sup>85</sup>

From this perspective it is difficult to see how one can bridge the chasm towards an ‘integrated’ world-view in relation to phenomenology and natural science/neurology. However, phenomenology as described by Rinofner-Kreidl does not discount the possibility of reflecting on scientific knowledge as it is given to us. Moreover, natural scientists reflecting on their experimentation may try to define the essence of some law or mathematical formula in relation to phenomenology.<sup>86</sup> Hermann Weyl was one such individual who tried (with much admiration from Husserl) to link the natural science of mathematics/physics with eidetic analysis. As Feist outlines,

Weyl highlighted that the objective world of physics was in fact a world that physics [...] endeavours to crystallise out of direct experience. So, in some sense, this structure is implicit within the experiences of ordinary consciousness. In a similar vein, Weyl stresses that there must be a primordial link between the world and consciousness. This link appears within consciousness as a ‘felt causality,’ which is our deepest connection to the world; it is prior to that connection we call ‘perception’.<sup>87</sup>

Feist contends that Weyl’s work and writings especially in *Space-Time-Matter* were very similar to Husserl’s phenomenological investigations of essences.<sup>88</sup> Perhaps the fact that Husserl was so impressed by Weyl highlights that fact that the two methodologies of phenomenology and natural science are not as diametrically opposed as one would first suppose. Feist supports this point of view in the closing lines of his article:

By [Husserl’s] approval of Weyl’s grafting relativity onto phenomenology, we gain an insight into just how closely science and philosophy can operate, a close cooperation that Husserl himself stresses.<sup>89</sup> Husserl insists that his phenomenological analysis of the foundations of human experience in no way prevent such cooperation. It comes as no surprise how pleased he was with Weyl’s work.<sup>90</sup>

In this regard, a phenomenological approach to empathy may be able to assist ‘natural science’ focus their reflection on their object of inquiry, such as ‘empathy’, by engaging in descriptive-eidetic analyses of various particular ‘acts’ of ‘empathy’, ‘memory’ and ‘perception’ for the purposes of demarcating clearly the phenomena in question and the significant differences between these specific experiences of the psychical that need to be attended to for both the natural scientist and the phenomenologist. We will turn now to analyse Stein and Singer’s particular approaches to the ‘problem of empathy’ in light of the preceding discussion.

## V

### **Analysis of Stein and Singer’s Approaches to Empathy**

As we have noted neurological investigations of empathy is in its initial stages and as such there remains a great deal of speculation regarding the insights that have been gained. Yet, while the literature has been building momentum, an exact definition of empathy has been found wanting.

#### *(i) Differences in Definition*

We have outlined throughout the paper that Stein held empathy to be a founding act, which we are cognitively aware of when it arises in us. In this regard we experience non-primordial content coming from somewhere other than our own experience which issues live from my ‘I’. There is a lack of a univocal definition of empathy in the neurological literature *per se*. Neurologists realise this lack of uniformity and it appears they are aiming to move forward towards a cohesive definition. As Frederique de Vignemont states:

There are probably nearly as many definitions of empathy as people working on the topic. There are two main trends: some argue for a broad definition of empathy as an

understanding of another person's feelings, affect sharing or as an 'affective response more appropriate to another's situation than one's own.'<sup>91</sup>

Under these definitions empathy subsumes emotional contagion, sympathy, personal distress and cognitive perspective-taking. De Vignemont alongside Singer wish to limit the definition of empathy to the following:

There is empathy if: (i) one is in an affective state; (ii) this state is isomorphic to another person's affective state; (iii) this state is elicited by the observation or imagination of another person's affective state; (iv) one knows that the other person is the source of one's own affective state.<sup>92</sup>

Working through this definition, empathy is viewed as an (i) affective response and as such we are responding to the emotional position of another individual. If the other individual is sad, the feeling that arises within me will be sad too (hence it is (ii) isomorphic but how isomorphic is a particularly challenging question given that we have no epistemological way of knowing the internal experience of another individual). The reason why I perceive this emotional state is given to me via (iii) observation (imagination) and we are aware that we are not the source of this affective state as it is not primordially given to my 'I'.<sup>93</sup>

In terms of Singer's 2006 article 'The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research' there is a similar understanding of empathy as outlined by Stein in 1917:

it is important to stress that although empathising is defined as 'affect sharing' the affective state in self and others is not simply *shared* but has to be induced in the self by the perception or *imagination* of an emotional state in another person and, even if it feels similar, is nevertheless distinguishable from the same feeling originated in ourselves. [emphasis added]<sup>94</sup>

For Stein the inclusion of imagination in the act of empathy would be somewhat problematic. The trouble with *imagination* is akin to the problems that arise in relation to memory and fantasy as discussed earlier. In each of the former cases we are present to ourselves in the continuity of experience. As Stein noted with regard to fantasy, the 'I' that is now imagining is 'primordial' in nature. That which is imagined is 'non-primordial'. But the two experiences are related by the continuity that exists in the 'stream of the "I"'. In this way, Singer's definition when the term imagination is included fails to take into consideration the fact that empathy is given as being non-primordial in content outside the continuity of the stream of experience. This precludes imagination as a means by which we bring empathy about. Again empathy is a founding act for Stein and has no underpinning just like perception.

#### *(ii) Automatic v Appraisal models of empathy*

Neurologists point out that empathy is given to us unconsciously as such.<sup>95</sup> If the brain does this automatically then we may be confronted with the reality that empathy is akin to emotional contagion or imitation.<sup>96</sup> Stein through the phenomenological method outlines that empathy as we experience it is not mere contagion. Moreover, contagion and imitation could not be seen to underpin the act of empathy. How can these two views be reconciled – perhaps it is possible to highlight that the actual description of how empathy is 'experienced' in no way



jeopardises or is jeopardised by causal explanation. Neurology may outline that this is what occurs but what is actually experienced may in fact be totally different. However, it is probably worth noting again that neurological research is recent in this area and that causal explanations are somewhat speculative. In fact, some neurologists consider it too simplistic to hold that empathy is automatically ‘mirrored’ as such. These neurologists outline that a contextual approach to empathy is needed. In one experiment, subjects were found to show smaller empathic responses in pain-related areas when they *knew* that the pain inflicted to the other individual was justified to cure the other. So, for instance, a person looking at a surgeon operating on a patient with a sharp blade would not invest as much of an empathetic response because they know the person is being ‘cured’. But the same person watching an individual being tortured would invest a higher level of empathy.<sup>97</sup> This raises an interesting question concerning whether we have a conscious appraisal of a situation prior to the act of empathy. Or, perhaps, does the act of empathy happen automatically and then a subsequent appraisal take place to modulate our initial empathic response? Current research has not distinguished between whether ‘a’ conscious appraisal occurs prior or subsequent to the act of empathy.<sup>98</sup> For Stein, awareness is present in terms of empathising — we are aware of the ‘foreign’ — we are undoubtedly aware of the context through outer perception and as such the contextual approach to empathy may sit well with Stein’s position as opposed to imitation.<sup>99</sup>

### *(iii) Development*

In terms of brain development there is a lot to consider in the findings of neurology which Stein obviously was not privy to given her death in WWII. Neurologists highlight that empathy develops in accordance with overall brain growth (ontogeny). Lower structures such as the limbic and para-limbic systems are involved with the ‘feelings’ associated with empathy.<sup>100</sup> Interestingly, the structural development of the brain points to the reality that the ‘full capacity for effective and adaptive empathic responding is [perhaps] not developed until [25 years of age]’.<sup>101</sup> Singer outlines, the empathetic developmental stage does not stop through life — as explicit forms of mentalising may differentiate and get more and more complex.<sup>102</sup> Stein begins her descriptive analysis of empathy without given particular attention to brain development as such (although she does talk about unfolding). However, in terms of experience young children are privy to the act of empathy even if their brain has not developed completely and assuredly most of us will recall empathising at relatively young ages — whether it was the experience of a pet dying or understanding why we were being scolded. So although neurology points to developmental processes involved in ‘empathy’ we must ask the question — do they actually correspond to an incremental increase in empathy through time such that a mature person will be filled with empathy and a child devoid? Perhaps at that nexus it is important to look at the life of the ‘mind’ of the ‘subject’ and consider the realm of ‘spirit’. Causal developments at that level may represent potential but not the actual reality of the subject *per se*.

While we outlined that Stein did not have the neurological insights to take into consideration brain development as such, she was nevertheless aware that the individual ‘unfolded’ through time. In the fourth chapter of her work *On Empathy* Stein considers ‘Empathy as the Understanding of Spiritual Persons’. For Stein

the human individual has a personal layer — a layer that is open to the world of values. As such:

It is conceivable for a man's life to be a complete process of his personality's unfolding; but it is also possible that psycho-physical development does not permit a complete unfolding, and, in fact, in different ways.<sup>103</sup>

The personal realm being open to the world of values is motivated in one way or another to choose one object over an 'other' for some rational reason. Neurological findings appear to indicate that Stein's 'personal layer' would (as stated) undergo modifications through time as our orbital-frontal cortex develops.<sup>104</sup> The frontal cortex is one of the last structures to reach full maturation at around 25 years of age. But as to how the causal relates to the mental is difficult to ascertain. Surely the environment as a factor has to be taken into consideration in terms of expressing the phenotype but if we take a causal 'explanation' alone we would be left devoid of responsibility for our actions because of our youth - the law seems to take this into consideration when juveniles receive more compassionate hearings and more lenient sentences. Is it too simple to say that because their 'personality' or neurological structures have not fully developed that they were less capable of judgement? If that were the case then surely all young people would be incapable of abiding by laws or taking noble actions. Undoubtedly the 'life of the mind' open to the world of motivation and 'values' has an important role to play in any analysis of mind and at that juncture phenomenology might be of particular assistance to neurologists.

## VI Conclusion

In this paper we investigated Stein's treatment of the problem of empathy in her *On Empathy* (1917) in comparison to current neurological-scientific reflections on the problem of empathy. Her description of empathy revolved around the fact that we experience our own 'experience' as primordial while the experience of the 'foreign' is given to us as non-primordial in content. Neurological findings reckon that 'mirror neurons' are the brain structures involved in empathy. Some neurological research points to the fact that empathy is 'imitated' in an automatic and 'unconscious' level; other research, however, points to a contextual approach to 'empathy' with a 'cognitive appraisal' being required. Neurological research has also given us insight into the developmental process of empathy in relation to brain growth. This was not considered by Stein *per se*. It appears that neurologists, nevertheless, are moving towards a more precise definition of empathy and in this regard some have outlined empathy in terms akin to Stein's 1917 definition. The phenomenological enterprise of descriptive analysis appears to offer a 'rigorous' account of inner states. Such analyses might prove useful to neurology as they *reflect* upon and demarcate various brain structures in relation to mental and affective states. De Vignemont and Singer note that the phenomenological treatment of empathy remains to be acknowledged [within neurology].<sup>105</sup> This is obviously an avenue that remains open for exploration in the future.

## NOTES

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<sup>1</sup> Edith Stein, *Zum Problem der Einfühlung* (Halle: Buchdruckerei des Waisenhauses, 1917), trans. by Waltraut Stein as *On the Problem of Empathy* (Washington D.C.: ICS Publications, 1989). Henceforth abbreviated in notes as *On Empathy*.

<sup>2</sup> Husserl believed that our 'natural life is a life in a community, living in a world of shared objects, shared environment, shared language and shared meanings'. Dermot Moran outlines this natural attitude as follows: 'when I see a tree in the garden and know it is a publicly accessible object, a tree others can also see, not just as a physical object but indeed precisely as a *tree*. In other words, my perception of the tree already indicates to me that it is a tree *for others*.' Dermot Moran, *Introduction to Phenomenology* (London & New York: Routledge, 2000), p. 175

<sup>3</sup> *Ibid.*

<sup>4</sup> It must be noted that Husserl's reflections continued to grow as phenomenology was in its infancy and a great deal of issues were yet to be considered. Stein's work *On Empathy* was obviously held in high regard by Husserl as he promoted her thesis for the doctorate degree. Furthermore, Stein later collaborated with Husserl on these issues. According to Moran, Stein's position in 1916-1917 most likely expresses Husserl's thinking at that stage. (Marianne Sawicki is not totally convinced of this identical mode of thinking in 1917; see, Marianne Sawicki, *Body, Text, and Science: The Literacy of Investigative Practices and the Phenomenology of Edith Stein* (Dordrecht/ Boston/ London: Kluwer, 1997), p. 131.) Husserl's mature phenomenological work caused strain within the phenomenological schools that grew up around him. By 1923 the problem of empathy began to take on greater precedence for Husserl. Stein had noticed in her thesis that empathy was a central issue in the phenomenological enterprise. Husserl seems to have recognised the need to address the issue himself and in his lectures on 'First Philosophy' (1923-1924) he considers the problem of the *constitution* of the foreign individual. He developed the problem further in his Fifth Cartesian Meditation. Husserl wished to maintain the primacy of the ego in constituting the foreign individual: 'It is from out of myself as the one constituting the meaning of being within the content of my own private ego that I attain the transcendental other as someone just like me; and in this way I attain the open and endless whole of *transcendental intersubjectivity*, precisely as that which, within its communalised transcendental life, first constitutes the world as an *objective world*, as a *world that is identical for everyone*.'

'Phenomenology and Anthropology', in Edmund Husserl, *Psychological and Transcendental Phenomenology and the Confrontation with Heidegger (1927-1931)*, trans. and ed. by Thomas Sheehan and Richard E. Palmer (Dordrecht: Kluwer, 1997) p. 498. But Husserl's position vis-à-vis transcendental phenomenology alienated his earlier followers. His early followers noted that Husserl was now arguing for transcendental idealism (Husserl preferred the term 'transcendental phenomenology') over and against phenomenological realism (what Husserl termed 'empirical phenomenology'). We shall address these issues in terms of methodology in section I of this article. See Moran, p. 77. For a treatment of Stein and Husserl with regard to realist and transcendental phenomenology, see Alasdair MacIntyre, *Edith Stein: A Philosophical Prologue 1913-1922* (Oxford & New York: Rowman & Littlefield, 2006), pp. 75-89.

<sup>5</sup> While Stein's work predates Husserl in terms of publication Husserl was already working on these problems since 1912. Most likely Husserl designated Stein to look after this issue of empathy when she began her thesis in 1915 because 'Husserl had not formulated a precise definition of empathy himself.' See MacIntyre, p. 71. With regard to the publication of *Ideas II* Moran outlines that 'Husserl seems to have hurriedly scribbled in pencil *Ideas II* and *Ideas III* in the summer of 1912. He wrote *Ideas I* earlier in 1912. However, in 1915 Husserl rewrote the manuscript of *Ideas II*, planning to publish it in his *Jahrbuch*, but he held back and continued revising it until 1928 when he finally abandoned it, in part because he felt that he had not worked out the problem of constitution. [...] Edith Stein closely collaborated with Husserl on the drafting and organisation of the work, which was finally published in 1952. The draft form of the work influenced Merleau-Ponty and Heidegger'. See Moran, p. 80

<sup>6</sup> *On Empathy*, p. 11. Husserl saw phenomenology as being 'engaged in the constant act of radical founding (*Letztbegründung*).' Moran, p. 2.

<sup>7</sup> *On Empathy*, p. 11

<sup>8</sup> Moran, p. 176. Moran relates the relationship between Stein's understanding and that of Husserl's when he states: 'Empathy is, for Stein as for Husserl, a non-primordial experience which

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reveals a primordial experience' (ibid.). We could also describe empathy as a primordial experience with non-primordial content referring to a primordial experience.

<sup>9</sup> Einstein's reflections on atoms and the energy that they contained allowed for the development of technology such as Positron emission tomography (PET). See, Robert Matthews, 'Einstein's legacy' in *Focus*, Issue 146 (Jan. 2005), 1–108 (p. 53).

<sup>10</sup> *Functional* magnetic resonance imaging alongside Positron emission tomography (PET) are new technologies that enable scientists to study living brains at work. These technologies do not require physical contact with the brain. They operate by producing images similar to X-rays that show which parts of the brain are active while a person performs a particular mental task. While PET operates by showing the parts of the brain that are using the most glucose (a form of sugar), fMRI works on the basis of highlighting the parts of the brain where high oxygen supplies are being delivered (hence increased activity is observed in the case of PET through glucose and fMRI in relation to oxygen levels). See Richard Restak, 'Brain Anatomy' in *World Book*, (World Book, Inc., 2005 multimedia edition).

<sup>11</sup> See Tania Singer, 'The neuronal basis and ontogeny of empathy and mind reading: Review of literature and implications for future research', in *Science Direct, Neuroscience and Biobehavioral Reviews* 30 (2006) 855-863

<sup>12</sup> In other words, the natural sciences/ neurology does not perform the *epoché* and thus remains in the 'natural attitude'. As outlined, Husserl's main methodological procedure was to bracket or suspend 'all our natural attitudes towards the objects in the world and towards our psychological acts, [by] suspending all our theories about these matters, [Husserl believed it will lead] back our attention to [the] pure essences of consciousness'. See Moran, p. 136. Neurology does not undertake such a 'bracketing' towards an object. Thus neurology operates in what Husserl termed the 'natural attitude' (*die natürliche Einstellung*).

<sup>13</sup> We will outline Husserl's methodological developments with the aid of Theodore de Boer's 'The Meaning of Husserl's Idealism in the Light of his Development', trans. by H. Pietersma, *Analecta Husserliana*, 2 (1972), 322–332. For a fuller and extensive treatment of this issue, see de Boer's detailed study, *The Development of Husserl's Thought*, trans. by Theodore Plantinga (The Hague: Martinus Nijhoff, 1978); *Die ontwikkelingsgang in het denken van Husserl* (Assen: Van Gorcum, 1966).

<sup>14</sup> de Boer, T., 'Husserl's Idealism', p. 324

<sup>15</sup> Ibid.

<sup>16</sup> Ibid.

<sup>17</sup> Ibid.

<sup>18</sup> Ibid.

<sup>19</sup> Ibid.

<sup>20</sup> Ibid. pp. 324–325

<sup>21</sup> Ibid. p. 325

<sup>22</sup> Ibid. p. 326

<sup>23</sup> Ibid.

<sup>24</sup> For an in-depth analysis of the problem of existence, see Aron Gurwitsch, 'The Problem of Existence in Constitutive Phenomenology', *The Journal of Philosophy*, 58 (1962), 625–632

<sup>25</sup> de Boer, T., 'Husserl's Idealism', p. 329

<sup>26</sup> *Ideen* Vol. I (1<sup>st</sup> edition), p. 96 quoted by de Boer, 'Husserl's Idealism', p. 330.

<sup>27</sup> Ibid. However, the methodology of the natural sciences which place particular importance in the objective reality of the existent object over and against that of the 'subjectively' perceived object would probably find this freedom from 'naturalistic philosophy' as a step backwards in technological and scientific progression.

<sup>28</sup> Moran, pp. 76–77.

<sup>29</sup> See *On Empathy*, p. 41.

<sup>30</sup> As Sawicki states: 'the third of the extant chapters of [Stein's] dissertation [*On the Problem of Empathy*] is unlike the other two [...] The exposition is no longer conscientiously phenomenological; the argument goes by fits and starts' (p. 131).

<sup>31</sup> Later, Stein would come to realise that in comparison to the Cartesian-Lockean dualistic view of transparent consciousness and opaque body underpinning Husserl's modern phenomenological approach to human subjectivity, an Aristotelian-Thomistic account of the unity of human subjectivity would better accommodate her reflections on this matter of human incarnate consciousness.

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<sup>32</sup> Stein uses the term primordial to refer to those acts which are given to us directly. She states ‘there are things other than the outer world given to us primordially; for instance, there is ideation which is the intuitive comprehension of essential states. Insight into a geometric axiom is primordially given as well as valuing. Finally and above all, our own experience as they are given in reflection have the character of primordially [...] All our own present experiences are primordial. What could be more primordial than experience itself?’ *On Empathy*, p. 7.

<sup>33</sup> *Ibid.* p. 10.

<sup>34</sup> *Ibid.* p. 11.

<sup>35</sup> On any given day we are open to the possibility of encountering foreign individuals who are energised to various different extents with what we might term ‘life-power’ (*Lebenskraft*). Some days ‘I’ am tired and cranky (low life-power levels), the experience I have of being de-energised is given to me in a primordial fashion. I am the subject that experiences this reality from within. It issues live from my ‘I’. While I can be de-energised I can encounter a person who is full of joy on the street. From this causal encounter with an ‘other’ — I can experience the foreign individual. I know that the joy is not issuing *live* from my ‘I’. The joy thus must come from some other place. Stein develops the analogy of life-power further in her *Philosophy of Psychology and Humanities* (Washington D.C: ICS Publications, 2000), esp. pp. 24–25.

<sup>36</sup> *On Empathy*, p. 8.

<sup>37</sup> *Ibid.* p. 8.

<sup>38</sup> *Ibid.* p. 9.

<sup>39</sup> *Ibid.* emphasis added.

<sup>40</sup> *Ibid.* pp. 12–13.

<sup>41</sup> *Ibid.*

<sup>42</sup> *Ibid.* pp. 17–18.

<sup>43</sup> Stein discusses imitation in chapter two, §5 ‘Discussion in Terms of Genetic Theories of the Comprehension of Foreign Consciousness’. Here, she wishes to investigate whether imitation or association or inference by analogy actually account for empathy. In some ways her earlier characterisation of empathy as a founding act already proposes that there is no such genetic theory to underpin her characterisation of empathy. Imitation fails (as a theory to explain empathy) because in the case of imitation we do not perceive the feeling of non-primordial content. In fact with ‘transferred’ feelings we *live in* them and therefore in *ourselves* in this way non-primordial content is not ‘given’. With association (which is a rival theory to imitation) there are also problems not least of which is the vagueness of what association refers to exactly. However, in the case of association Stein accounts for the differences by guiding us through an example to highlight the differences between it and empathy: ‘I see someone stamp his feet. I remember how I myself once stamped my feet at the same time as my previous fury is presented to me. Then I say to myself, “This is how furious he is now”. Here the other’s fury itself is not given but its existence is inferred. By an intuitive representation, my own fury, I seek to draw it near.’ (*On Empathy*, p. 24). But in the case of empathy the experience is posited immediately, and it reaches its object directly *without representation*. For association you have to represent the previous experience to yourself and as such the theory of association does not explain the genesis of empathy. In relation to the ‘theory of inference by analogy’, Stein castigates the proponents of this theory. We are aware of outer and inner perception but we only get at the facts that these perceptions give us by means of inferences. I know my own physical body and its modifications but only in relation to the conditions and implications of my experiences. So when I know the foreign physical body and its modifications the knowledge of it is dependent also on the conditions and implications of my experiences. What we are left here with is a probable knowledge of foreign experience. Stein holds that the theory does not aim to give a genetic explanation as such but merely specifies the form in which knowledge of the foreign consciousness is ‘possible’. This position is empty for Stein ‘the value of such an empty form, not oriented toward the nature of knowledge itself, is more than doubtful. Exactly how appropriate the inference by analogy would be for such a demonstration cannot be treated here.’ Stein believes that those who hold this position have in many regards failed to recognise the act and the experience of empathy *per se*. (*On Empathy*, p. 27).

<sup>44</sup> *Ibid.* pp. 23–24.

<sup>45</sup> *Ibid.* p. 24.

<sup>46</sup> Mirror neurons is a descriptive term to account for how the same neural circuits involved in action control in the first person experience of emotions and sensations are also active when witnessing the same actions, emotions and sensations of others, respectively. See, Vittorio Gallese,

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'Intentional Attunement. The Mirror Neuron system and its role in interpersonal relations', in *Interdisciplines* <<http://interdisciplines.org/mirror/papers/1/printable/paper>> [accessed 27 November 2006].

<sup>47</sup> Vittorio Gallese, Fogassi L. Fadiga, and G. Rizzolatti, 'Action Recognition in the premotor cortex' in *Brain*, 119 (1996), 593-609.

<sup>48</sup> Gallese, 'Intentional Attunement', esp. §2 'The mirror neuron system for actions in monkeys and humans: empirical evidence'.

<sup>49</sup> *Ibid.* emphasis added.

<sup>50</sup> Given that Singer's article amounts to a literature review of the preceding academic contributions in relation to mirror neurons, theory of mind, empathy etc., we will refer to it considerably to outline the findings in neurology and psychology vis-à-vis empathy as it represents one of the most current overviews to date of the state of research in this regard.

<sup>51</sup> Singer, p. 859.

<sup>52</sup> Given that modern neurology can account for the process of brain development Singer proposes that we ought to tease apart the different areas in order to understand them more fully in their own right (*ibid.*).

<sup>53</sup> As she states, 'we use the term "empathising" to refer to the process which allows us to experience what it feels like for another person to experience a certain emotion or sensation (e.g., qualia). The capacity to understand other people's emotions by sharing their affective states is fundamentally different in nature from the capacity to mentalise. Thus, sharing the grief of a close friend feels fundamentally different than understanding what this person is having as thoughts and intentions, the latter lacking a bodily sensations' (p. 856).

<sup>54</sup> *Ibid.*, p. 855.

<sup>55</sup> 'Even though we have argued for separate developmental pathways for empathising and mentalising abilities with the latter developing much later than the former, we assume that (a) on both neuronal and psychological grounds the two developmental pathways also interact with each other and (b) both capacities undergo developmental changes throughout childhood and adolescence.' Singer, p. 861.

<sup>56</sup> D. Premack, G. Woodruff, 'Does the chimpanzee have a theory of mind?' in *Behavioral and Brain Science* 1, (1978) 515–526, quoted in Singer, p. 856.

<sup>57</sup> The human's ability to 'mentalise' (i.e. to make attributions about propositional attitudes such as desires, beliefs and intentions of others) is absent in monkeys and only exists in rudimentary form in apes. See D.J. Povinelli, J.M. Bering, 'The mentality of apes revisited.' in *Current Directions in Psychological Science*, 11 (2002), 115–119, quoted in Singer, p. 856.

<sup>58</sup> Other studies, involved the brain imaging of subjects while they played strategic games with another partner or with a computer outside the scanner room. See K. McCabe, D. House, L. Ryan, V. Smith, T. Trouard, 'A functional imaging study of cooperation in two-person reciprocal exchange. *Proceedings of the National Academy of Sciences of the United States of America* 98, (2001) 11832-11835

<sup>59</sup> H.L. Gallagher, C.D. Frith, 'Functional imaging of "theory of mind" 5. *Trends in Cognitive Sciences*, 7 (2003), 77–83.

<sup>60</sup> Singer, p. 856.

<sup>61</sup> See J. P. Mitchell, M.R. Banaji, C.N. Macrae, 'The link between social cognition and self-referential thought in the medial prefrontal cortex.' *Journal of Cognitive Neuroscience*, 17 (2005), 1306–1315.

<sup>62</sup> Decoupled in the sense that they are decoupled from the actual state of the world and that they may or may not correspond to reality. See Singer, p. 857.

<sup>63</sup> There is a lot to consider in relation to the ability of the human mind to 'mirror'. Are we hard-wired to form communities, to exist in social units? Does the ability to mirror the intentions of others give us an ability to escape danger? In this way 'mirroring' provides an evolutionary advantage and epistemological 'insight' in order to avoid danger by bringing the possibility of a 'foreign' intentional act to conclusion 'within' before it actually is effected by the foreign individual.

<sup>64</sup> This research is referring to the fact that there are neurons in the pre-motor cortex of the macaque brain that fire both when the monkey performs a hand action itself and when it merely observes another monkey or a human performing the same hand action. See, G. Rizzolatti, L. Fadiga, V. Gallese, L. Fogassi, 'Premotor cortex and the recognition of motor actions.' in *Cognitive Brain Research*, 3 (1996), 131–141.

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<sup>65</sup> Stein has a concept of the mental sphere whereby we can understand action through taking into consideration motivation. Motivation accounts for how acts are brought about in relation to some object in terms of its value. As Stein outlines: ‘Motivation, in our general sense, is the connection that acts get into with one another: [...] an emerging of the one out of the other, a self-fulfilling or being fulfilled of the one on the basis of the other for the sake of the other.’ *Philosophy of Psychology and Humanities*, p. 41. Thus, the hammer is valued by the workman as he is motivated to build a house and valued by the robber as a weapon. Motivational acts are rational in the sense that ‘we’ can determine ‘why’ they come about by reading the valuation back through the act.

<sup>66</sup> Singer, p. 857. One of the more puzzling questions that M. Iacoboni deals with (and which we shall outline to highlight the complexity involved in mirror neuron research) is how do we imitate an action that we do not have in our repertoire previously. It requires a different mechanism to consider this action according to Iacoboni *et al.* Their findings highlight that there is a connection between the premotor cortex of the brain and the superior temporal sulcus (a higher order visual region). This newly identified region has, according to Iacoboni *et al.* all the requisites for being the region at which the observed actions, and the reafferent motor-related copies of actions made the imitator, interact. See M. Iacoboni, L. Koski, M. Brass, H. Bekkering, R. Woods, M-C. Dubeau, J. Mazziotta, G. Rizzolatti, ‘Reafferent copies of imitated actions in the right superior temporal cortex’ in *Proceedings in the National Academy of Sciences of the United States of America*, (2001), 13995–13999: ‘imitation is a complex phenomenon, the neural mechanisms of which are still largely unknown.’

<sup>67</sup> Gallese, V., Goldman, A., ‘Mirror neurons and the simulation theory of mind-reading’, *Trends in Cognitive Sciences*, 2 (1998), 493–501.

<sup>68</sup> According to Grezes and Decety the circuitry involved in motor action mirroring involves the supplementary motor area (SMA), pre-SMA, pre-motor cortex, the supramarginal gyrus, interparietal sulcus and the superior parietal lobe. See, J., Grezes, J., Decety, ‘Functional anatomy of execution, mental simulation, observation, and verbal generation of actions: a meta-analysis.’ *Human Brain Mapping*, 12 (2001), 1–19.

<sup>69</sup> Singer, pp. 857–858.

<sup>70</sup> Stein would have particular issues with the use of imagination we will consider this further in relation to our analysis of Stein’s position in relation to neurology.

<sup>71</sup> Singer, p. 858. We note at this point that this definition is similar to Stein’s understanding of empathy as being non-primordial content given to the ‘I’ which is aware of its own primordial reality.

<sup>72</sup> S.D. Preston, F.B.M. de Waal, ‘Empathy: its ultimate and proximate bases’, *Behavioral and Brain Science*, 25 (2002), 1–72. The term ‘automatic’ in this case refers to a process that does not require conscious and effortful processing, but which can nevertheless be inhibited or controlled.

<sup>73</sup> B. Wicker, C. Keysers, J. Plailly, J.P. Royet, V., Gallese, G. Rizzolatti, ‘Both of us disgusted in my insula: the common neural basis of seeing and feeling disgust’, *Neuron*, 40, 655–664

<sup>74</sup> C. Keysers, B. Wicker, V. Gazzola, J. L. Anton, L. Fogassi, V. Gallese, ‘A touching sight: SII/PV activation during the observation and experience of touch 1. *Neuron*, 42, 335–346.

<sup>75</sup> Singer, p. 858.

<sup>76</sup> T. Singer, B. Seymour, J. O’Doherty, H. Kaube, R.J. Dolan, C.D. Frith, ‘Empathy for pain involves the affective but not sensory components of pain’, *Science*, 303 (2004), 1157–1162.

<sup>77</sup> *Ibid.*

<sup>78</sup> Singer, p. 858.

<sup>79</sup> Interestingly the findings of a new study by Singer *et al.* indicate that overall empathy-related activation for unfamiliar persons in pain is lower than when empathising with a loved one in pain. See T. Singer, B. Seymour, J.P. O’Doherty, K.E. Stephan, R.J. Dolan, C.D. Frith, ‘Empathic neural responses are modulated by the perceived fairness of others. *Nature* 439, (2006), 466–469

<sup>80</sup> Singer, pp. 858–859.

<sup>81</sup> *Ibid.*

<sup>82</sup> The area considered to be involved in mirroring. As stated previously, the mPFC has not only been found to be involved when mentalising about the thoughts, intentions or beliefs of others but also when people are attending to their own mental states.

<sup>83</sup> The anterior insula cortex (AI) has in various tests been found to be associated with the processing and feeling of disgust.

<sup>84</sup> The somato-sensory cortex (SII) is involved in processing and feeling the sensation of touch only activated in the person suffering the causal effect of pain *per se*. However, one study has found that –there was reduced motor excitability specific to the muscle that the subjects observed

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being penetrated deeply by needles in another person, contrasting with another study showing only secondary somatosensory cortex activity. This causes a particular challenge in relation to the ‘degree of isomorphism in empathy.’ See, de Vignemont, F., Singer, T., ‘The empathic brain: how, when and why?’ in *Trends in Cognitive Sciences* Vol. 10 No. 10 (2006), 434–441.

<sup>85</sup> Sonja Rinofner-Kreidl, ‘What is Wrong with Naturalising Epistemology? A Phenomenologist’s reply’, in *Husserl and the Sciences*, ed. by Richard Feist (Ottawa: University of Ottawa Press, 2004), pp. 51–52.

<sup>86</sup> See Richard Feist, ‘Reductions and Relativity’ in *Husserl and Stein*, ed. by Richard Feist & William Sweet (Washington D.C: The Council for Research in Values and Philosophy, 2003), pp. 89–103 and Richard Feist, ‘Husserl and Weyl: Phenomenology, Mathematics, and Physics’ in *Husserl and the Sciences*, pp. 129–153.

<sup>87</sup> Feist, ‘Reductions and Relativity’, p. 96

<sup>88</sup> *Ibid.* p. 97

<sup>89</sup> Feist refers to Husserl, *Ideas I*, p. 169. See his ‘Reductions and Relativity’, p. 101, cf. n. 40.

<sup>90</sup> Feist, ‘Reductions and Relativity’ p. 99

<sup>91</sup> F. de Vignemont, T. Singer, ‘The empathic brain: how, when and why?’, p. 435.

<sup>92</sup> *Ibid.*

<sup>93</sup> Emotional contagion would not be considered as empathy in relation to the above definition because it does not distinguish between self and other as required by (iii) and (iv) of the definition. This would bring the definition close (although not synonymous) to Stein’s description of empathy as it rules out contagion.

<sup>94</sup> Singer, p. 858. See *supra*, n. 71.

<sup>95</sup> de Vignemont & Singer, ‘The empathic brain: how, when and why?’, pp. 435–436. In this account Lipps’ theory on empathy seems to be right. According to Singer, Lipps understands that when we ‘internally imitate a facial expression, we have direct access to the emotion that triggered that facial expression. [Thus, the discovery of] mirror matching systems in the motor domain is considered as the first neural evidence of Lipps’ theory: the perception of someone else moving suffices to elicit a mental simulation of the observed movement and, if not inhibited, the subsequent physical execution of that movement. Imitation is thus a prepotent automatic response tendency, even if usually inhibited.’ (p. 437).

<sup>96</sup> *Ibid.*

<sup>97</sup> This is obviously of benefit in that you know to avoid the danger of being tortured yourself if you see someone else being mistreated.

<sup>98</sup> de Vignemont & Singer, ‘The empathic brain: how, when and why?’, pp. 437–439.

<sup>99</sup> Again we must maintain that, phenomenologically speaking, Stein’s methodology remains the descriptive analysis of the interior experience given to us and as such even if empathy happens ‘unconsciously’ in an automatic sense it is not the experience given to us consciously. Although ‘unconscious’ refers to not being aware of the process, Stein does not hold that there is an unconscious as put forward by authors such as Freud.

<sup>100</sup> As Singer states: ‘findings suggest that levels of empathic responding that involve implicit affect sharing and are based on limbic and para-limbic structures as well as on somato-sensory cortices should develop earlier than our ability for cognitive perspective taking because the former rely on structures which develop early in brain development, whereas the latter rely on structures of the neo-cortex which are among the latest to mature, such as the pre-frontal cortex and lateral parts of the temporal cortex. The finding that the [dorso-lateral pre-frontal cortex] has not fully matured up to an age of 25 is interesting with respect to its possible role in the modulation and control of affective responses and might suggest that the full capacity for effective and adaptive empathic responding is not developed until late adolescence.’ See, Singer, p. 860.

<sup>101</sup> *Ibid.* The structural development process is outlined by Singer (cf., p. 861) as follows:

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|------------------|--|
| 1 day–18 months: | New born babies already have the ability for emotional contagion (crying) — before they have developed self-awareness and the distinction between self and others. |
| 18–24 months:    | Self-awareness develops, children also display the first manifestations of pro-social behaviour towards others.  |
| > 24 months:     | The ability to have empathic responses in the absence of any emotional cue develops probably later [than 24 months] and should parallel the                        |



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maturation of memory systems and mental imagery. Moreover, explicit forms of empathy should coincide with the emergence of conscious representations of one's own feeling states allowing for statements such as 'I feel sad or jealous'. The capacity to understand other people's feelings when there is congruency between one's own and another person's feeling states probably develops earlier than the capacity to understand others' feeling in the absence of any representation of this state in oneself. Whereas the former most likely relies on one's own representation of a given feeling state in oneself (limbic structures), the latter probably relies purely on mentalising capacities (pre-frontal and temporal structures).

4 years

Mentalising abilities develop about the age of four and are probably based on the development of the mPFC and temporal structures. Thus the basic capacity for mentalising seems to be clearly in place long before the complete maturation of the neuro-circuitry sub-serving it. This suggests that not only empathising but also mentalising abilities may change in nature from early childhood to adolescence. Similar to emotional contagion preceding more complex forms of implicit and explicit empathy, explicit forms of mentalising abilities are preceded by processes allowing implicit attribution of intentions and other mental states, e.g., the ability of an infant to direct its attention/gaze towards the attentional focus of the mother (joint attention) already develops around the age of 12-18 months or even earlier.

6–10 years

First order (attributing a belief to another person — develops c. 4 years) and second-order beliefs (attributing a belief about another person's belief) develops between the six to ten years.

<sup>102</sup> Interestingly, while mentalising is associated with later developmental structures in brain ontogeny these structures appear to succumb to old age before earlier developed empathising structures (limbic, para-limbic). This suggests higher vulnerability to 'structures which develop later and are phylogenetically younger (e.g. pre-frontal cortex). It may therefore be that empathic responses are preserved up to very old age whereas mentalising abilities show earlier decline.' See Singer, p. 862.

<sup>103</sup> *On Empathy*, p. 111.

<sup>104</sup> It has been shown by one study that neurons in the orbito-frontal cortex encode value. See, Camillo Padoa-Schioppa, John A. Assad, 'Neurons in the orbitofrontal cortex encode economic value', *Nature*, Vol. 441/(11 May 2006), 223–227.

<sup>105</sup> F. de Vignemont, T. Singer, 'The empathic brain: how, when and why?', p. 436.

