Citation for published version (APA):
“Inner Perception Can Never Become Inner Observation”:
Brentano on Awareness and Observation

Mark Textor
King’s College London

© 2015 Mark Textor
This work is licensed under a Creative Commons Attribution-NonCommercial-NoDerivatives 3.0 License.
<www.philosophersimprint.org/015010/>

1. Introduction
Franz Brentano’s Psychologie vom Empirischen Standpunkt has inspired the development of first-order or self-representational theories of consciousness.¹ Such theories hold that a mental event or process is conscious if, and only if, it represents itself among other things. For example, Caston (2004, 524) writes: “A perception is directed at itself as well as at a perceptible quality in the world.”² In contrast, higher-order theories of consciousness argue that a mental event or state is conscious if, and only if, there is a distinct mental representation of it — a thought or a perception — that is non-inferentially arrived at. According to both views, consciousness of a mental phenomenon consists in, broadly speaking, a representation of it. But only the self-representational view has it that it is intrinsic to a mental phenomenon that it is represented. The higher-order view denies this: a mental phenomenon may be represented by a distinct mental state/event or not.

In this paper I will not argue for the self-representational view, but rather explore whether it can be defended against an important objection by developing Brentano’s notion of consciousness “on the side”.

Let us start by outlining the objection that calls for a response from the proponent of the self-representational view. The self-representational view is often motivated by saying that it captures how things are for us when we consciously perceive and think. Goldman articulates this reason as follows:

[C]onsider the case of thinking about $x$ or attending to $x$. In the presence of thinking about $x$ there is already an


2. Aristotle’s De Anima is the main influence on Brentano’s work on consciousness. Kosman 1975 relates Aristotle’s view to Moore’s and Sartre’s. Caston (2002, 768ff) develops a reading of Aristotle’s view of consciousness that is inspired by the work of Brentano and his student Hermann Schell. For an overview of work on Aristotle’s view on consciousness, see Johansen 2005.
implicit awareness that one is thinking about x. There is no need for reflection here, for taking a step back from x in order to examine it. (I borrow this quote from Kriegel 2009, 176.)

Agnostics respond that such phenomenological considerations speak neither in favor of nor against self-representationalism. What the right view of consciousness is needs to be settled differently. In Psychologie (1874, 176–9 [97–8]), Brentano proposes an argument for his version of the self-representational view of consciousness that does not rely on a claim about the phenomenology of conscious thought and perception. I will therefore set Agnosticism aside.

Contrarians, in turn, argue that it seems to us that our conscious perceiving and thinking is not directed upon itself. For instance, Gennaro reports:

It does not seem to me that I am consciously aware (in any sense) of my own experience when I am, say, consciously attending to a play or the task of building a bookcase. (Gennaro 2008, 49)

It often seems to be the case that (i) one is absorbed in a perceptual activity such as perceiving a painting, (ii) one is still consciously perceiving the painting, but (iii) since one is absorbed in one’s perception, there is no noticing of one’s perceptual activity. If one agrees with (i)–(iii), the self-representational theory of consciousness seems to be in trouble. How can (i)–(iii) be true, yet consciousness of perceiving be intrinsic to perceiving?

3. Brentano’s contemporary Wilhelm Dilthey (1880–90, 290) takes this agnostic stance towards Brentano’s thesis. See also Mehta 2013.

4. See also Cook Wilson 1926, 79.

5. Rosenthal (1986, 345) takes this so-called “transparency” of consciousness not only to speak against the self-representational, but also to speak for the higher-order view: “We normally focus on the sensory state and not on our consciousness of it only because that consciousness consists in our having a higher-order thought, and that thought is usually not itself a conscious thought”. However, according to (one understanding of) the transparency thesis, we don’t focus on the sensory state, but its object, the colour, sound etc. Hence, the transparency phenomenon also poses a challenge for the higher-order view. How can the sensory state be the object of a higher-order presentation and yet escape one’s notice?

6. See Brentano 1874, 41 [12], 61 [32], 180 [99] and Brentano 1911, 130. References are to the reprint of the 1924 edition of Psychologie, with references to the pagination of the English translation in square brackets.

7. Ryle knew Brentano’s work very well. See, for example, Ryle 1928.

The Contrarian objection has force only if the self-representational view is that the painting and one’s perceiving of it are in the same sense objects of the perceiving. However, Brentano argued that this is not the case. He (1874, 185 [102]) quotes Aristotle’s Metaphysics with approval:

It seems that knowing, perceiving, believing and thinking are always to something else, but to themselves on the side [en parergo]. (Metaphysics 12.9)

When we, for example, hear a note, we are aware of our hearing the note, but only “on the side”. Talk of perceiving one’s mental activity “on the side” suggests that someone who loses himself, for example, in a painting is still aware of his perceiving, but in a way that does not “register” with the perceiver. Brentano ranks therefore the objects of perception: the painting etc. is the primary, the perception the secondary object.

Brentano’s distinction between primary and secondary object can solve the problem just outlined only if he provides an independently motivated answer why (a) one’s current mental act can only be the secondary object of this mental act and (b) why the secondary object is not noticed by the thinker. The thrust of Brentano’s answer is conveyed by the slogan ‘Inner perception (awareness) can never become observation’. Ryle’s Concept of Mind contains echoes of Brentano’s slogan. Ryle distinguishes in perceptions a non-intentional constituent, sensation, and argues on the basis of grammatical points...
that one cannot observe a sensation. If one says that one observes a glimpse, one commits a category mistake.\footnote{See, for example, Ryle 1949, 197.}

In this paper I will expound the view that is expressed in Brentano’s slogan and assess his arguments for holding it. This project is of independent philosophical interest because Brentano’s view promises to shed light on the distinctive character of awareness. I will argue that the arguments Brentano provides in Psychologie are unconvincing (see sections 4 and 5). Nonetheless one can extract from Brentano’s writings on descriptive psychology a promising argument for the rational core of the slogan (see sections 6–10). This argument is based on an assumption about the unity of consciousness. The object of our awareness is a whole of simultaneous activities. Attending to one of them in particular (observing it) requires seeking out contrasts between mental activities. Awareness cannot become observation, because mere awareness of a mental phenomenon cannot contrast it with others.

**2. Brentano on primary and secondary object**

According to Brentano, every mental act such as hearing a note, smelling a smell, seeing a colour etc. is directed on itself on the side. For the purposes of this paper, I will assume the weaker thesis that some mental acts, the ones that are conscious, are directed on themselves on the side. For instance, when I consciously hear a note, I perceive my hearing on it on the side. I hear the note — say, \( F \) — and perceive my hearing, but these objects are not “created equal”:

> We can say that the tone is the primary object of the act of hearing and that the act of hearing itself is the secondary object. [...] The act of hearing the tone is turned to the tone in the most proper sense [im eigentlichsten Sinne zugewandt], and in being so turned it seems to grasp itself on the side [nebenbei] and as an added extra [Zugabe]. (1874, 180 [98], in part my translation.)

\( B. \) Brentano’s first-stab answer is that in hearing a tone, one is “turned to it in the most proper sense”; one is not turned to one’s hearing of the tone. Now what does ‘turned to in the most proper sense’ mean? In order to answer this question, we need to get clear about what Brentano means by ‘zu gewandt’. ‘x ist y zu gewendet’ has several meanings in German. One of them is that \( x \) is in some sense oriented in the direction of \( y \). (‘Ihr Gesicht war ihm zu gewendet’ is translated as ‘Her face was turned to him.’) This meaning is picked up in the English translation. But ‘zu wenden’ also refers, roughly speaking, to taking an interest in or directing one’s attention to something. And this seems to be the meaning Brentano intends ‘turn to’ to have. It is therefore natural to take Brentano to hold that among the objects of a mental act, one is privileged because it is the object one pays attention to in the act: Something \( x \) is the primary object of a mental act by a thinker \( T \) if, and only if, \( T \)’s attention is directed on \( x \) in this act.

This first-stab characterization of the distinction between primary and secondary object seems plausible enough. If we simultaneously perceive \( A \) and \( B \), but only \( A \) engages our attention, \( B \) escapes our notice. Take reading a sentence with understanding as a model. Reading a sentence with understanding has two sides: it consists of the apprehension of the meaning of the words expressed and of a perceiving of the sentence inscription, the physical object. Reading with understanding has two objects: the meaning and the sentence inscription.\footnote{See Husserl 1913, 419, and Byrne 2001, 212.} These objects are not created equal. If you read the English sentence ‘This product contains traces of nuts’, you are immersed in the meaning of the written words, while the words themselves tend to escape you, although they are perceived.

Current proponents of the self-representational view of consciousness have taken a clue from such observations and proposed to spell out the difference between what Brentano calls “primary” and
“secondary object” by means of the notion of attention. For example, Kriegel (2003a, 17) proposes that that we dedicate only little attention to our current perceiving. In seeing a scene, one is peripherally aware of some parts of the scene and of seeing the scene. Caston agrees: “In ordinary experience, we glimpse our perceiving only peripherally, as it were” (Caston 2002, 787).

3. Primary object and observation

However, the primary object of a mental act cannot simply be the object that is attended to in this act. To see this, consider again the example of reading a sentence of a language one masters. Usually, we are interested in the meaning of a written sentence. But this is a contingent fact. If I have a standing interest in fonts or handwritings, I will attend to the inscribed words and not to their meaning. Similarly, I may have a standing interest in my perceiving. For example, a descriptive psychologist will be interested in his mental life. One should therefore expect that one sometimes focuses one’s attention on the perceiving and not what is perceived. Hence, for instance, hearing F could be the primary and F the secondary object of hearing F. In contrast, Brentano holds that our perceiving can only be the secondary object; when we perceive, we cannot turn our attention to the perceiving itself:

It is a peculiar feature of inner perception [die innere Wahrnehmung hat das Eigentümliche] that it can never become inner observation. Objects which one, as one puts it, perceives outwardly can be observed; one focuses one’s attention completely on them in order to apprehend them precisely [genau]. But with objects of inner perception this is absolutely impossible. [...] It is a universally valid psychological law that we can never focus our attention on the object of inner perception. [...] It is only while our attention is turned toward a different object that we are able to perceive, incidentally, the mental processes which are directed toward that object. Thus the observation of physical phenomena in external perception, while offering us a basis for knowledge of nature, can at the same time become a means of attaining knowledge of the mind. Indeed, turning one’s attention to physical phenomena in our imagination is, if not the only source of our knowledge of laws governing the mind, at least the immediate and principal source. (Brentano 1874, 41–2 [22]. In part my translation, my emphasis.)

Inner perception or awareness, says Brentano, neither is nor can become observation. I will call this claim the Awareness ≠ Observation Thesis, in short the A ≠ O Thesis. In contrast, outer perception (seeing, hearing, smelling) can become observation. For example, my hearing the song of the birds can become listening to the birdsong, that is, an observing of the song. In general, perceptual activities like hearing, seeing and touching can become observations (listernings, watchings etc.). For instance, when you read the sentence 'This product contains traces of nuts’ with understanding, you may merely see the inscription, but this seeing can become observing if you turn your attention to the inscription. The A ≠ O Thesis grounds Brentano’s distinction between primary and secondary object. If Brentano is right, a mental act can neither be nor become its own primary object; it can only be its secondary object, that is, we are aware of it, but we cannot observe it.

The A ≠ O Thesis does not exclude that mental phenomena can be observed. It only implies that any observation of a mental phenomenon is not (only) awareness of it. For example, remembering one’s hearing F is not awareness of it. Prima facie, one can pay attention to hearing F when one remembers it. But Brentano carefully avoids calling paying attention to a mental phenomenon in memory “observation”. For example, he writes:

10. See also Kriegel 2005, 26. Janzen (2008, 106–8) proposes that one is only implicitly aware of one’s perception when one perceives. But he characterises implicit awareness by referring to Brentano’s view that seeing etc. is of itself “on the side” and thereby takes us directly back to the problem investigated here.
[W]hen we view [betrachten] a previous act of hearing in memory, we turn toward it as a primary object, and thus we sometimes turn toward it in a way that is similar to an observer [in ähnlicher Weise wie ein Beobachter]. (1874, 181 [99]. My translation.)

Why only “similar to an observer” and not simply “as an observer”? Brentano argues that memory can deceive us. But the same is true of the observation of objects in current perception. Wundt (1888, 294) helps Brentano out by proposing that something can be observed at a time only if it exists at that time. A flash of lightning can be perceived but not observed, because it does not exist long enough to be observed. But one can observe a dying sun, although it no longer exists at the time of one’s observation.11 There is, then, no direct way to argue from the assumption that awareness cannot become observation to the conclusion that mental acts cannot be observed at all.

In order to assess Brentano’s A ≠ O Thesis, we need to know more about observation. Observing an object or event a is focusing one’s attention on a in order (intending) to perceive it precisely (Brentano 1874, 41 [22]). Because observing an object requires one to turn one’s attention to it, it is the primary object (Brentano 1874, 181 [99]).

Not all objects one attends to are objects one has turned one’s attention to. (See Brentano 1890/1, 36 [38–9].)12 An object may capture one’s attention against one’s will. If an acrobat performs breathtaking stunts during a biology lecture, she will capture the audience’s attention, although they ought to and want to focus their attention on the plant they are studying.

This example gives us a first pointer as to what focusing one’s attention amounts to. One turns one’s attention to something if one wants to perceive it for a certain purpose. In Psychologie, Brentano does not say much about the purpose. In his lectures on descriptive psychology, he says more:

We say that one pays attention [aufmerken] where we desire to notice [bemerken] something that happens or will happen in us and arguably also to memorize it [merken] and where this desire drives us to create favourable dispositions for this; one can therefore say that we aspire to notice. (Brentano 1890/1, 35 [38], in part my translation.)

Brentano is concerned here with directing one’s attention on one’s mental acts, but part of his explanation applies to the notion of directing one’s attention to an object or event in general:

T directs his attention towards x if, and only if, (i) T desires to come to know properties of x and to commit them to memory & (ii) the desire mentioned in (i) motivates T to bring about favorable conditions for its satisfaction.

Consider an example for illustration. I walk through the park while the birds are singing. My hearing is working normally, and I hear, among other things, the song of the birds. Then a particularly beautiful song captures my interest, and I desire to hear more of it and to distinguish it from the other sounds. This desire drives me to create favorable conditions for its satisfaction. We mark the transition from hearing the song to hearing out of the desire to hear more of the song or hear it better by saying that I start listening to and listening out for it. When I start to listen to the birdsong, the perceptual activity and the ability exercised are still the same: I am hearing the song of the bird. But I am hearing it now out of the desire to learn more about it.

As a general account of what it is to turn one’s attention to an object, Brentano’s proposal is too narrow. Bradley (1902, 4) gives the examples of attentively listening to an air and paying attention to the development of pain or pleasure. My listening attentively to

11. Thanks to Johannes Brandl for this counter-example.
12. See Windischer 1935, 407 for a good overview of conceptions of observation of authors influenced by Brentano.
Bach’s air may consist simply in hearing it out of the desire to fully appreciate it or simply to continue hearing it. Bradley (ibid.) responds to this observation by arguing that any attentive perception aims “to maintain an object before me with a view to gain knowledge about it”, but that the knowledge is in a “wide sense” theoretical or ideal. However, Bradley’s “wide sense” only names the problem to be solved. Brentano’s work on aesthetic value points one in the direction of a more satisfying answer: One can merely hear an air or listen to it out of the desire to respond adequately to its aesthetic value. I will, however, not try to complete the account of attention under consideration here. For if Brentano has a good reason that inner perception cannot become observation, this reason will also apply to the aesthetic, or more generally, value case.13

Why accept the $A \neq O$ Thesis? Brentano’s reason seems to be that when one, for example, hears a song, one can’t turn one’s attention to one’s hearing. Again, this claim is in need of argumentative support. After unpacking the notion of turning one’s attention to an object, we can distinguish two potential reasons for the $A \neq O$ Thesis:

First, awareness neither is nor can become observation because one can’t desire to come to know the objects one is currently aware of better.

Second, awareness neither is nor can become observation because the desire to know the object of one’s current awareness can’t be satisfied by continuing to be aware of it.

In the next section, I will look at Brentano’s attempt to spell out the first potential reason and find it wanting.

13. See Crowther 2010 for further discussion. 

4. Brentano’s intuitive consideration

When expounding the $A \neq O$ Thesis, Brentano gives an example that will resonate with many of his readers:

[The fact that awareness neither is nor can become observation] is especially clear with respect to certain mental phenomena such as anger [Zorn]. For if someone wants to observe the anger which rages in him, the anger would already have cooled off, and the object of observation would have vanished. The same impossibility obtains in other cases. We will have to discuss this issue in more detail later on. For the moment it will suffice to call attention to the personal experience of an unbiased person. (Brentano 1874, 41 [22])

The example is supposed to make the $A \neq O$ Thesis initially plausible; it is not intended to provide the true reason for the thesis. Such an explanatory argument will be possible only after Brentano has argued that consciousness of a mental act — say, consciousness of hearing $F$ — and hearing $F$ are not two distinct mental acts. I will elaborate this point in the next section.

How does this intuitive consideration work? Imagine that you have a fit of road rage. If you are raging with anger, you are aware of your anger, but you cannot observe it. Why? When I am raging with anger, I “cannot think of anything else” but the object to which my anger is directed, say, the careless driver. In this situation, I cannot form the desire or the intention required to turn my awareness of my

14. I have re-translated the passage. The reason is that Brentano’s translators render the crucial sentence ‘Denn wer den Zorn, der in ihm glüht, beobachten wollte, bei dem wäre er offenbar bereits gekühlt, und der Gegenstand der Beobachtung verschwunden’ by introducing a scale of intensity of anger: ‘If someone is in a state in which he wants to observe his own anger raging within him, the anger must already be somewhat diminished, and so his original object of observation would have disappeared.’ According to Brentano, the anger is not somewhat diminished, but simply cooled off. There is no gradation here.
anger into an observation of it.\footnote{See Kriegel, forthcoming, 16.} One is no longer raging with anger if one can form the desire to learn more about one’s anger. The anger is then no longer all-consuming; it has cooled off. In contrast, awareness of raging anger neither requires forming an intention nor having a desire. Brentano’s consideration shows that sometimes awareness cannot become observation because one can’t desire or intend to learn more about the object of one’s awareness (see previous section). The existence of some mental phenomena such as anger is incompatible with the desire constitutive of their observation. Hence, one cannot observe them when one undergoes them.\footnote{In this point my reconstruction of the argument differs from Mulligan 2004, 73–4.}

\textit{Prima facie}, the intuitive consideration is plausible only for mental states that consume one, that is, that prevent one from forming intentions or desires. Hence, it leaves open the possibility to observe non-consuming mental states. In this case the fact that we are in such a mental state does not preclude having the desire to learn more about it. One might push this point further. For example, is the milder anger not the same anger as the consuming one? Consider an analogy: There is a mosquito buzzing round very (very) fast. Because of the speed of its movement, I cannot focus my visual attention on it. But when the mosquito comes to rest, I can and do observe it. In this case I can observe the object that was previously unobservable, because it has lost a property, moving around extremely quickly, that made it unobservable. Why can’t the same go for anger etc.? Just as I can observe the mosquito when it is at rest, I can observe the anger when it has lost some of its intensity. What I can’t do is observe the mosquito when it is buzzing around and the anger when it is consuming.

Kriegel (forthcoming) tries to close this loophole in Brentano’s argument:

If one has the presence of mind to attend to one’s anger, to reflect on it, one is no longer consumed by it. Thus in introspection one would perforce be presented with a milder, unconsuming variety of anger experience. Yet the experience one actually underwent — the experience one wished to examine by introspection — was a different, stronger and more violent anger experience. \textit{That original experience therefore eludes introspection — as soon as we turn our attention to it, it goes out of existence and is replaced by another, phenomenally different experience.} (Kriegel forthcoming, my emphasis)\footnote{Thanks to Uriah Kriegel for allowing me to quote from this unpublished paper.}

In Brentano’s example, the person raging with anger could not desire to learn more about his raging anger. In contrast, Kriegel argues that the attempt to observe one’s raging anger will make the anger disappear. Reid used a version of this argument to make the thesis plausible that introspection of a passion cannot become observation: 17

\[\text{[W]hen the mind is agitated by any passion, as soon as we turn our attention from the object to the passion itself, the passion subsides or vanishes, and by that means escapes our enquiry. This, indeed, is common to almost every operation of mind [...]. (Reid 1785, 62, my emphasis.)}\]

Brentano himself suggests this way of developing the anger consideration in a section that follows his initial discussion of anger. We cannot observe our anger when we are angry, but we can recall such an “earlier state of excitement”:

If the attempt to observe the anger which stirs us becomes impossible because the phenomenon disappears, it is clear that an earlier state of excitement can no longer be interfered with in this way. (Brentano 1874, 49 [26])

\footnotesize{\textbf{15. See Kriegel, forthcoming, 16.}}

\footnotesize{\textbf{16. In this point my reconstruction of the argument differs from Mulligan 2004, 73–4.}}

\footnotesize{\textbf{17. Thanks to Uriah Kriegel for allowing me to quote from this unpublished paper.}}

\footnotesize{\textbf{18. See Yaffe 2009, 172.}}
Brentano proposes now, in line with Reid, that one can come to desire to learn more about one’s raging anger, but the acquisition of the desire “interferes” with the object of the intended observation.

But the claim that the attempt to observe a mental phenomenon extinguishes it is plausible only for “almost every operation of the mind” (Reid 1785, 62). A passion is changed if one acquires a desire to observe it. A desire is itself a conative mental phenomenon that may interfere with or extinguish another conative mental phenomenon. But the A ≠ O Thesis is not restricted to conative mental phenomena. Non-conative mental phenomena may “survive” a shift of attention. Brentano’s student Stumpf makes this point later (Stumpf calls mental activities functions):

[I]t is not absolutely excluded to observe current functions already while they take place. The different kinds of mental functions behave in this respect differently. Not all suffer from such a thorough destruction as the affects or a difficult arithmetical operation. Intellectual functions, which require less concentration on the matter, can, already while they take place, simultaneously become to a certain extent the object of our observing. We must then simply divide our attention. Consequently neither the function nor the observation will be perfect, but it will not be completely impossible and will be combined with the just-past part of the function to form one complete impression of the experience. (Stumpf 1939, 350. My translation.)

Why should, for instance, my desire to learn more about inferring p from p & q interrupt or interfere with my inferring? Prima facie, this desire and my inference can co-exist. Please note that the idea that one can divide one’s attention plays an important role in Stumpf’s argument. I will come back to this in the next section.

A similar question arises for Kriegel’s reconstruction of the argument. He relies on the assumption that every mental act has a phenomenal intensity. In Psychologie, Brentano indeed holds that all mental acts have an intensity and tentatively identifies the intensity of a judgement with a degree of confidence. (See 1874, 192 [105].) Our question becomes therefore: Why should the degree of confidence of a judgement change if one also desires to learn more about this judgement? It seems to me that I can judge with the same degree of confidence that p whether I have this desire or not.

In The Origin of Our Knowledge of Right and Wrong (1889, 57–8), Brentano rejects this view of judgemental intensity. It is not clear whether (a) Brentano wants to reject the idea that judgements and other mental acts have intensity, or (b) he merely changes his mind about what this intensity consists in. But in the Appendix of the 1911 edition, he opts for (a). Prima facie, a presentation of the number 3 has no intensity. (See 1911, 139 [223].) To conclude: By Brentano’s own lights, the premises of the argument under consideration are not general enough to sustain the conclusion that no mental act can become observation of itself.

5. The Argument from the Nature of Observation

Brentano returns to the A ≠ O Thesis after developing an argument for the view that consciousness of a mental activity and the mental activity one is conscious of are not distinct. He concludes this argument as follows:

The presentation of the tone and the presentation of the presentation of the tone form not more than one single mental phenomenon; it is only by considering it in its relation to two different objects, one of which is a physical phenomenon and the other a mental phenomenon, that we divide it conceptually into two presentations. (Brentano 1874, 179 [98]. In part my translation.)

This conclusion is supposed to be the key to the A ≠ O Thesis:
Do we perceive the mental phenomena that exist within us? This question must be answered with an emphatic, "yes," for where would we have got the concepts of presentation and thought without such perception? On the other hand, it is obvious that we are not able to observe our present mental phenomena. But how can we explain this, if not by the fact that we are incapable of perceiving them? Previously, in fact, no other explanation seemed possible, but now we see the true reason clearly. The presentation which accompanies a mental act and refers to it is part of the object on which it is directed. (1874, 181 [99]. My emphasis.)

I will not rehearse the argument to which Brentano appeals, but simply assess whether one can derive from its conclusion the \(A \neq O\) Thesis. He continues as follows:

If an inner presentation were ever to become inner observation, this observation would be directed upon itself. Even the defenders of inner observation, however, seem to consider this impossible. […]

One observation is supposed to be capable of being directed upon another observation, but not upon itself. The truth is that something which is only the secondary object of an act can undoubtedly be an object of consciousness in this act, but cannot be an object of observation in it. Observation requires that one turns to the object as the primary one. Hence, a mental act obtaining in us could only be observed in a second, simultaneous act which turns to it as its primary object. But the accompanying inner idea does in fact not belong to a second mental act. [Aber die begleitende Vorstellung gehört eben nicht zu einem zweiten Akte.] Thus we see that no simultaneous observation of one's own observing or any other of one's own mental acts is possible. We can observe the tones we hear, but we cannot observe our hearing of the tones, for the hearing is only co-apprehended [mit erfassst] in the hearing of the sounds. (1874, 181–2, [99]. In part my translation.)

A first-stab reconstruction of this Argument from the Nature of Observation is as follows:

If \(M\) is an act of observing \(x\) and \(x \neq M\), \(M\) cannot also observe \(M\).

Therefore an act \(M\) of observing something \(x\) cannot become an act of observing \(M\).

Let us fill in the missing steps of the argument:

(Ob1) If \(M\) is an act of observing \(x\), \(x\) is the primary object of \(M\). (Df.)

Therefore: An act of observing \(a\), \(M_1\), has \(a\) as its primary object.

(Ob2) Every act has only one primary object.

Therefore: Any act of observing \(M_1\) has a different primary object from \(M_1\).

(Ob3) If \(x\) is the primary object of \(M\) & \(y\) is the primary object of \(N\) & \(x \neq y\), then \(M \neq N\).

Therefore: Any act of observing \(M_1\) that has \(M_1\) as a primary object is distinct from \(M_1\).
(OB4) Consciousness of $M_1$ is not distinct from $M_1$.

Therefore: Consciousness of $M_1$ is not observing $M_1$.

Therefore: It is not possible that the primary object of $M_1 = M_1$.

The conclusion of this argument is that if a mental act is an observation of something distinct from itself, it cannot also observe itself and therefore be its own primary object. For instance, listening to a tone cannot also be an observation of itself.

Brentano’s Argument from the Nature of Observation can be attacked on two points.

First, (OB2) needs further support. Why, for example, can a mental act only have one primary object? Mill (1865, 64) pointed out that one can divide one’s attention: one can attend to some things at the same time. In the previous section, Stumpf appealed to the same idea. If one can divide one’s attention, why should one not be able to simultaneously attend to one’s perceiving and its object? Brentano needs a reason to rule out that a mental act can have several primary objects, among them itself. However, it is difficult to see what this reason might be. *Prima facie*, we can divide our attention between different activities.

Second, Brentano assumes that observing has a primary object distinct from itself. Under this assumption his conclusion follows. But our question is whether this assumption is justified. If one drops it, one will have to add as a further premise to the argument that if an act $M$ is an observation of $x$, $x$ is distinct from $M$. But this is the very conclusion Brentano tries to establish.19

To sum up: This and the previous section suggest that the first potential reason for the $A \neq O$ Thesis gets Brentano some, but not all, of the way. We need therefore to find a different reason for the $A \neq O$ Thesis. In the next sections, I will argue that such a reason can be found if we revise simplifying assumptions about the secondary object.

6. A closer look at the secondary object of consciousness

In order to bring out the reason why awareness cannot become observation, we need first to highlight an important feature of Brentano’s view of awareness that is overlooked in the literature. He himself frequently talks as if descriptive psychology starts with individual mental acts such that each of them has one primary object and is directed on itself as its secondary object. However, this is a simplification. Brentano drops it at the beginning of his discussion of the unity of consciousness:

> In reality, such a simple state never occurs. It frequently happens, instead, that we have a rather large number of objects before our minds simultaneously, with which we enter into many diverse relations of consciousness. (1874, 221 [120])

If we drop the simplifying assumption, we need to revisit our understanding of what a primary and secondary object are. There is no single act, say, hearing a tone, that has the tone as its primary and itself as its secondary object. At any given time, there are many mental acts that are directed on several different primary objects. But it would be wrong to assume that at any given time there are also several different secondary objects, namely one for each of the simultaneous mental acts. There is only one secondary object!

Why? Consider an example. When I simultaneously see a colour, taste chocolate and hear a melody, I am co-conscious of seeing a colour, tasting chocolate and hearing a melody. These activities are objects of one and the same awareness and can therefore be compared in consciousness. (See Brentano 1874, 227 [123].) Brentano conceptualizes this by holding that at any given time there is only one

19. Thanks to a referee for helping me to improve the presentation of this point.
The secondary object is a whole comprising all simultaneous mental acts. But might one not also say that there is only one primary object? When you simultaneously see a colour, hear a melody and taste chocolate, there are not three independent mental acts that need to be combined. You are aware of these qualities together in one multimodal experience. (See Tye 2007, 292.)

But even if there is at any time only one primary object in which one can distinguish further objects of perception, there is an important difference between the primary and secondary object. For only the parts of the secondary object appear to us as a unity:

We emphasized as a distinguishing characteristic [of the mental] the fact that the mental phenomena which we perceive, in spite of all their multiplicity, *always* appear to us as a unity, while physical phenomena, which we perceive at the same time, do not all appear in the same way as parts of one single phenomenon. (Brentano 1874, 137 [75])

Our awareness reveals to us a whole that consists of parts, but these parts are not distinguished in our awareness of the whole. Brentano often uses a chord as a model of such a whole. (See Brentano 1912/3, 154 [117].) Imagine you hear the Tristan chord. The chord is made up of the notes F, B, D# and G#. If you are not musically trained, you will hear F, B, D# and G# together. You hear these notes together, but you don’t hear each of them, in the sense that neither F nor B etc. stand out in the phenomenology of your hearing. The notes don’t appear to you distinctly when you hear the chord. Brentano describes this by saying that the tones are fused to one unity.21

20. In the 1874 edition of *Psychologie*, Brentano denied that there is a subject of experience, a soul. At the time of the second edition he had changed his view. There is a soul whose accidents are thinking, perceiving, willing etc. In the quote, Brentano shifts to the new view when he reformulates his statement about the secondary object. For, according to his new view, the secondary object is a mental substance with all its accidents. In this paper I will not try to adjudicate the question whether the secondary object is a substance with its accidents or a whole of mental acts.

21. Tye (2009, 261) argues for the same reason that one can see the speckles of a hen collectively without seeing each speckle the hen has.
Why are we aware of a unity and not an articulated whole? We can answer this question by comparing the objects of awareness with those of outer perception. The latter may be given to you simultaneously as parts of a whole, but, as Brentano claims, they don’t “appear in the same way as parts of a single phenomenon”. Imagine that you simultaneously see and hear a trio playing. In your perception the musicians and sounds appear as parts of one whole, but you simultaneously see each of the three musicians and hear the music as coming from them. You see and hear the musicians in virtue of seeing and hearing each of them. Why? Because each musician appears to be located in a different position in the scene you see.

In contrast, in consciousness there is no spatial order such that each of several co-conscious objects appears to us distinctly. Brentano makes this point in telegraphic style when he comments about our consciousness as follows:

No juxtaposition. [Kein nebeneinander]

No manifold of objects […]. (Brentano 1890/1, 11[13])

William James is less telegraphic and provides a helpful illustration when arguing against the idea that space is the order of simultaneously existing things. There are things — the elements of consciousness — that exist simultaneously. Yet, James observes, they are not arranged in space. Consider for illustration his example. He pictures himself writing near a babbling brook:

The sound of the brook near which I write, the odor of the cedars, the feeling of satisfaction with which my breakfast has filled me, and my interest in writing this article, all simultaneously co-exist in my consciousness without falling into any sort of spatial order. If, with my eyes shut, these elements of consciousness give me any spatial feeling at all, it is that of a teeming muchness or abundance, formed of their mutual interpenetration, but within which they occupy no positions. (James 1879, 67)\textsuperscript{22}

If simultaneously perceived objects don’t have positions in space or an analogous system of relations, they are perceived together without being distinguished in perception. The objects of our awareness don’t occupy spatial positions or positions analogous to spatial positions. We are therefore aware of co-conscious acts as one unarticulated unity.

This sets the task for descriptive psychology. Just as anatomy distinguishes in a body parts, descriptive psychology distinguishes in the unarticulated unity of consciousness parts and identifies their relations. Descriptive psychology is, in Brentano’s (1890/1, 128 [135]) words, the anatomy of the soul.

How is the task of descriptive psychology accomplished? If we are initially only aware of a unity without being aware of any of its parts, how do we come to distinguish parts in it? James takes this to be the foundational question of psychology:

How can we ever evolve parts from a confused unity, if the latter did not yield them at first? How, in other words, does a vague muchness ever become a sum of discrete constituents? This is the problem of Discrimination, and he who will thoroughly have answered it will have laid the keel for psychology. (James 1879, 79)

7. Laying the keel for psychology, or: How to notice

How do we discriminate between non-spatial objects of which we are jointly aware? By varying the objects of which we are jointly aware, answers James (1878, 253). James quotes Martineau’s helpful example to convey the basic idea:

\textsuperscript{22} While James is on the right track, he is not completely right. One will hear the sound of the brook as coming from a location.
When a red ivory ball, seen for the first time, has been withdrawn, it will leave a mental representation of itself, in which all that it simultaneously gave us will indistinguishably co-exist. Let a white ball succeed to it; now, and not before, will an attribute detach itself, and the color, by force of contract, be shaken out into the foreground. (Martineau 1860, 271)

One cannot see a colour in the sense of a particular colour trope if one does not see the spatial extension it fills. And one cannot see a particular spatial extension without a colour filling it. Both colour and spatial extension are jointly given in one’s perception; neither of them stands out. However, if the joint perception of redness and spatial extension is followed by a joint perception of whiteness and spatial extension, whiteness and redness both will be “shaken into the foreground”; the contrast between them makes both noticeable. Similar examples can be given for other sense modalities. Martineau’s examples makes plausible that when we perceive several objects, A, B and C jointly, A will stand out and be an object of attention if in a further perception we perceive A, B and D jointly where C and D are incompatible. Hence, by varying some co-perceived elements and replacing them with incompatible elements, they become noticeable and one can perceive them in particular. James (1878, 253) calls this the law of dissociation by varying concomitants. It applies to our awareness of our mental life.

In his lectures on descriptive psychology, Brentano works out a version of the variation answer.23 Let’s work through the basic tenets of Brentano’s proposal.

Awareness is a kind of perceiving, and perceiving is for Brentano a kind of acknowledgement. Brentano’s notion of acknowledgement deserves more attention than I can give it here.24 But for our purposes it is sufficient to say that it is a non-propositional attitude: one acknowledges an object if, and only if, one thinks of it in a way that commits one to its existence without predicating the property of existence of it.

Awareness consists in acknowledgement of a whole that is composed of all simultaneous mental acts of a thinker. We acknowledge this whole without acknowledging each part. Consider hearing a chord for illustration. I can hear the notes of the chord together, but none of them “stands out” in my auditory experience. With this in mind we can explain Brentano’s distinction between explicit perception, or noticing, and implicit perception. If one acknowledges the whole \{A, B\}, one thereby perceives A implicitly and B implicitly: one hears them together, without hearing A and hearing B. In Brentano’s own words:

A clarification of this distinction [explicit versus implicit perception] seems to be desirable. Perception is an acknowledgement. And if the accepted thing is a whole with parts, then the parts are all, in a certain manner, co-accepted [mitanerkannt]. The denial of any of them would contradict the whole. Yet the individual part is, for this reason, by no means accepted let alone judged specifically [nicht ausdrücklich] (by itself) and in particular. (1890/1, 34 [36])

However, if one acknowledges the whole \{A, B\} and one acknowledges A and acknowledges B, one notices A and one notices B in \{A, B\} or one apperceives them (and vice versa).25

How do we come to acknowledge A when we acknowledge a whole that contains it as part? Brentano’s answer is similar to James’s.

23. James quotes Spencer’s Principles of Psychology (1855, § 157) and Martineau’s review of Bain (Martineau 1860, 271f) as inspirations for the solution of the discrimination problem. Brentano also read Spencer’s Principles of Psychology. He refers to them, and to Ribot’s (1870) overview that contains a section on Spencer, in Psychologie. I assume that Spencer’s Principles are the common source of James’s and Brentano’s proposals.

24. For further discussion see Textor 2007.

25. See Brentano 1890/1, Appendix VI, 162 [171].
We are in a position to notice elements of a unified whole when there is a partial change in our mental life that creates a contrast. When we perceive first A and B together, then B and C together, where C and A are incompatible, this contrast makes A (C) stand out. A (C) becomes noticeable, and we can come to acknowledge A (C) as well as the whole it is part of.²⁶

Such contrasts may simply come about in our mental life when one unified whole is followed by a different one. The descriptive psychologist whose project is to notice the parts of her mental life needs to intentionally seek out and create such contrasts. Comparing and contrasting is the “most essential vehicle of scientific progress” when it comes to psychology (Brentano 1890/1, 55 [58]). Brentano uses examples to illustrate the procedure of descriptive psychology. Evident judgements, such as the judgement that everything is self-identical or the judgement that I think etc., can be partially characterized by saying that they cannot be false. How does one complete one’s understanding of what an evident judgement is? One needs to consider paradigmatic instances of evident judgements and compare and contrast them with blind judgements, such as the judgement that I was in Rome a while ago. (See Brentano 1890/1, 52 [54].) In this way one comes to know the difference between blind and evident judgements, and thereby one comes to know the distinctive features of evident judgements. He goes on to comment:

The examples which I have given in order to illustrate the method of comparison, the distinctive arrangement of differences, through which the implicitly perceived becomes explicitly noticeable, can of course be multiplied to infinity. (1890/1, 54 [56]. My translation and emphasis.)

The descriptive psychologist uses the method of comparison, that is, she “artificially intentionally compose differences” (ibid.) between mental phenomena. How does the descriptive psychologist do this? A similar

²⁶ See Brentano 1890/1, 55 [57].

question arises for James. For his talk of variation is metaphorical. What does “variation” of elements of consciousness amount to?

Brentano’s examples suggest an answer. When the descriptive psychologist wants to notice her evident judging, she creates differences by either imagining or remembering cases of blind judgement. Brentano’s student Stumpf works out this suggestion by exploring the analogy between anatomy and descriptive psychology. The anatomist can simultaneously see a whole body as well as some of its parts. He notices these parts when he perceives the body. Similarly, the musically trained hearer can hear the orchestra and distinguish the sounds of the instruments. What explains the ability to simultaneously perceive a whole and distinguishing some parts in it?

The anatomist need not see the figures of reality sharper than the layman; the latter may even have better sight. But for the former phantasy immediately subjoins [suppliert] the individual parts, and thereby a difference between the picture and what one thinks-in [hineindenkt] it becomes easily noticeable. (Stumpf 1873, 131. My translation.)

The anatomist can easily episodically remember and/or imagine other bodies that contrast with the body he sees. This allows him to see the body and to notice parts in it that are unusual.²⁷

Stumpf replaces the metaphorical talk of variation of concomitant elements with a description of the abilities — episodic memory and visual or auditory imagination — that are exercised in noticing. The descriptive psychologist intentionally creates differences in order to notice by imagining or episodically recalling contrast cases.

8. Why awareness can’t become observation

We are now in a position to answer our question: Why can’t awareness become inner observation? We can be aware of our mental life without

²⁷ The parts are not created, as Stumpf originally assumed, by comparing and contrasting, but we come to notice parts that are already there. See Stumpf 1907, 18.
noticing its elements. In order to observe something, we need to notice it. In the case of elements of the unity of consciousness, we can notice them only if we seek out contrast cases by episodically remembering or imagining them. These activities are different from our awareness of our current mental life. We need to be aware of our mental life and, in addition, to episodically remember or imagine contrast cases to notice parts, individual activities, in it. Awareness cannot become noticing, since one can’t satisfy the desire to notice the elements of one’s mental life only by continuing to be aware of them under improved conditions. Further activities in addition to awareness are required. For example, while it is intrinsic to simultaneous activities that they are co-conscious, it is not intrinsic to them that they are contrasted in imagination with incompatible activities. The feature that awareness cannot become observation is grounded in the fact that the secondary object of our perceiving is a unified whole comprising all simultaneous perceptual activities.28

Compare outer perceiving. We have already seen that the objects of outer perceptions — for instance, of visual perception — need not form one unified whole. When I see the trio play, I see each musician and can, if I so desire, notice each of them. In order to notice, say, the drummer, I don’t need to seek out contrast cases. Observing him (watching him) is seeing him out of interest to learn about him. The change from seeing to watching concerns the desire that motivates my seeing. When one watches the drummer, one still sees him; seeing and watching are the same perceptual activity.

Watching the drummer does not require seeking out contrast cases. Why? The drummer stands out in our perception even if he

28. There are some non-mental objects that are also only observable by comparing and contrasting them with other objects. Chords or complex tastes provide a model for the unified whole that is given to us in consciousness, because they are complexes of non-spatial parts. The parts of these objects are not differentiated in the phenomenology of our perception of them. We need to recall contrasting notes to distinguish the parts of a chord when we hear it. However, a tone can be perceived in isolation. In contrast, the elements of consciousness are given to us only as parts of unified wholes.

is perceived together with other objects.29 When we see him among other things, we see also how he can be seen better. (See Kelly 2010, 150.) For example, when I see, say, the front of an object, the way it looks to me is a presentation of the front as well as a perceptual proxy of further unseen parts of the object. (See Husserl 1904, 36–7.) If I see the house in seeing its forefront, I am aware that further views of it are available. I feel that my actual seeing is inadequate and that my view of the house can be improved. The appearance of the visible part of the house suggests to us how the hidden parts may look and how we can come to perceive them: we have expectations of how the object will look to us if we change our position with respect to it. However, such an “expectation” is not a belief that an event will occur. Husserl (1904, 109) talks about emotional expectation (Gemütserwartung). Sometimes you feel that something is about to happen. Hence, in seeing an object, we know how to improve our view on it. Similar things hold for listening, touching etc.

When we turn our attention to an object of outer perception, we desire to perceive it better. Our perception of the object gives us clues as to how this desire can be satisfied. If one perceives the object out of this desire — that is, if one observes the object — one still perceives it; the kind of activity does not change. What changes is one’s motive for persisting with the activity and the conditions under which it persists.

To sum up: Objects of outer perception can, while elements of consciousness can’t, be noticed without seeking out contrast cases. Hence, awareness cannot become observation. Observing one’s mental life always requires activities that are different from awareness. Awareness is intrinsic to perceiving, but this intrinsic awareness is

29. Kelly (2010, 153 and 149) argues that perceiving an object involves “being driven to get a better grip on it”. However, one can perceive an object without being driven to perceive it better. Consider an example: I see the group of people standing around the Mona Lisa as well as the painting. When I turn my attention to the Mona Lisa, I am motivated to bring about that (some of) my perceptual anticipations of the painting are fulfilled. Yet I still see the people, and I am aware that further perceptions of them are available to me, but I am not motivated to bring these about. The people are therefore part of the background of my perception; the painting is in the foreground.
an awareness of a whole comprising all simultaneous perceptions. It takes effort and further activities to observe one of these perceptions in particular. Awareness alone is insufficient.

Brentano’s observation about the secondary object also explains why the secondary object, one’s total perceptual activity, goes unnoticed when one perceives something. If we go back to the list of objects in James’s example (sect. 7), we see that it contains physical objects like sounds and mental phenomena like interests. We don’t perceive a sound and a colour together and are conscious of hearing and seeing. We are jointly aware of a sound, a colour, our hearing and our seeing. In Brentano’s words: “In one and the same mental phenomenon in which the tone is presented we apprehend the mental phenomenon [...]” (Brentano 1874, 179 [98]). This is why Brentano speaks of “the peculiar fusion of the accompanying presentation with its object” (Brentano 1874, 183 [100]). He formulates the same point also in mereological terms:

[O]riginally the totality of our consciousness may have been a confused unity in which no single part is distinguished from another one and not even the physical and the mental that appears to us was distinguished. Later this is never completely the case; but depending on where attention is turned in particular, large areas of consciousness from which it turns away remain without any particular presentation of individual parts contained in consciousness. (Brentano 1906a, 334. My translation.)

The physical objects that are parts of the totality of which we are aware can be noticed if we are interested in perceiving them, because they appear to us spatially located. In contrast, the mental activities that are parts of this totality don’t stand out, because they lack this feature. They are fused with all other objects we are jointly aware of, and we cannot notice them, even if we so desire, simply by being aware of them. Hence, when we perceive, we are co-aware of our perceiving and its objects but in a position to notice only the latter. From Brentano’s perspective the objection that there is perceiving without awareness of perceiving is based on a faulty assumption about the object of our awareness. We are aware of one unified whole that contains all simultaneous mental acts, but not all parts of the whole are differentiated in our awareness. Those that are fused with others, among them our current mental activities, are not noticed and become noticeable only when contrast cases are created.

Brentano has, then, a good reason to say that awareness cannot become observation. His reason is compatible with the view that the descriptive psychologist can develop an anatomy of the soul. In fact, considerations about the method of descriptive psychology help to show why awareness cannot be observation. Observation of one’s mental life requires the exercise of memory and imagination in seeking out contrast cases. One can observe one’s mental life, but one’s observing is based on, but does not consist in, awareness.

9. Observation and time-consciousness

The result of the previous section is that observing one’s current mental life cannot only consist in awareness. In later work Brentano goes one step further: observing one’s mental life does not even involve awareness, although it presupposes it.

Brentano’s argument is based on his view of time-consciousness. This view raises several questions, but for our purposes an outline will suffice. Consider the example of hearing a melody. When I hear a melody, I hear a succession of tones: F is played first, then D, then G.... Hearing such a succession as a succession requires that I continue to be auditorily aware of F although F is no longer played when I hear D. For Brentano, every mental act has itself as a secondary object. Hence, the question arises: Does one also retain one’s awareness of hearing F (the secondary object of one’s hearing F) at the time when one hears D? No, answers Brentano:

In the studies I made about time I thought I discovered that only the primary object appears to us in a certain temporal extension, not the secondary one, that it would lead to a monstrous assumption of a continuum of infinitely many dimensions if we also thought of the mental as extended. If I hear a melody, a succession of tones appears to me, not a succession of hearings. [...] This gives the study of the act with respect to the primary object special preference. (Brentano 1906b, 378–9. My emphasis and translation.)

When you hear $D$, you also retain the previously heard note $F$ in your perceptual awareness. Let us now assume for reduction that you also retain awareness of hearing $F$. According to the assumption under consideration, you are aware of hearing $D$ and having heard $F$. Brentano comments:

In such an inner protoraesthesia an earlier perceiving would have to appear to us as earlier, but as directed to something as if it were present. (Brentano 1914, 106 [64])

If this was right, the retained note $F$ would seem to be in the past, but you were also aware of $F$ as an object of a previous hearing, and thereby you were aware of it as if it were present. Brentano takes this to be an unpalatable consequence and restricts the secondary awareness to the present. In hearing a melody over time, we are at each time aware only of our present hearing and our present awareness.

The punctiform character of awareness gives Brentano a reason to strengthen the $A \neq O$ Thesis.\textsuperscript{31} For beings like us, observing takes time: it is a process. You cannot, for example, observe a punctiform stroke of lightning; you can only perceive it. Similarly, one can maintain contact with the tone in one extended hearing, but one can’t maintain contact with one’s hearing of it in one extended episode of awareness, because our awareness has no temporal extension. Even if we desire to learn more about our hearing of the tone, we cannot do so by maintaining awareness of it: we cannot observe it. We have to remember hearing the tone. In these memories, hearing is no longer the secondary but the primary object. Whenever we observe a mental phenomenon, only memory and imagination can be involved:

We really can accomplish to turn our attention to a past mental phenomenon just as we can turn to a present physical phenomenon, and in this way we can, so to speak, observe it. (1874, 49 [26]. In part my translation.)

Now this argument rests on the controversial view that one can be aware only of present mental acts. I will not try to argue for (or against) this view. For even if we can be aware of our perceiving etc. over time, we can come to learn more about it only by seeking out contrasts in imagination and memory, and hence, while awareness may be involved in observing mental acts, it cannot constitute this observation.

10. Conclusion

Brentano provided independent reasons for the conclusion that awareness cannot become observation. This justifies privileging the outer object of a perception as its primary object: it is the object that can be observed in one’s perceiving. It seems to us that we are aware only of the outer object and not of the perceiving itself because perception cannot be or become observation of itself. At the same time Brentano’s account of noticing and observation has room for an ‘anatomy of the soul’ that proceeds by noticing the elements of our mental life.\textsuperscript{32}

31. See also Kraus 1919, 38.

32. This paper is a descendant of my Inaugural Lecture in King’s College in April 2013. I presented material related to this paper at seminars at the Georg-August-Universität Göttingen and the Universidad Alberto Hurtado in Santiago, Chile, and in talks at the Centre for the Study of Mind in Nature and the workshop ‘Beyond Brentano’ in Salzburg in 2014. I am grateful for feedback from Nick Allott, Christian Beyer, Johannes Brandl, Leandro De Brasi, Dagfinn Follesdal, Guillaume Fréchette, Chris Gauker, Bob Hale, Jessica Leech,
References


Uriah Kriegel, Tom McClelland, Eliot Michaelson, Anders Nes, Francisco Pereira, Dolf Rami, Roberto Rubio, Charles Siewert, Nick Shea and Will Small. Special thanks to the referees for comments that helped me greatly to come to grips with the problem.


