'The bang was not as loud as I had expected'*

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Abstract

In §442 of *Philosophical Investigations* Wittgenstein criticizes the application of Russell's theory of descriptions to the sentence in the title without mentioning Russell or his theory. Wittgenstein is making a general point of wider interest. I have two aims. The first is to situate Wittgenstein's critique within the larger theoretical setting of Russell's theory of descriptions and Frege's theory of indirect reference in light of the familiar problem of quantifying into attitude contexts. The second is to draw broader methodological implications from the foregoing for how best to think of the role of individual semantic paraphrases within the formal semantic study of natural language.

1 Introduction: Russell on scope ambiguity

It is widely known that a major theme in Wittgenstein's *Philosophical Investigations* is a certain programmatic call for philosophy's reorientation from "explanation" to "description alone".[1] It is also generally appreciated that much of that work unfolds in reaction to doctrines propounded by Frege, Russell, and notably Wittgenstein himself in an earlier phase of his thought. But given the vast programmatic ambition of the work, it is in fact easy to overlook the details of Wittgenstein's many critical discussions of extant doctrines, particularly those of his contemporaries and immediate predecessors within the then emerging enterprise of formal semantics. Attending to those details is worthwhile in its own right, but can also provide a fresh outlook on the explanatory aims of semantics in relation to the phenomenology of meaning in natural language, a topic of significant current interest. As we will see, the prevailing attitude towards formal semantic analyses that forms the backdrop

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[1]See Wittgenstein (2009: §109). The theme is explored extensively throughout §§92-137.

to Wittgenstein's critique is the thought that such an analysis should be synonymous with the analysandum. This is clearly assumed by the founders of the analytic tradition in philosophy. The assumption is clearly not compulsory.

In Russell (1905) we encounter the following famous passage:

> I have heard of a touchy owner of a yacht to whom a guest, on first seeing it, remarked, "I thought your yacht was larger than it is"; and the owner replied, "No, my yacht is not larger than it is". What the guest meant was, "The size that I thought your yacht was is greater than the size your yacht is"; the meaning attributed to him is, "I thought the size of your yacht was greater than the size of your yacht". (489)

Russell is concerned to illustrate the power of his theory of descriptions here, particularly the theory's capacity to deal with scope distinctions. The theory accommodates ambiguities in such sentences as

(1) I thought your yacht was larger than it is.

Ignoring for now the analysis of the denoting phrase 'your yacht', and treating 'size of' as a functor $S(x)$, we have the intended reading

(2) $[\text{the } x : x = S(\text{your yacht})](\text{I THOUGHT: } [\text{the } z : z = S(\text{your yacht})](z > x))$

(i.e. 'The size of your yacht is such that I thought your yacht's size is greater than that'), as opposed to the unintended one

(3) $\text{I THOUGHT: } [\text{the } x : x = S(\text{your yacht})](x > x)$

(i.e. 'I thought the size of your yacht is greater than itself'). These, in turn, receive the following respective analyses:

(4) $\exists x(\forall y(y = S(\text{your yacht}) \leftrightarrow y = x) \wedge$
$\text{I THOUGHT: } \exists z(\forall y(y = S(\text{your yacht}) \leftrightarrow y = z) \wedge z > x))$

(5) $\text{I THOUGHT: } \exists x(\forall y(y = S(\text{your yacht}) \leftrightarrow y = x) \wedge x > x).$

It has been claimed that this construal of the ambiguity is inapt on the grounds that (2) and (4) suggest that the guest had some definite size z in mind for the yacht.[2] This might not be what we mean when we say of something that we thought it was larger than it is. We might just mean that the size of the thing is smaller than *whatever* we took its size to be. With this in mind, perhaps a better approximation of the Russellian contrast between the intended and the unintended readings of (1) is

[2] See Kripke (2005: 1022-1023).

(6) [the $x : x = S(\text{your yacht})$](I THOUGHT: $S(\text{your yacht}) > x$)

(3) I THOUGHT: [the $x : x = S(\text{your yacht})$]$(x > x)$,

which would be analyzed, in turn, as

(7) $\exists x(\forall y(y = S(\text{your yacht}) \leftrightarrow y = x) \wedge$ I THOUGHT: $S(\text{your yacht}) > x)$

(5) I THOUGHT: $\exists x(\forall y(y = S(\text{your yacht}) \leftrightarrow y = x) \wedge x > x)$.

In (6) and (7) there is no implication that somehow there is an exact measure of the yacht's size in the guest's thought. Of course there is still the occurrence of 'S(your yacht)' inside the attitude context, but this need not be seen as incurring a commitment to an ascribed definite value for 'S(your yacht)'. Along similar lines I can also say 'Paul thought $\sqrt{2}89$ is the most arbitrary number' without committing Paul to the thought that 17 is the most arbitrary number.[3] In fact, this point regarding the occurrence of the functor '$S(x)$' in (6) and (7) applies equally to occurrences of descriptions in attitude contexts. With the right contextual setup I can truly say 'I thought the third planet from the sun was larger than the fourth' without ascribing to myself the thought that Earth was larger than Mars. If this is correct, the detour through (6) and (7) in order to avoid ascribing to the guest having some definite size z in mind for the yacht is not really necessary. (2) and (4) can be apt even if the guest couldn't specify the size he thought the yacht was.

Be that as it may, we can provide a Russellian treatment of the ambiguity without changing the apparent subject matter from the yacht to its size. We need a dyadic predicate 'greater in size than' (or '$>^S$'):

(8) [the $x : x =$ your yacht](I THOUGHT: your yacht $>^S x$)

(9) I THOUGHT: [the $x : x =$ your yacht]$(x >^S x)$.

These would be rendered, in turn, as

(10) $\exists x(\forall y(y =$ your yacht $\leftrightarrow y = x) \wedge$ I THOUGHT: your yacht $>^S x)$

(11) I THOUGHT: $\exists x(\forall y(y =$ your yacht $\leftrightarrow y = x) \wedge x >^S x)$.

We could also analyze 'your yacht' as 'the x: x is a salient yacht belonging to TYO', where 'TYO' names the touchy yacht owner, in which case the condition of being identical with the yacht would be replaced by being a salient yacht belonging to TYO. We would then get the following two readings:

(12) [the $x : x$ is a salient yacht belonging to TYO](I THOUGHT:
[the $z : z$ is a salient yacht belonging to TYO]$(z >^S x)$)

[3] We may assume that '$\sqrt{}$' is a functor while '$\pm\sqrt{}$' isn't.

(13) I THOUGHT: [the $x : x$ is a salient yacht belonging to TYO]$(x >^S x)$.

And these would be rendered, in turn, as the intended

(14) $\exists x(\forall y(y$ is a salient yacht belonging to TYO $\leftrightarrow y = x) \wedge$ I THOUGHT: $\exists z(\forall y(y$ is a salient yacht belonging to TYO $\leftrightarrow y = z) \wedge z >^S x))$

and the unintended

(15) I THOUGHT: $\exists x(\forall y(y$ is a salient yacht belonging to TYO $\leftrightarrow y = x) \wedge x >^S x)$.

2 Quantifying in and quantifying within

In Wittgenstein (2009: §442) we read:

> I see someone aiming a gun and say "I expect a bang". The shot is fired. – What? – was that what you expected? So did that bang somehow already exist in your expectation? Or is it just that your expectation agrees in some other respect with what occurred; that that noise was not contained in your expectation, and merely supervened as an accidental property when the expectation was being fulfilled? – But no, if the noise had not occurred, my expectation would not have been fulfilled; the noise fulfilled it; it was not an accompaniment of the fulfilment like a second guest accompanying the one I expected. Was the feature of the event that was not also in the expectation something accidental, an extra provided by fate? – But then, what was *not* an extra? Did something of the shot already occur in my expectation? – Then what *was* extra? for wasn't I expecting the whole shot.
>
> "The bang was not as loud as I had expected." – "Then was there a louder bang in your expectation?"

The context of the discussion is future oriented mental states, specifically expectations. Along the way Wittgenstein is responding to familiar doctrines due to Russell and Frege. So far we've only considered the Russellian background, the theory of descriptions. The Fregean background is Frege's theory of indirect reference. We will see that Wittgenstein is pinpointing an important interpretive issue with the application of the theory of descriptions to attitude reports, a difficulty that arises when we attempt to utilize some variant of Frege's theory of indirect reference as well.

Consider the locution at the end of §442, 'The bang was not as loud as I had expected'. This is the intended disambiguation of another case along Russellian lines:

(16) I expected the bang to be louder than it was.

Letting '$>^L$' stand for the dyadic 'louder than', Russell's theory delivers the following ambiguity for (16):

(17) [the $x : x$ is a salient bang](I EXPECTED: [the $z : z$ is a salient bang] $(z >^L x)$)

(18) I EXPECTED: [the $x : x$ is a salient bang]$(x >^L x)$.

These, in turn, would receive the following Russellian analyses:

(19) $\exists x(\forall y(y$ is a salient bang $\leftrightarrow y = x) \wedge$
I EXPECTED: $\exists z(\forall y(y$ is a salient bang $\leftrightarrow y = z) \wedge z >^L x))$

(20) I EXPECTED: $\exists x(\forall y(y$ is a salient bang $\leftrightarrow y = x) \wedge x >^L x)$.

It is then (17) and (19) that capture 'The bang was not as loud as I had expected' according to the Russellian analysis. What is the significance of Wittgenstein's response "Then was there a louder bang in your expectation?"? To appreciate this requires a short detour through further mid-20$^{\text{th}}$ century theoretical developments in the semantics of attitude reports. (19) includes a description taking wide scope over the attitude verb, with a variable in the scope of that verb bound from outside the attitude context. This gives rise to an interpretive issue much discussed in the literature following Quine (1956) concerning the very idea of quantification into attitude contexts.

Quine tells us that it makes sense to quantify into the position of 'Cicero' in

(21) Cicero denounced Catiline

to yield

(22) $\exists x(x$ denounced Catiline)

insofar as that position is open to substitution *salva veritate*. And indeed it follows from (21) and

(23) Cicero is Tully

that

(24) Tully denounced Catiline.

By parity, if it makes sense to quantify into the position of 'Cicero' in the belief report

(25) Tom believes Cicero denounced Catiline

to yield

(26) $\exists x$(Tom believes x denounced Catiline),

then the latter position must also be open to substitution *salva veritate*. But it is not. Despite the truth of (23), (25) can be true without it being true that

(27) Tom believes Tully denounced Catiline.[4]

It thus seems illegitimate to generalize from (25) to (26). If it were, such legitimacy would be attested by *salva veritate* substitutivity. An extensive literature arose in response to this issue, the issue now known as *quantifying in*.

An influential treatment of quantifying in is due to Kaplan (1969), who recasts the logical form of so-called *de re* belief reports to include meta-representational quantification. On this account, the analysis of

(28) Someone is such that Tom believes that person to have denounced Catiline

includes meta-representational quantification marked by the variable 'α', a special autonymous quotation device marked by 'F' and '$\digamma$' (after Frege) that creates an environment in which expressions stand for themselves, a dyadic attitude verb '**B**' standing for the relation between a believer and a sentence expressing what the believer believes, and a triadic predicate '**R**' standing for the relation of *de re* representation among a singular term, a *res*, and a believer.[5] Kaplan's analysis of (28) is

(29) $\exists x \exists \alpha(\mathbf{R}(\alpha, x,$ Tom$) \wedge$ Tom $\mathbf{B}$ $^{\mathrm{F}}\alpha$ denounced Catiline$^{\digamma}$).

We will return to this analysis in the next section.

In (1905) Russell doesn't discuss the problem of quantifying in. He focuses instead on a superficially similar problem that arises from treating the denoting phrase 'the author of Waverley' as a singular term. Russell's claim is that from the intended reading of

(30) George IV wondered whether Scott is the author of Waverley

and

(31) Scott is the author Waverley

[4]Or so it is often claimed. Much ink has been spilled over whether the truth of (23) $\wedge$ (25) is compatible with the falsity of (27). The ultimate merit of the claim lies outside my present concern.

[5]I make the simplifying assumption, here and elsewhere, that ordinary objectual quantification is already properly restricted, in this case to persons. The three conditions for the obtaining of the *de re* representation relation – "denotation", "*of*ness", and "vividness" – need not concern us. I also assume that Tom's belief isn't *de re* with respect to Catiline.

it doesn't follow that

(32) George IV wondered whether Scott is Scott.

This is due to the fact that the denoting phrase 'the author of Waverley' is not a singular term. The intended reading of (30) has the description taking narrow scope under the attitude verb. What George IV wanted to know is not to be construed with an identity complement clause at all but with an existentially quantified one. To suppose otherwise, according to Russell, is to mistake the denoting phrase for a singular term. The literature following Quine (1956), on the other hand, addresses the problem of substitutivity into attitude contexts even when only genuine singular terms are at issue.

Now, quantifying in is a separate matter from an issue that arises when quantifiers take narrow scope under attitude verbs, what we might call *quantifying within*. Consider

(33) Tom believes someone denounced Catiline

as regimented by

(34) Tom believes $\exists x(x$ denounced Catiline).

How are we to interpret 'someone' in (33), or the quantification in (34)? The principal source of inspiration for work on quantifying within is Frege's (1948) theory of indirect reference. On this view, the verb 'believes' stands for a dyadic function – a relational Fregean concept – that takes pairs of objects to truth just in case the first object is a believer and the second object is the sense (or *Sinn*) of the clausal complement taken on its own, which is a Fregean thought (or *Gendanke*). In the Fregean analysis of (33), 'someone' stands for a certain sense that composes the whole Fregean thought expressed by

(35) Someone denounced Catiline.

In (35) 'someone' stands for a certain second-level Fregean concept – a function from first-level Fregean concepts (which are themselves functions from objects to truth-values) to truth-values – and expresses whatever 'someone' in (33) stands for. Expressions in the scope of attitude verbs undergo a reference shift from their ordinary reference to their "indirect" reference, which is their ordinary sense.[6] For example, in (35) 'Catiline' stands for a certain object, a man. But in (33) 'Catiline' stands for a different object, the sense expressed by 'Catiline' in (35), which is a mode of presentation of the man.

[6]The doctrine has spawned an enormous secondary literature. For a recent discussion, see my (2018).

We are now *finally* in a position to appreciate Wittgenstein's critique in §442. We note that (4), (14), and (19) are all combined cases of quantifying in and quantifying within. This raises a pressing interpretive issue. Consider, for example, the embedded clause '$z >^L x$' in

(19) $\exists x(\forall y(y \text{ is a salient bang} \leftrightarrow y = x) \wedge$
I EXPECTED: $\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L x))$.

That clause is within the attitude context 'I EXPECTED'. The variable on the left is bound by a quantifier within that context, but the variable on the right is bound by a quantifier outside that context. What are we to make of this for the interpretation of '$>^L$'? Suppose we name the bang that actually occurred 'b'. Then (19) is entailed by

(36) $\forall y(y \text{ is a salient bang} \leftrightarrow y = b) \wedge$
I EXPECTED: $\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L b)$.

Setting aside the first conjunct, we have an expected comparison as to loudness between the actual bang b and an expected unique instance of a salient bang, a "bang in your expectation". But how can such a comparison reach out to both an actual bang and a bang in your expectation? Assume along Fregean lines that the comparison as to loudness is in your expectation in the sense that it is the mode of representation of the relation $>^L$ that composes the content of that expectation, the Fregean thought. It is then unclear how the expected comparison can be applied to b at all, given that b is an actual event and not a mode of presentation of one. (Hence Wittgenstein's query "So did that bang somehow already exist in your expectation?") On the other hand, assume along Russellian lines that the comparison as to loudness is the relation $>^L$ itself. It is then unclear how such predication with respect to the audibility of events can be applied to the bang in your expectation, given that whatever is contained in your expectation isn't a suitable candidate for audibility at all. (Hence Wittgenstein's query "Or is it just that your expectation agrees in some other respect with what occurred; that that noise was not contained in your expectation, and merely supervened as an accidental property when the expectation was being fulfilled?"[7])

So '$>^L$' in (36) and (19) can't stand for the relation $>^L$ as per Russell. Nor can it stand for a mode of presentation of $>^L$ as per Frege. *This* is the problem Wittgenstein is pointing to in §442.

[7]The verb 'supervene' here should not be taken to mean what it does in contemporary philosophical parlance. The German original is a form of the verb 'hinzukommen', which in context could be translated as 'added'.

3 Some Kaplanian responses

The difficulty can be handled in a contemporary setting but at an apparent cost. Consider again Kaplan's (1969) theory of quantifying in. On this view the correct rendering of the second conjunct of (36), assuming Russell's theory of descriptions, would be

(37) $\exists\alpha(\mathbf{R}(\alpha, b, \mathrm{I}) \wedge$
I EXPECTED: ${}^{\mathrm{F}}\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^{L} \alpha)^{\mathrm{F}}$).

Recall that in the Kaplanian analysis 'F' and 'Ⅎ' are atonymous quotation marks indicating an environment in which expressions stand for themselves. In (37) the occurrence of '$>^{L}$' is only within the F-quotation context, which means that the predicate stands for itself and contributes neither the louder-than relation $>^{L}$ (á la Russell) nor a mode of representation of that relation (á la Frege) to the truth condition of the whole. Instead, it simply contributes itself. The apparent cost is that while in the original report 'The bang was not as loud as I had expected' my expectation seems to involve a comparison between b – an actual event – and something expectation-internal, in (37) the actual event b falls outside the expectation altogether. The complement of an attitude verb on this view stands for a sentence, which is meant to capture the idea that the object of the attitude is the content of the complement clause. If what we want from our semantic analysis is a close approximation of the pre-theoretical significance of the original report, which includes a comparison of something expectation-external and something expectation-internal, then (37) is not what we want. What we seem to need is the Russellian idea that b can somehow occur within the expectation in *propria persona*. Kaplan's (1969) analysis doesn't deliver that.

Let us turn, then, to Kaplan's (1986) later and more Russellian theory of quantifying in. This later theory draws heavily on simultaneity of use and mention as exhibited by Quine's famous example

(38) Giorgione was so-called because of his size,

which is standardly understood to mean that

(39) Giorgione was called 'Giorgione' because of his size.

Kaplan extends the basic idea of such simultaneity of use and mention to occurrences of free variables in open formulas. This involves introducing a new quotation device – "arc-quotation" – and providing a coherent interpretation for it. A sentence (i.e. a closed formula) enclosed in arc-quotes

$\frown F(a) \frown$

is defined as the ordinary quotation of the sentence '$F(a)$'. But an arc-quoted open formula

$$\frown F(x) \smile$$

is defined as '$F(x)$' with respect to x as value of 'x'. Employing this device, the analysis of 'The bang was not as loud as I had expected', assuming Russell's theory of descriptions, would be

(40) $\exists x(\forall y(y \text{ is a salient bang} \leftrightarrow y = x) \wedge$
I EXPECTED: $\frown \exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L x) \smile$).

On this semantic proposal the complements of attitude verbs stand for what Kaplan calls *$entences*, which consist of sentences (when the attitudes reported are *de dicto*) and *valuated formulas* (when the attitudes reported are *de re*). The latter are the linguistic analogs of Russellian singular propositions: partly linguistic and partly non-linguistic entities.[8] The complement of 'I EXPECTED' in (40) stands for the valuated formula '$\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L x)$' with b as value of 'x'. But in the entailing

(41) $\forall y(y \text{ is a salient bang} \leftrightarrow y = b) \wedge$
I EXPECTED: $\frown \exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L b) \smile$

the complement of the verb stands for the sentence '$\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^L b)$'. In neither case does '$>^L$' stand for the louder-than relation. But here we have the oddity that while in (40) the attitudinal relation of expectation to the actual bang b is represented by the role b plays in the valuated formula interpreting the complement clause, in (41) b plays no such role: the entire arc-quotation stands for the arc-quoted sentence. Consider an obvious candidate analysandum for (41):

(42) Salient bang b and no other was not as loud as I had expected.

(41) would seem ill-suited as an analysis of (42) insofar as in (41) the event b itself drops outside the expectation altogether. The complement of the attitude verb stands for a sentence. The difficulty here exactly mirrors the problem with the earlier Kaplanian analysis (37).

4 Conclusion: formal semantics and natural language

Let us step back from these details and reflect on what semantic analyses are supposed to do for us in the first place. Under the most common conception of formal

[8] For simplicity we can ignore *de re* attitudes towards linguistic items.

semantic modeling of meaning in natural language, semantic analyses are charged with delivering truth conditions. In this way, the analyses are meant to model what the locutions mean. What the locutions mean is a pre-theoretical matter, something the analyses are meant to capture to a certain degree. But not every aspect of a formal semantic analysis should be taken to play a representational role; not every cog in the formal semantic machinery needs to stand for something pre-theoretical. Some such aspects are merely "artifacts of the model", to use Kaplan's suggestive phrase.[9] Seen this way, assessing the achievement of the various semantic analyses considered here is more nuanced. Successful modeling of meaning – or of anything else, for that matter – is a multivalent affair.

Consider an analysis of 'The bang was not as loud as I had expected' along the lines of Kaplan's (1969) theory:

(43) $\exists x(\forall y(y \text{ is a salient bang} \leftrightarrow y = x) \wedge \exists \alpha(\mathbf{R}(\alpha, x, \text{I}) \wedge$
I EXPECTED: ${}^{\text{F}}\exists z(\forall y(y \text{ is a salient bang} \leftrightarrow y = z) \wedge z >^{L} \alpha)^{\text{T}}))$.

To complain that (43) doesn't capture the meaning of the original because, pre-theoretically, the original involves a comparison between something expectation-external and something expectation-internal, whereas '$>^{L}$' in (43) doesn't, is to mislocate the theoretical import of the analysis. The likes of (43) should be viewed more holistically. Not every working part of a semantic analysis need stand for something pre-theoretical in the meaning of the original, as we might expect if the analysis were meant to be synonymous with the analysandum. Specifically, '$>^{L}$' doesn't contribute to (43) a comparison between an expectation-external event and something expectation-internal (a "bang in your expectation"). On the other hand, 'not' in the original locution 'The bang was not as loud as I had expected' isn't captured by any occurrence of a negation in (43) either, as we might also expect if (43) were synonymous with the analysandum. Rather, the analysis is supposed to deliver the meaning of the original by way of generating the right truth conditions for it. Synonymy is no part of the theoretical achievement here.

The pioneers of the analytic tradition in philosophy did not see things this way.

[9] Kaplan (1975) writes:

> When we construct a model of something, we must distinguish those features of the model which represent features of that which we model, from those features which are intrinsic to the model and play no representational role. The latter are artifacts of the model. For example, if we use string to make a model of a polygon, the shape of the model represents a feature of the polygon, and the size of the model may or may not represent a feature of the polygon, but the thickness and three-dimensionality of the string is certainly an artifact of the model. (722)

Frege and Russell thought of their paraphrases as revealing the underlying meaning of the locutions those paraphrases are meant to model even when the latter departed considerably from everyday usage. Those analyses were clearly meant to be synonymous with their analysanda. This is how Frege (1953) can say that even though "at first sight... 'All whales are mammals' seems to be not about concepts but about animals" (§47), it nevertheless *is* about concepts and *not* about animals. And this is how Russell (1905) can positively identify what the guest meant in saying what he said to the touchy yacht owner, while casually swapping the apparent subject matter of (1) – the yacht itself – for its size. Such attitudes towards semantic analyses smack of revisionism, of changing the subject, and much of the later Wittgenstein's efforts are directed against them. His critique in §442 and elsewhere throughout the *Philosophical Investigations* assumes such attitudes towards semantic analyses as a given. The proposed analyses are meant to reveal what the original locutions really mean by providing synonyms for them that are semantically more perspicuous. But in point of fact we need not regard formal semantic analyses in this way.

In considering the theoretical role semantic analyses play in the formal modeling of meaning, it behooves us to avoid Frege and Russell's original attitudes. It is open to us to consider formal semantic analyses in terms of how well they fare relative to a variety of theoretical desiderata, chief among them perhaps the generation of the right truth conditions, but coherence with syntax and overall simplicity are crucially important as well. Generating the right truth conditions is only the beginning. Preferring certain semantic analyses over alternatives that are perhaps equally successful in delivering the right truth conditions but do not cohere as well with neighboring analyses is the stuff of which formal semantic inquiry is made. We should relax the additional requirement imposed by early analytic philosophy that semantic analyses be synonymous with their analysanda. The prospects for such a requirement are as dim now as they were in the early days of semantic theorizing. This is how nowadays a formal semantic analysis can represent 'The bang was not as loud as I had expected' as saying that the maximal degree of a set of degrees for loudness I expected the bang to have is greater than the maximal degree of a set of degrees the loudness of the bang exceeded.[10] To suppose that the original sentence is synonymous with an analysis that includes sets of degrees and maximality is gratuitous and isn't required for such an analysis to achieve its theoretical purpose.

Wittgenstein's admonition in §442 of semantic analyses informed by the theories of Russell and Frege can be taken in various ways. A familiar way is to regard the lesson of this type of critique as damning for the project of formal semantics as a whole. The idea is that natural language does not admit of a formal semantic analysis

[10]See von Stechow (1984) for a survey of some of the theoretical options here.

because any such analysis is inherently distortive of the phenomenology of meaning.[11] This is perhaps the most familiar reception of later Wittgensteinian ideas. But there is another and to my mind more satisfying way to think of the lesson of this type of critique: *Pace* Russell and Frege, semantic analyses, including that of 'The bang was not as loud as I had expected', should never have been expected to be synonymous with their analysanda to begin with. An individual semantic analysis stands for the meaning it represents within a broader theoretical setting. The achievement of formal semantic analyses ultimately rests on the capacity of the broader theory to meet various desiderata that include overall systematicity and the meshing with neighboring areas of inquiry in fruitful ways. Revealing the very meaning of the analysanda individually, as it were, one analysis at a time, should never have been considered one of those desiderata.

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[11] In such spirit Strawson (1950), for example, concludes his famous critique of Russell's theory of descriptions by saying: "Neither Aristotelian nor Russellian rules give the exact logic of any expression of ordinary language; for ordinary language has no exact logic" (344).

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