



universität  
wien

# DISSERTATION / DOCTORAL THESIS

Titel der Dissertation /Title of the Doctoral Thesis

„Aboutness in Logic and Language“

verfasst von / submitted by

Mag. C. Naomi Osorio-Kupferblum B.A.(hons)

angestrebter akademischer Grad / in partial fulfilment of the requirements for the degree  
of

Doktorin der Philosophie (Dr. phil.)

Wien, 2017 / Vienna 2017

Studienkennzahl lt. Studienblatt /  
degree programme code as it appears on the student  
record sheet:

A 092 296

Dissertationsgebiet lt. Studienblatt /  
field of study as it appears on the student record sheet:

Philosophie

Betreut von / Supervisor:

Assoz.Prof.MMag.DDr. Esther Ramharter, Privadoz

## Content

|   |    |
|---|----|
| Preface.....  | 5  |
| 1. Introduction .....   | 8  |
| 1.1 What is aboutness in logic and language?.....                     | 8  |
| 1.1.1 The idea .....  | 8  |
| 1.1.2 The significance of the question.....                           | 9  |
| 1.1.3 Terminology: aboutness, form / object, text, sentence.....      | 10 |
| 1.1.4 Reining in aboutness for this debate.....                       | 11 |
| 1.1.5 The metaphysics of “aboutness” .....                            | 11 |
| 1.1.6 The relata.....   | 12 |
| 1.1.7 The relation .....  | 12 |
| 1.1.8 What the following is not about .....                           | 13 |
| 1.2 For what do we need aboutness?.....                               | 14 |
| 1.2.1 Other disciplines.....  | 14 |
| 1.2.2 Philosophy .....  | 16 |
| 1.3 The structure of this thesis .....                                | 18 |
| 2. Problems and desiderata of a formalisation of aboutness .....      | 20 |
| 2.1 The problem of occurrence.....                                    | 20 |
| 2.2 The problem of interest .....                                     | 21 |
| 2.2.1 Theme / rheme.....  | 21 |
| 2.2.2 Semantic prominence .....                                       | 23 |
| 2.3 The problem of degree .....                                       | 24 |
| 2.4 The non-problem of non-existence.....                             | 25 |
| 3. Goodman’s solution to the problem of occurrence and of degree..... | 28 |
| 3.1 A prominent instance of the problem of occurrence .....           | 28 |
| 3.2 Goodman’s solution .....  | 29 |
| 3.2.1 The extent of the problem .....                                 | 29 |
| 3.2.2 The criterion: selectivity and differential consequence.....    | 30 |
| 3.3 Goodman’s solution to the problem of degree .....                 | 32 |
| 3.3.1 Absolute aboutness.....   | 32 |
| 3.3.2 Immediate aboutness .....                                       | 33 |
| 3.3.3 Relative aboutness.....   | 33 |
| 3.4 The pros and cons of Goodman’s account .....                      | 35 |
| 3.4.1 Logical pluralism.....  | 35 |
| 3.4.2 Selectivity.....  | 35 |
| 3.4.3 Relative aboutness.....   | 35 |

|   |    |
|---|----|
| 3.4.3 Ontology .....                                      | 36 |
| 3.4.4 Propositionality .....                              | 37 |
| 3.5 Goodman's influence .....                             | 38 |
| 4. Lewis's mereological <i>tour de force</i> .....        | 40 |
| 4.1 What drove Lewis .....                                | 40 |
| 4.1.1 Observation sentences .....                         | 40 |
| 4.1.2 Relevant logics .....                               | 41 |
| 4.2 Lewis's apparatus .....                               | 42 |
| 4.3 Aboutness, entire .....                               | 43 |
| 4.4 Subject matters and relevance .....                   | 45 |
| 4.5 Aboutness, partial .....                              | 46 |
| 4.5.1 Syntactical form .....                              | 47 |
| 4.5.2 Content .....                                       | 47 |
| 4.5.3 Subject matter .....                                | 48 |
| 4.5.4 Supervenience on truth value .....                  | 49 |
| 4.6 Difficulties afflicting Lewis's account .....         | 50 |
| 4.6.1 Question-begging set-ups .....                      | 50 |
| 4.6.2 Zigzagging .....                                    | 52 |
| 4.6.3 Hierarchies .....                                   | 53 |
| 4.8 A stepping stone .....                                | 56 |
| 5. What Yablo is talking about .....                      | 57 |
| 5.1 Back to the future .....                              | 57 |
| 5.1.2 Sticking to the subject matter .....                | 58 |
| 5.1.3 The plan .....                                      | 59 |
| 5.2 Re-enter similarity .....                             | 60 |
| 5.2.1 What similarity is meant to contribute .....        | 60 |
| 5.2.2 A dilemma .....                                     | 63 |
| 5.2.3 Why bother with similarity? .....                   | 67 |
| 5.2.4 Similarity vs. resemblance .....                    | 67 |
| 5.2.5 The similarity relation .....                       | 70 |
| 5.2.6 Covers .....  | 75 |
| 5.3 Truthmaking .....                                     | 81 |
| 5.3.1 Truthmaker logic .....                              | 81 |
| 5.3.2 Truthmaker metaphysics .....                        | 83 |
| 5.4 The strengths and weaknesses of Yablo's account ..... | 84 |
| 5.4.1 The problem of occurrence .....                     | 84 |
| 5.4.2 The problem of interest .....                       | 86 |
| 5.4.3 The problem of degree .....                         | 89 |

|   |   |
|---|---|
| 5.4.4 Subject matter.....               | 92  |
| 5.5 Fine's fusions .....                | 97  |
| 6. Conclusion.....                      | 101                                       |
| 6.1 The old problems of aboutness.....  | 101                                       |
| 6.1.1 The problem of interest .....     | 101                                       |
| 6.1.2 The problem of occurrence.....    | 102                                       |
| 6.1.3 The problem of degree .....       | 103                                       |
| 6.2 The issue with subject matter ..... | 104                                       |
| 6.3 Why this is a problem.....          | 109                                       |
| Bibliography.....                       | 112                                       |
| Abstract .....                          | 117                                       |
| Curriculum vitae.....                   | <b>Fehler! Textmarke nicht definiert.</b> |

## Preface

This thesis marks the end of a first stage of learning for me. As much of it was “up the creek without a paddle” as the saying goes, I am particularly grateful for the help I have had both in terms of personal support from family and friends and in philosophical respects from people who passed through my philosophical life at some point or other, and especially from those who have stuck with me. This seems the right place and time to thank them.

The first people to thank are my family. Both my parents laid the foundation, each in their own way. My brother Markus gave me the push to embark on this and lots of moral support throughout. Hernando gave me the space to do this, kept things going at home while I was away (physically or mentally), and pretended that this was all quite normal. My elder two children, Esther and Emilio, were in their teens when I went back to philosophy. Esther started her studies and Emilio finished school with very little support from their mother; maybe that is why they have become such excellent young people. Elina, the youngest, was four when I had to take her along to one of Kurt Rudolf Fischer’s classes; she hated Oxford and travelling, but came to visit once or twice a term, and her question what flies faster, a dragon or Pegasus, contributed to my modal realist convictions. Time flies faster than both, and she has become my Guinea pig for talks and listened to and commented on many contorted efforts of explaining aspects of aboutness.

Outside philosophy, Brigitte Schächter kept our company going while I was in Oxford, and she and our collaborators, Brigitte Kleedorfer and Sabina Metz, enabled me to attend classes during office hours and take time off to write. There are also many friends outside philosophy and my aunt, cousins, Therese and Noah, who kept me going. Their support in spite of my neglect of them was crucial. Special thanks are due to Chris & Vanessa, Beatrice, Masha & Nigel, Maury, Karin, Norli, Clascha, Marie-Louise, Andrea, Marta, and Nancy.

Part of the special difficulty in writing this thesis was that there was hardly any philosophy of language at Vienna during these ten years, so that the patience, kindness and encouragement from people elsewhere and visitors as well as philosophical friendships were hugely important. Thanks therefore to the linguists Martin Prinzhorn, Viola Schmid, Manuel Kriz, Arnim von Stechow, Benjamin Spector; logicians and set theorists Heike Mildenberger, Agatha Walczak-Typke, Johannes Hafner; Nikola Kompa and Wolfgang Schwarz for comments at a GAP graduate workshop; Barbara Vetter, Angela Matthies, the Ockham Society for comments; Martin Kusch for comments and inviting inspiring guests; Gabriele Mras for hugely stimulating seminars and conferences, and for setting an outstanding example; Chris Gauker for hours of discussion during his Fulbright semester in Vienna; Benjamin Schnieder and Kit Fine for invitation to the Imperatives workshop; Joshua A. Smart for setting up “Virtual Dissertation Groups” and Avi Appel and Marion Durand for very helpful comments on drafts; Neil Barton for helping with covers and commenting on a chapter; Tom Angier, Alexandra Couto, Jeff Ketland, Martin Lenz, Sofia Miguens, Charles Travis, for their friendship in philosophy and beyond; and Leo Stadlmüller, the founder of our Vienna Forum of Analytic Philosophy (WFAP), and all

my friends there who have provided so much inspiration and support over the years and without whom I might long have given up: Günther Eder, Georg Schiemer, David Wagner, Christoph Limbeck-Lilienau, Frederik Gierlinger, Maximilian Wieländer, Katharina Sodoma, Sebastian Kletzl, Katharina Neges, Patrick Klug, Lukas Heuberger, Philip Kremers, Sophia Arbeiter, Michael Bruckner, Helene Sorgner, Paul Tucek, Chris Lernpaß, Barbara Haas, Michael Toppel, Philip Hans, Katharina Bernhard, Dejan Markovec, Tom Fery, Karoline Paier, Natalie Ashton.

I am particularly happy to acknowledge my academic debt to my teachers. My socialisation into (post-)Vienna Circle philosophy was due to Kurt Rudolf Fischer's (1922-2014) when I was very young. He also personally invigilated my admission test to Oxford at the time. When I could not take up my place, he supervised my thesis in Translation Studies. Sixteen years later, he was again there, supportive as ever. I share many of the ambiguities that marked his life, and I greatly miss his wisdom, kindness and sense of humour.

In hindsight, there is a clear theme on the path I have taken, to do with "old Vienna" and Oxford. I went back to university having failed to understand A.J. Ayer's *Language, Truth and Logic* and decided I needed an introduction to logic. I was extremely lucky to have an amazing instructor who paved my way into the subject, and, in due course, became my supervisor: Esther Ramharter. It is thanks to her that I discovered the joys of logic and (my rudimentary) mathematics. She provided food for thought throughout those years and gave me the freedom to pursue thoughts and interests wherever they took me, reading drafts on sets, Wilkins, and authority as well as aboutness.

Years later I realised that Ayer was warden of Wadham College when he published *LTL*'s 2<sup>nd</sup> edition. By that time, I had completed an express BA in PPE there. The very personal way of teaching at Oxford means that I owe a special debt of gratitude to my tutors. It was Robbie Shilliam's and Neil Sinclair's unenviable task to turn a continental business woman, used to leading the way – one way – and dispelling worries, into an English undergrad, looking out for the whole variety of ways and emphasising worries. Paul Martin was there, supportive from the start, watched with amusement, taught me not only about politics and institutions, and I value his friendship and advice when I despair over humanity. Nikita Sud with her admirable dedication, professionalism and grace was an incentive then and is the example I have since strived after whenever I teach. Alex Paseau laid the foundation that enabled me to write this thesis. He taught me metaphysics and epistemology, but more importantly, he taught me to read and write. Many themes in this thesis came up first in those early days. Bill Child, last but certainly not least, taught me about the importance of clarity, of arguing out one's view, and that depth is not something to be afraid of. I owe him the firm conviction that language is not a game, as, indeed, life isn't. His support in the years after Oxford meant a lot. Two more people have left a mark: Tim Williamson, whose BPhil classes I was allowed to attend throughout those two years, and Dan Isaacson, whose philosophy of mathematics lectures were invaluable. I should also mention, gratefully, that Wadham College has made it possible for me to come back on short visits, enabling me to do research, attend lectures, and, indeed, meet with Steve Yablo in 2012. I could not have worked in Logic & Language without this possibility.

But my greatest debt by far, and one that I am particularly glad to acknowledge, is to Michael Ayers. If I am becoming a philosopher, it is largely thanks to him. Having offered

me a place at Wadham in the 1980s, he supported my second attempt twenty years later. Although he had just given up teaching, he made time to meet and set me on the right track. With time and growing understanding, I learnt to appreciate the importance of his truly impressive philosophical work more and more. Not long after graduating, he allowed me to come with a question (about Locke at the time). Having been able to come back often since then, thanks to his and his wonderful wife Delia's kindness and generosity, I know I have benefitted more than I can specify from his guidance, influence and support. His views, surely a crucial challenge for anyone working in his areas of expertise, are for me the most important things to answer to where I don't come round to them. I have been enormously privileged to have had his comments on what I have been working on, and he has gone out of his way to help even with things far off his own interests. I sincerely hope that what philosophy there is between the possible worlds in curly brackets on the following pages, can be seen to bear his mark.

Finally, I would like to thank Stephen Yablo and Hannes Leitgeb. I was thrilled to see in 2009 that Steve Yablo was working on Lewis's aboutness papers (where A.J. Ayer reappeared) that had kept me busy for months. But I then gave up on the topic over a philosophical worry for two years – until Hannes Leitgeb's talk in Vienna proposing a solution involving set membership, and his encouragement to take up the topic again. Steve made time to meet and answer my questions in Oxford when he gave the Locke Lectures. His book, which addresses so many of my interests, made me decide to write this thesis. His debate with Kit Fine and replies to my questions brought back the joy. And being able to discuss aboutness and my biggest headaches with Hannes made all the difference. The realisation how much Carnap is a recurring theme in aboutness theory came late and I know that there is much more past work to be discovered. There is also intense activity underway now that will be important to the future of aboutness in Logic & Language, so the thesis I am hereby submitting only gives a spotlight view from my limited perspective, which I look forward to expanding in future.

C. Naomi Osorio-Kupferblum

Vienna, June 2017

# 1. Introduction

## 1.1 What is aboutness in logic and language?

### 1.1.1 The idea

In his *Essay Concerning Human Understanding*, John Locke writes:

[...] to conceive, and judge of it aright, we must consider what *Idea* the Word it is applied to stands for:<sup>1</sup>

Taken out of context, the reader will need to be told what the anaphoric “it” refers to in order to be able to understand what the statement says. The answer is, “it” refers to identity; in fact, the quote is taken from book II, chapter xxvii, entitled “Of Identity and Diversity”. So, the statement is about identity, more precisely, about how to determine identity (or diversity), and it says that the criteria of identity depend on what it is we are talking about.<sup>2</sup>

When I first read this passage, I had taken the book from the Locke shelf in the philosophy library, a shelf that contained books by Locke as well as books about Locke’s philosophy.<sup>3</sup> If memory serves, it did not contain any books about Locke. That said, Nidditch’s Foreword to his edition of the *Essay* starts with some biographical notes; it also contains some information about the book, for instance that it appeared in 1689, although the publication year stated in it was 1690, and that chapter xxvii was only added in the second edition in 1694. All of this is information about the book, but not about what it says, its content. Nevertheless, when we ask someone to tell us about the book, we will usually want to hear about its content rather than its publication history.

So we have here a number of examples illustrating what is, and what is not, aboutness, i.e. what it is for a statement, chapter, book or any other piece of text to be about something: the book is about knowledge, so it is a book *in*, but not about, epistemology,<sup>4</sup> *by* but not about John Locke,<sup>5</sup> although the Foreword to this particular edition is partly about him;<sup>6</sup> the chapter is about identity generally, the statement about criteria of identity more specifically<sup>7</sup> – but note that the word ‘criteria’ does not occur in the statement;<sup>8</sup> it is not

---

<sup>1</sup> Locke (1694/1975) p. 332; as an undergraduate, I nick-named this passage from *ECHU* II.xxvii.7 “my philosophical Excalibur”. Determining what it is we are talking about very often seemed then, and still seems now, to be the first thing that needs attending to in philosophical, and, indeed, many other deliberations. Working on texts that share this concern has been a delight.

<sup>2</sup> The issue of object vs. content will be relevant in 5.4.4.

<sup>3</sup> Daniel Drury reminds me that the Wittgenstein section was even classified separately into Wittgenstein’s own work Gd.WIT.A1, and literature about it, Gd.WIT.B1.

<sup>4</sup> This issue will become especially relevant in the discussion of Lewis’s theory of aboutness (ch. 4).

<sup>5</sup> Note that in determining aboutness, we often automatically “correct” for metonymous expressions like “He wrote about Locke” meaning that he wrote about Locke’s philosophical views.

<sup>6</sup> Partial aboutness will be discussed in detail in chapters 4 and 5

<sup>7</sup> Degrees of aboutness are discussed in 2.3.

<sup>8</sup> This issue will be the subject of 2.1.



about what “Word” stands for, although the word ‘word’ does occur in the last clause, but what a word (yet to be stated) stands for;<sup>9</sup> and finally “it” refers to identity, but is not about identity.<sup>10</sup>

All of these are issues that will be addressed in this thesis. But let us first motivate the exercise and state the argument.

### 1.1.2 The significance of the question

From the previous remarks, it might seem as if we had a clear notion of what aboutness in logic and language is, but this is not so. This is not an unusual situation with concepts in philosophy. The struggle for definitions of concepts, or at least for reining them in, usually as part of an argument in a debate concerning a larger topic, is part and parcel of what philosophy is about. Nevertheless, aboutness is somewhat unusual in that it is a notion that is of interest not only in various debates internal to philosophy, but also in areas relatively far off, such as Library and Information Sciences, where it finds direct application. Since the clarification of concepts is certainly one of the core tasks of philosophy, it is our job to cater for those needs, too.

This thesis will argue that these needs have not been sufficiently taken into account. Instead, the development the concept of aboutness has undergone in philosophy has made it increasingly idiosyncratic, which is unfavourable to its application in such other areas and has also taken it farther and farther away from the ordinary understanding of what aboutness is.

Now, it might be argued that philosophy often defines concepts in a way suitable for very specific philosophical purposes so that they do then no longer correspond to concepts by the same name in other debates in or outside philosophy. In fact, aboutness in the philosophy of mind may count as a case in point. There is no good reason why we should not do the same with aboutness in logic and language. This is, of course, true, but a closer look at the accounts to be discussed here shows that they serve no such aim. While each of them has a particular philosophical focus, none of them is designed to establish a particular argument, serve a particular exercise or even be restricted to that focal area. Instead, every single account points to areas outside the one it is inscribed in. What is more, all accounts make reference to just these applications outside philosophy which this thesis will therefore use as a benchmark to assess their achievements.

In order to make this point, we will proceed as follows. First, the criteria for assessing the different concepts of aboutness proposed since the 1930s will have to be established. For this purpose, three problems will be described. Two of them are problems taken from the philosophical debate, one from linguistics. We will then dedicate a chapter to each of the three large accounts outlining their motivations and describing them in detail. They will

---

<sup>9</sup> The use / mention problem will be discussed in 3.1 and 3.2.

<sup>10</sup> Reference vs. aboutness is the subject of 2.4.

then be assessed both against these criteria and in terms of their own merits in order to show where they do not deliver what other disciplines need.

Before embarking on all this, this first chapter will outline (in section 1.2.1) what aboutness is needed for in other disciplines and illustrate this with a number of examples showing that these concerns are of practical relevance to our work as philosophers, too. In 1.2.2, it will then outline a number of concerns in philosophy proper where aboutness is relevant. The last section 1.3 will give an overview of the following chapters.

As a very first task, however, our philosophical toolbox has to be prepared. First, some terminological remarks are due, and the notion of aboutness we are dealing with has to be delimited against others and explained as far as possible. Then, the elements in play and their metaphysics will be set out in order to define the framework within which the different theories of aboutness have been developed.

### 1.1.3 Terminology: aboutness, form / object, text, sentence

The word ‘aboutness’ reifies something that can be regarded as a property, a relation or even an action, but certainly not as a thing in any substantive sense of the word. Some of the authors who have dealt with it would therefore never have dreamt of using the word ‘aboutness’.<sup>11</sup> For this reason, when I speak of ‘aboutness’, I would like this to be taken only as the simplest way of denoting the object of this discussion, without entering into any metaphysical or ontological commitment.

Sometimes, although none of the authors I shall discuss have invoked it, I shall also resort to the form / object dichotomy for a noncommittal way of talking about the two elements aboutness links: a piece of text (‘form’) and what it speaks of (‘object’).<sup>12</sup> One of the advantages in doing so is that it makes it easy to stay away from all the philosophical questions arising in connection with each of the relata (see 1.1.6 below), so these terms may sometimes prevent us from getting distracted.

The term I have already begun to use above for the former relatum, “piece of text” is taken from linguistics. “Text” denotes any coherent, meaningful string of words, whether spoken, written or signed, and no matter how long; and “piece” is a way to refer to some coherent textual entity, whether sentence, conversation, book, or what have you.

“Sentence”, another term taken from linguistics, refers to a textual unit, linked grammatically or by signposts such as prosody in spoken language or a capital letter at its beginning and a punctuation mark at its end in written language. Thus not only assertions but also questions, exclamations and commands, for instance, are sentences.

---

<sup>11</sup> In particular, Ryle and Goodman

<sup>12</sup> cf. Nuchelmans (1983), Ayers (2002). The distinction comes from the other ‘aboutness’ (intentionality), but it is highly relevant to language. It is different from the form / content dichotomy in ways that will be discussed in 5.4.2.1.

#### 1.1.4 Reining in aboutness for this debate

In philosophy, aboutness is a concept that is typically associated first with the philosophy of mind and here in particular with intentionality. On the surface,<sup>13</sup> this is not our topic. Instead, this thesis will address aboutness in the sub-discipline of Logic & Language, a branch of philosophy that traces its origins back to Frege and deals with those parts of language that can be studied without taking the human mind into account. It thereby not just considers concerns markedly different from (although perhaps complementary to) those of the philosophy of mind, but also excludes from its purview everything that falls under pragmatics, where a distinction is drawn between semantics and pragmatics. This means that it is not concerned with how the tool of language does what it does, i.e. how words come to be about something, how they express what someone wants to say or, worse, imply, insinuate or implicate, but only with the relation between a piece of language *qua* form of representation and its object.

To pin down the approach, it may be useful to think in terms of mathematical and logical “languages”, i.e. sets of “names” of individuals and properties, connectives and rules of composition, and then go on to think of them as “interpreted”, i.e. with elements in a domain (valuations in a model) assigned to these names. Now regard natural languages as an, admittedly more complex, version of the same thing, with the universe as their domain and sentences as counterparts of formulas in a logical “language”. For the sake of simplicity, disregard all the usual interpretive issues that afflict natural languages and instead treat them as fully interpreted.<sup>14</sup> Obviously, this is a gross oversimplification of how language relates to the world, but as long as nothing essential is left out, simplification can sharpen our view by getting irrelevant scrub out of the way and thereby help analyse an issue.

This, roughly, is the backdrop against which our authors raise the question what it is for a sentence to be about something.

#### 1.1.5 The metaphysics of “aboutness”

What a sentence is about can be regarded as a property of the sentence. Thus the sentence ‘Theaetetus sits’ can be regarded as having the property of being about Theaetetus and what he does. One approach is going for a “thick” property that has Theaetetus packed into it. This property (and the corresponding predicate) of ‘being-about-Theaetetus’ is then unary and aboutness becomes a schema (we will find a proposal to this effect in Goodman 1961).

We get a similar effect by regarding being-about-Theaetetus as something a sentence does, for instance as a way of picking out Theaetetus, for instance as a function.

---

<sup>13</sup> Lately, a movement in formal logic and the philosophy of logic is gaining momentum that aims to bring logic closer to everyday human reasoning by catering for hyperintensions and exploring new inferences; in fact, aboutness theory plays a non-negligible role in it (cf. Berto (forthcoming), Fine (2017), Jago (forthcoming), Yablo (2016b))

<sup>14</sup> Ketland (2014) epitomises the approach

Both could also be treated as two-place – the two-place (“thin”) property of being-about, or the act of picking out.

These options come structurally close to the third one of regarding aboutness as a relation between a sentence and its object. For the sake of simplicity, we will speak of the relation and its two relata, but *mutatis mutandis*, we could likewise speak of the property or act and what has or does it as well as its object. I shall leave it to the reader to make the necessary adjustments.

#### 1.1.6 The relata

Aboutness taken as a relation relates a sentence to what it is about. There are therefore two relata and we will look at each in turn.

The first relatum is a piece of text. Our authors’ simplified approach (cf. 1.1.4) generally restricts their analysis not just to sentences, but more narrowly to indicative sentences or conditionals. Some other types of sentence (questions and commands) sometimes receive a brief mention, but are not taken into account as that which is about something, when they develop their tools. Where questions do get some prominence, they are regarded as the other relatum, the object of aboutness. Moreover, ambiguities are not discussed; instead, sentences are taken to have a single, unequivocal meaning. We will address these restrictions in due course.

Concerning the second relatum, the object, a variety of options has been proposed. Some (Ryle and Goodman) have taken the objects of sentences to be referents, i.e. things or stuff in the world and what afflicts them, and treated talk about non-Existent (with capital “E”, as it were) objects as parasitic on talk about “real” referents. Two accounts that don’t venture outside logical languages (Putnam and Urbaniak) take the same approach, if only in logical models rather than natural language and reality. There, the object is what a constant or a predicate denotes, i.e. an element or a class in a domain. Others (Yablo and Fine) expanded the concept into its modal version of truthmakers, the sets of all things that make the sentence, or part of it, true. Complemented by their falsemakers, these pairs are then called ‘subject matters’. This, in turn, caters for the intuition that subject matters or topics are the same for a sentence and its negation. In other views (Lewis, Tichy, and Yablo in a first step), subject matters are modelled in various ways by sets of possible worlds; Lewis also has contents of sentences, explicated as sets of excluded worlds.

#### 1.1.7 The relation

Some relations vary in their instances only in terms of what they relate, e.g. ‘to be the parent of’: Jane is the parent of Joe, Sam is the parent of Jill. Others, somewhat more complex, vary in degree. ‘To stand next to’ seems to be such a kind of relation. Jane stands next to Joe in the queue, Jane stands next to the post office, Jane stands next to the tree, the tree stands next to the post office, all seem to describe very similar ways of two

objects (no matter of which kind) to relate to each other in space, although with regard to how close that spatial relation is, there are differences in degree.

Let us contrast this with one of philosophy's favourite sample relations, love, which varies not just in terms of the relata, but in terms of quality, too: Jane loves Sam (her partner), Jane loves Joe (their child), Jane loves Jean (her teacher), Jane loves Zaz, Jane loves Greece, Jane loves jam, Jane loves skiing. While all these relations share essential features, the profound pleasure caused by someone's or something's presence, for instance, and the wish for their presence when they are absent, there are also important differences between them in terms of emotional quality. One may decide to regard the name "love" as metaphorical when applied to physical pleasures (the special timbre of Zaz's voice, the light, colours and fragrances of Greece, the fruity sweetness of jam, whatever it is that some people love about skiing) and reserve it for non-physical feelings. But there, too, Jane's and Sam's, hopefully symmetric, love of each other that evolved out of initial passionate infatuation over the years is importantly different from Jane's love of Jean, a melange of gratitude and admiration that is necessarily as asymmetric as her love of Joe with its protective, dedicated, joyfully observing aspects, in both of which what is given is different from what is received. All three sorts of love of a person share a feature absent in physical pleasures, viz. that, in addition to the delight at the other relata's presence, there is also devastation should they become permanently absent. In spite of this common aspect, the nature of the feeling seems substantially different in each case, so that we are not talking about differences in degree but of quality of the relation here.

The question is now, whether aboutness is of the former or of the latter kind. We will find that Ryle contemplates only variation in the relata (grammatical on the sentence side and ontological on the object side), Putnam measures degree in terms of quantity, Lewis and Yablo distinguish only between partial and entire aboutness, whereas Goodman has a selective kind (relative aboutness) and two privileged kinds (absolute and immediate aboutness); only Mathesius has a purely qualitative distinction between allusive (theme) and informative (rheme) aboutness.

#### 1.1.8 What the following is not about

The main focus of the present discussion is aboutness in Logic & Language. We have seen that depending on the metaphysical take on aboutness, it will not always be possible to abstract from the two elements aboutness links, pieces of text and their objects. Views that treat aboutness as a "thick" property or predicate force us to include the object from the start; others will make some consideration of both the form of the sentence and of its object necessary in connection with a discussion of differences of degree or quality in aboutness. Nevertheless, these elements will only be taken into account to the extent required for the objective of this discussion. In particular, concerns about sentences, pertaining to linguistics, and concerns about content and subject matter, pertaining to other areas of philosophy, will not be addressed.

## 1.2 For what do we need aboutness?

### 1.2.1 Other disciplines

Aboutness is one of the few topics in theoretical philosophy that is of immediate interest to disciplines outside philosophy. Goodman and Lewis mention library science, but their work has also been cited in informatics and other areas. Indeed, Library and Information Sciences (LIS) has discussed aboutness for at least as long as philosophy and explored conceptualisations and distinctions that have not made their way into our philosophical literature (e.g. intensional vs. extensional views, subjectivism, mediation of knowledge).<sup>15</sup> Technological advances have rekindled their interest in aboutness at the same time as philosophy has rediscovered it.<sup>16</sup> Aboutness is equally relevant in areas as far apart as archives, word processing, data protection and even machine translation.

What these areas share is having large volumes of text to handle with their content in mind in what is not a one-off categorisation but the repeated need to link these texts to different areas of interests. To some extent these links can be established at the time the text is stored. The librarian or archivist who creates a record for a new book or document will usually enter not just the title and author, but also subject areas into the catalogue. In databases, text is entered into specific boxes where it can later be retrieved. And authors who submit or upload a document are usually asked to state a number of keywords.

But these categories tend to be relatively small in number and are often broad and therefore insufficient for many searches. When an information request or query is made, we would like texts to be listed whenever they are relevant to a specific subject matter, irrespective of how they were indexed or categorised at the time of cataloguing, data collection or creation of a record. We would therefore like to have a means of determining whether a text, or any part of it, is about a certain subject matter without having to rely on a person who has read it to tell us so.

One way of doing this that is currently used pervasively is to search the texts for specific words.<sup>17</sup> Let us look at the advantages and disadvantages of this technique with the help of an example, taking the one closest to hand, our present topic ‘aboutness’.

A Google search of the word yields more than 170,000 results, and the first ten already take us, past the usual Wikipedia and dictionary entries, to documents in subject indexing, aesthetics, philosophy of mind, but also – hallelujah – our own area of interest, the philosophy of logic and language. This is not a good start. Moreover, remembering that neither Ryle nor Goodman used the word ‘aboutness’ in their texts, we realise that the word alone will yield neither all nor only texts about our topic. Now, Google searches the entire web both for the occurrence of words in texts and for keywords in the metadata, i.e. data about – rather than from – a website, entered by the person(s) who designed or

---

<sup>15</sup> See Rondeau (2014) for a recent survey of LIS literature on aboutness. Demolombe and his co-authors (1999, 2000, 2010) have made contributions to informatics (based on Lewis’s approach) for many years, attempting to formalise aboutness for computer applications, in particular databases.

<sup>16</sup> Thus Kučerová (2014) writes: “As syntactic issues concerning electronic communication have been resolved and attention is now paid to the higher level of semantics, we have the opportunity to revisit the half-forgotten, pre-internet visions that were before, from the nineteen fifties to the nineteen seventies, viewed as purely theoretical; these may now be made reality with our new technologies.”

<sup>17</sup> Professional indexing is, of course, far more sophisticated. I happened across Moens (2002) that gives some insight into how the problem of occurrence (cf. 2.1) is dealt with in practice.

administrate it, which could theoretically have ‘aboutness’ also for Ryle’s and Goodman’s papers. (It also uses a number of other criteria that are not relevant to us here and are used mainly for the ranking of search results (crosslinking of websites, frequency of clicks, etc.)) Besides, we could add a second word to get only the intersection of both sets of results and reduce their number, but the obvious choices, ‘philosophy’, ‘logic’ or ‘language’, are used so frequently outside our research area that they are not much help.

It is more fruitful not to search the entire worldwide web, but rather to look elsewhere, for instance in the catalogue of an academic library. We thereby conduct our search only within a specific category of texts, viz. academic books, articles and theses, and we are technically querying a database. The libraries of my two almae matres list 237 and 184 results respectively. While it is at least humanly possible to go through them all, we still get the same frustrating mix of results from library and information science, neurolinguistics, philosophy of mind, and just one or the other record from the philosophy of Logic & Language. If we now refine by topic, there is a long list of 45 topics, out of which 12 could be relevant, and many of which have only one or two records for ‘aboutness’ – that’s a lot of clicking back and forth.

Alternatively, there are also repositories, but they all have teething problems, some worse than others. A new general one is Researchgate; like the libraries, it searches titles, but it also includes unpublished work and therefore yields more results. At the time of writing this, it does not allow for query refinement and is woefully ill equipped for philosophy. Another general repository, Academia, is primarily designed to showcase authors rather than subject matters. It lists documents tagged for specific research interests and is thereby dependent on the authors’ inventiveness; the list of results is much shorter, but relevant.

There is also a repository specifically dedicated to philosophy, PhilPapers. A general search yields 115 records which contain the word ‘aboutness’ either in the title or in the abstract. Naturally, the majority is still about intentionality in the philosophy of mind. But PhilPapers have made it possible to first choose a subject area and then search within that area. Opening “Philosophy of Language” and searching within that area only, we now have a list of 56 records, mostly philosophical. Astonishingly, many are still records from other areas, and a closer look shows that in addition to records from within our narrow search domain that contain the word ‘aboutness’, we also get records from other subject areas that have the keyword ‘aboutness’. This, however, is a technical mistake, not a theoretical issue.

What we have done by looking in PhilPapers and there in the subcategory “Philosophy of Language” was to restrict our search to a certain category of documents, no different from what we do when we look through the “Philosophy of Language” shelf in our library. Within that category, which was created and fed by people who knew what the documents are about, the search engine only looked for the occurrence of the query word. Therefore, while nobody adds the keyword ‘aboutness’ to Ryle’s and Goodman’s seminal papers (I have just done so), or any other record of a text dealing with aboutness but not employing the word in either the title or the abstract, we will not find them.

Simple though the example is, it gives a fairly good impression of the tension between indexing and retrieving texts, human versus automated determination of aboutness,

terminological changes and overlaps, short, what the problem of aboutness in the library and information sciences fundamentally consists in.

In machine translation, the issue is very similar. It must have been a very sobering moment after the post-WWII enthusiasm about language processing, when Bar Hillel<sup>18</sup> pointed out that translation software will never be able to work flawlessly without a human operator intervening at some stage, because computers will never possess the “world knowledge” that enables us to understand, e.g., “The pen is in the pen” immediately as “The fountain pen is in the farm’s pen”, for the simple reason that a farm pen would never fit inside a fountain pen. Although it seems to me that Bar Hillel was right and flawless machine translations are in principle impossible, here, too, domain restriction can go a long way in helping a machine pick the right word (if properly fed and maintained), and this is again an application where aboutness would be crucial.

### 1.2.2 Philosophy

In philosophy, aboutness has been brought up in different contexts – in philosophy of language, of science, epistemology, and philosophy of logic – but it seems to me that there is an overarching theme. In striving for logical rigour and intellectual purity and objectivity, analytic philosophy regiments its inquiries in a way that is not always congenial to their objects. One of its sorest spots is certainly that concern with form often overrides concern with content – form, in our philosophical tradition, meaning at its core compliance with the rules of classical logic. It seems to me that the struggle to adapt these rules on one side (as in paraconsistent, relevant or many-valued logics) has been matched by attempts to complement them on the other. Aboutness being the link between form and object, it is very often brought in either to get people’s feet back on solid ground when they seem to be taking off on a wave of technical enthusiasm, or to deliver the tool that adapts technical instruments to the needs of the subject they are applied to.

One example of the former is Bar Hillel’s wakeup call to computational linguistics (1.2.1 above). An earlier one is Ryle’s short, but explosive 1933 paper. At the time, an issue that exercised many between Cambridge, Vienna and Oxford in their endeavour to cleanse philosophy of vain pursuits was to define what we can sensibly, i.e. scientifically, speak of. Philosophy wanted to deal with observation or protocol sentences, talk of unobservable things was to be relegated to poetry. Ryle tackled the issue from the linguistic side and pointed out that grammar will not tell us what a sentence is about, and that, worse, the occurrence of a word is neither necessary nor sufficient for the sentence to be about a specific referent. And finally, whether there is anything in the world to serve as a referent or not, can not only not be read off the grammatical structure, it also does not bear any relation to whether we understand the sentence or not.

On the other hand, aboutness has been proposed as a tool to supplement bivalent logic where on its own it yields unsatisfactory results. Thus, to some philosophers of science it would seem unpalatable that universally quantified statements like Hempel’s ‘All ravens are black’ should be confirmed not only by every black raven but also by every non-black non-raven, as the rules of classical logic would have it. Putnam proposed a solution based

---

<sup>18</sup> Bar Hillel (1964)



on a purely quantitative concept of aboutness, effectively counting occurrences of names of subjects. But this means that a sentence cannot be about what it does not mention.

Those unhappy with this result may prefer Goodman's absolute, or better still, his relative aboutness. These let a statement *S* come out about some subject *k* if *another* statement *T* that mentions *k* follows from *S*, or if a third statement *Q* follows from both *S* and *T*.

The trouble is that Goodman's absolute aboutness is the same for a statement and its negation, and for a subject and its contrapositive. While he also offers "immediate" aboutness that blocks contrapositives, logical consequence is an issue fraught with problems of aboutness, the rule of *ex falso quodlibet*, also known as explosion, surely being the starkest case in point. Remember that in classical logic, a conditional comes out true by material implication whenever the consequent is true or the antecedent is false. This means that the truth of the antecedent does not contribute anything to the truth of the statement, while its falsehood guarantees the statement's truth. This blatant failure of aboutness has been one of the main points of criticism raised by relevant logics. Here, David Lewis offered a solution by explicating aboutness as inclusion of one set of worlds (representing a proposition) in another.

This was also the basis for Lewis's account of partial aboutness, which is in turn a proposal for dealing with the Vienna Circle issue of observation sentences. Statements could be regarded as meaningful if they are at least partly about something observable.

From partial aboutness, Yablo takes us to partial truth, a sort of lightweight truth that allows us to account for things like hyperbolic statements, metaphors and even presupposition. This is not only interesting as a quasi-formal way of dealing with language issues, it is also the basis for his new brand of fictionalism about mathematical objects. We speak about them as if they existed, but without wanting to make any ontological commitments.

Explicating aboutness as inclusion is also useful in epistemology. It allows Yablo to refute sceptical arguments against many knowledge claims on the grounds that the sceptic commits a breach of aboutness by bringing in a new subject.

Subject matter is itself a controversial issue in aboutness theory. In some accounts, it is a fairly generous notion of an object which is shared by a sentence and its negation; for universally quantified statements, we even get subject matters that are shared by contrapositives. In other accounts, it is only the object of the sentence, and on the strictest it amounts to the sentence's content.

Consequently, concerning what logical truths and contradictions are about, there are very different upshots (upshots is all they are, for all our authors). By Putnam's solution, logical truths are about everything but say nothing, while logical contradictions are about nothing, but contain maximum information. On Goodman's account of differential absolute aboutness, whereby a statement is only about what does not follow from any generalisation of it, logical truths and logical falsehoods are not absolutely about anything. On Lewis's very generous possible worlds' account, by which subject matter is a partition of worlds, logical truths partition worlds in the same way as logical falsehoods – all worlds are on one side of the partition, none on the other.

These are some important problems of philosophy for whose solution aboutness has so far been used as a tool. We will discuss the technical and philosophical details in due course.

We can gather from what we have seen already that so far, accounts of aboutness were always designed with only one or two issues in mind, and that solving them has meant not being able to solve others. It will be important to keep an eye on what we sacrifice for what higher aim, analyse whether the aim is really achieved and whether the sacrifice is worth it, and to bear in mind the philosophical responsibility we have towards other disciplines in developing our account.

### 1.3 The structure of this thesis

The next chapter will introduce three problem areas aboutness theory has to deal with – the problem of occurrence, the problem of interest and the problem of degree – with the help of the three early accounts of Ryle, Mathesius and Putnam. It will also explain why aboutness theory can allow itself ontological quietism concerning the object of a piece of text and does not need to cater for its existence, or otherwise. These problems will establish the criteria against which the different concepts of aboutness proposed over the years will be assessed.

The next three chapters are dedicated to three seminal accounts of aboutness that have been proposed.

Chapter three introduces Nelson Goodman's account which is based on logical consequence. It explains his motivation, the different forms of aboutness he proposes (four in total), and his two big contributions to aboutness theory: highlighting the aspect of selection inherent in aboutness, and explicating relative aboutness. It also points out that Goodman's account is only applicable in a very narrow area, viz. to sentences from which others can follow logically.

Chapter four is dedicated to David Lewis's possible worlds account. Lewis gives detailed modal and structural accounts of the different elements involved in it: the statement, its content, its subject matter, and the relation of aboutness between the statement and the subject matter and proceeds to define partial aboutness for all four. He thereby makes subject matter an independent element that can stand in quasi-topological relation to other subject matters. It will be pointed out that his account of partial aboutness is not entirely satisfactory.

Chapter five introduces the biggest and most recent account of aboutness, Stephen Yablo's, which builds on Lewis's, and it also gives a quick sketch of Kit Fine's forthcoming counter-proposal. It describes the changes the account makes to Lewis's and discusses three elements in greater detail: similarity, covers and truthmaking. It then gives an overview of the areas in philosophy where Yablo's aboutness brings in important new perspectives but points out that several important achievements are due to a change in definition of 'subject matter'.

Chapter six points out that this change has taken us too far away from the usual understanding of subject matter, and thereby aboutness, and that it makes the account impossible to apply to any piece of text consisting of more than a single sentence. It then sums up where aboutness theory currently stands and what further developments would be desirable.

## 2. Problems and desiderata of a formalisation of aboutness

Chapter one was dedicated to delimiting aboutness for the purposes of this discussion and to outlining where, both in philosophy and outside, aboutness in the present sense is of importance. As we work our way through to a number of proposals of how aboutness could be formalised, we need to take stock of problems known to afflict the concept which can create difficulties for its formalisation, and give an appraisal of their importance with regard to the areas to which such a formalisation is of interest. Since the proposals discussed in the following chapters were largely made with philosophical demands in mind, this chapter will dedicate more space to explaining desiderata from outside philosophy. Having these very practical needs, to which our discussion is of immediate relevance, at our disposal, we can use them as a benchmark against which to judge the strengths and weaknesses of the philosophical proposals. I consider it a rare stroke of luck to have such a convenient “reality check” in what is nevertheless a very philosophical debate. If put to proper use (which I shall do my best to try), it can prevent our debate from taking off into excessively lofty spheres or from becoming entangled in moot arguments.

Armed with these good intentions, let’s see what these problems and desiderata are.

### 2.1 The problem of occurrence

Arguably<sup>19</sup> the earliest philosophical paper on aboutness is Ryle’s (1933). Starting from the perhaps intuitively most likely candidate, the grammatical subject, which a sentence can be ‘about-nominative’, he goes through the various parts of speech in order to determine which else of them a sentence can be about. The sobering conclusion is that it can be about almost every one of them. It can be ‘about-substantival’ any noun or pronoun, and ‘about-conversational’ anything addressed by use of verbs or adjectives. That said, the occurrence of a word is not sufficient for a sentence to be about it;<sup>20</sup> Ryle reminds us that hearing the words ‘the’, ‘was’ or ‘not’ would not make us think the sentence is about them. Worse, it is not necessary for the sentence to be about it either. Ryle points out that the sentence can contain a synonym or paraphrase, or allude or refer indirectly to whatever it is about. So the occurrence of a word is neither necessary nor sufficient for a sentence to be about what it denotes.<sup>21</sup> Let us call this the *problem of occurrence*. It is an issue that has immediate repercussions in actual practice.

---

<sup>19</sup> Salmon (2007) has spotted some thoughts on aboutness in unpublished work by Russell of 1904.

<sup>20</sup> Ryle should have said “about what it denotes”, but this use/mention equivocation, pointed out by Thalheimer (1936) already, does not diminish the importance of his argument.

<sup>21</sup> Tichý denies this in what Raclavsky (2010) calls “the principle of Aboutness” of the “denotational account”, and Duzi & Materna (2005) call “the Parmenides principle”, according to which “a sentence is about what it speaks about – and it is not about anything it does not speak about” Raclavsky (2010) p. 226

Demolombe and Fariñas del Cerro (2000) imagine a case where all the information about a person stored in a database is to be disclosed or removed. This could be necessary in connection with data protection, for instance, where a person is entitled to know what information about them is kept by a specific organisation. Imagine that this person, let's call her Jane Doe, is entitled to demand all and only that information. Depending on how the database is organised, we can get text in different formats – just a few numbers or words in boxes, pictures, links to documents stored elsewhere, or longer texts. If we are able to search the entire database, maybe even including metadata, for individual words, we can search for her name. The easy part of our search might take us to a record on Jane Doe, e.g. an employee file kept by her employer. Presumably, she'll be entitled to see everything contained in it. But her name may also appear elsewhere, for instance in the files of other people in her department. Here, she could be entitled to know that her name appears in connection with that of her colleagues, for instance, but information about them should probably not be disclosed her. Likewise, she may not have access to complete company files on projects in which she participated. So the appearance of her name in a record or text need not entitle her to access to the whole text. Now, a computer could surely be programmed to restricting her access to the smallest meaningful unit in which her name appears (a box, a sentence, one picture), but that will not give us the right result either. Her superior's report on her performance, for instance, is likely to contain many sentences in which her name does not appear. Yet, we certainly do want her to be given the entire report. Likewise, a text about the performance of her entire department need not mention any names and would still be highly relevant to her query.

So the problem that the occurrence of a name, code number, keyword, or any other denotation of what we search for is neither necessary nor sufficient for a piece of text to be about it, is a very important one, and our first desideratum is to find a solution for it.

## 2.2 The problem of interest

The next problem, taken from other disciplines, which I want to call the problem of interest, concerns qualitative variation in aboutness (cf. 1.1.7). These are cases where a piece of text is about two or more objects in qualitatively different ways. This means that aboutness is of the same degree (we will get to differences in this respect in 2.3) and therefore in a way parallel, but differs in terms of how it treats these objects or what role these objects play in it. We will discuss two variations: the theme/rheme distinction, where the objects relate differently to factors outside the piece of text; and semantic prominence, where the piece of text relates differently to the objects. It is important to point out that although we look to the content of the piece of text to a slightly larger degree than in 2.1, we remain strictly on a meta-level; we are interested in the quality of the properties or relations of aboutness that link a piece of text to its objects.

### 2.2.1 Theme / rheme

One such variation allows a piece of text to be about something we already know of and about something new, a theme and a rheme.

Since the distinction, household in linguistics (also under the names ‘topic’ and ‘focus’ or ‘comment’), has not received much attention in philosophy, a short introduction may be useful. It was first propagated in the 1930s by Vilém Mathesius of the Prague School of Linguists as a cornerstone of the functional analysis of language; in anglophone linguistics its popularity was initially due to M.A.K. Halliday. The theme (topic) and rheme (focus) are, roughly, the subject matter of a piece of text and what it says about that subject, respectively. The theme thereby points us to something we already know, while the rheme adds a new element concerning that theme.<sup>22</sup> Thus in

a. Father wrote this letter.

‘father’ is the theme and ‘wrote this letter’ the rheme of the sentence.<sup>23</sup> In this simple assertive sentence, the grammatical subject coincides with the theme, the predicate with the rheme. But as Ryle also noticed,<sup>24</sup> this is by no means always the case. If we were to simply stress the word ‘father’,

b. *Father* wrote this letter.

‘this letter’ would become the theme and ‘father’ the rheme. In inflected languages, very often word order determines theme and rheme. Compare:

c. Minerva videt Martem.

with

d. Martem videt Minerva.

In English this is not as easily done as in Latin, German or the Slavic languages, for instance,<sup>25</sup> but we do get the effect for instance in

e. He moved from London to Amsterdam.

(explaining, for instance, why your letter only reached him months later) versus

f. He moved to Amsterdam from London.

(explaining why he did not pass by your house in the West Country to pick up his books).

In smaller units of text, such as sentences, it is therefore a language-specific issue in how far theme versus rheme can be determined by prosody, whether word order is a suitable tool, or whether speakers have to resort to more complicated grammatical constructions (e.g. the passive voice) for pointing to what is new information. A translator who knows what she is doing will take this into account and find a suitable way of expressing the theme / rheme difference in the target language. At this time, it is not something machine

---

<sup>22</sup> Mathesius (1975) p. 156

<sup>23</sup> op.cit. p. 85

<sup>24</sup> Ryle (1933)

<sup>25</sup> In contemporary English, nouns and proper names are not inflected, but most personal pronouns still are. So we cannot invert the word order from “Minerva sees Mars” to “Mars sees Minerva” without thereby changing who sees whom, but we could do “She sees him” and “Him sees she”, although that sounds funny, but, it seems to me, “Him she sees” would work (while “Mars Minerva sees” is unclear).

translation can do, so a way to recognise theme and rheme automatically would be one of the desiderata from translation software developers.

But it is also relevant to larger units of text. One of the debates in LIS<sup>26</sup> concerns researchers' interests. Back to the example of our search for literature on aboutness in Logic & Language, the argument is whether what we search for is something we are already familiar with, 'aboutness' in our case, in order to find new information about it – a novel take on aboutness, for instance; or whether what is typically sought isn't rather something we have heard or seen mentioned, but don't know anything about – e.g. 'rheme', when I first heard the word many years ago. Personally, the latter kind of curiosity would make me look in an encyclopaedia or dictionary, the former in a library, archive or repository. So for some users, the theme / rheme distinction is certainly relevant; the theme would be expected to take us to a useful set of items, and we would then want to get an idea of the rheme they offer with respect to the theme in order to select those we actually want to read. This might be helpful in deciding what indexes to create in a library catalogue, for instance, and what information to provide in summaries or abstracts.

### 2.2.2 Semantic prominence

Another variation in quality of aboutness is semantic prominence.<sup>27</sup> It can be achieved on multiple levels. Thus, text linguistics describes upgrading, one form of dominance, as part of the process of interpreting unexpected text elements which are used to make specific items of content salient;<sup>28</sup> stylistics describes foregrounding by various elements of style;<sup>29</sup> and as in theme / rheme shifts, here, too, phonetic prominence (contrastive prosodic stress) can express semantic prominence. But there is also straight-forward, explicit prominence marking in sentences where we have two (or more) objects, but unlike the difference concerning the informative role they play in the theme / rheme case, here we have a difference in importance. Here are a few examples:

g. Mary didn't say a word – neither did John, of course.

h. The President came personally, together with a member of staff.

i. The weather was awful all year round, particularly in the summer.

(g.) is about two people, both are named so we know who they are, both are described as displaying the same sort of conduct, but for one of them, Mary, this seems noteworthy – it may even be the reason the statement is made to begin with – and for the other, John, it doesn't seem particularly interesting.

(h.) is also about two people, but we only have a definite description of one of them; the other one is an unspecified member of a class of objects (staff members). Again, the two

---

<sup>26</sup> Rondeau (2014)

<sup>27</sup> Not to be confused with linguistic and cognitive prominence (cf. Cowles et al. 2007)

<sup>28</sup> Beaugrande & Dressler (1981); there is also dominance at other levels of discourse, e.g. between interlocutors, or by situation managing, but those do not have semantic effects.

<sup>29</sup> Leech & Short (2007)

objects engage in the same activity, but the fact that the former does so is substantially more important than the same fact about the latter.

(i.) predicates something about a large object and then emphasises the very same predicate for a part of that object, for which this is again of greater importance.

So in all three examples we have a statement that is about two objects about which it says the same thing, but the fact that it is about one of them is more important than the fact that it says the same thing about the other. We will see that this is particularly problematic for possible worlds accounts.

Solving it would be of interest for LIS when they want to offer a ranking of texts about a subject matter by order of importance rather than quantity.

## 2.3 The problem of degree

The third problem, the problem that aboutness seems to come in degrees, is also anything but a new discovery, and funnily enough, it seems to have been resolved technically for some applications outside philosophy, but in philosophy it continues to be relevant.

The issue is that pieces of text can evidently vary quantitatively in how they are about their objects. Differences in extent or degree to which they are about something can be observed on either side of the relation – the degree to which the text is about a topic (among other topics it addresses), and the degree to which the topic is covered by a text (how much of the topic the text addresses). Thus, on the topic side, as it were, the exhaustive treatment of a topic by a text would count as being 100% about it, whereas leaving parts of the topic unaddressed would mean being about it to a lesser degree. The smaller the part of the topic a text deals with (even if it deals with nothing else), the smaller the degree to which it is about that topic. Thus, the present thesis, while dealing with aboutness from its first page to the last, cannot hope to say everything that can be said about aboutness and would therefore not count as being 100% about aboutness by this measure.

Applying the measure at the opposite end, a text may be largely about all kinds of things and also contain a short section on aboutness, while another text (this one, for instance) may be dedicated entirely to aboutness. We would surely agree that the latter text is in some sense more about aboutness than the former one. There are some search engines that state the relevance of their results in terms of percentages, which must be based on some such consideration (others just order results without stating the criteria for their ranking).<sup>30</sup>

Percentages were introduced to the philosophical debate on aboutness by Putnam (1958) at a time generally dominated by purely quantitative methods. Turing, for instance, had not only cracked Enigma that way, he also proposed to answer even the question whether machines can think by reducing it to one about frequency – the frequency of an

---

<sup>30</sup> Moens et al. (2006) develop a computation system for this sort of degree.



interrogator's wrong answers.<sup>31</sup> Putnam's way to tackle aboutness was therefore perfectly in sync with the computing hype of those days.

Building on Carnap and Bar-Hillel's (1953) as well as Kemeny's (also 1953) work, which gave semantics a foot in the door of the quantitative approach by introducing the notions of 'amount of information' and 'strength', respectively, Putnam's proposal measures the degree to which a piece of text is about something in the second sense above, viz. as how much of the information contained in it is about the topic, in the following way. Consider a domain of five individuals  $a_1 \dots a_5$  and two properties  $P$  and  $Q$  and the corresponding language of individual constants  $a_1 \dots a_5$  and predicates  $P$  and  $Q$ . A state description (= description of a possible world) is then a disjunction of atomic sentences which tell us about each individual and each property whether or not the individual has that property. Here is one:

$$(1) P(a_1) \vee P(a_2) \vee P(a_3) \vee P(a_4) \vee P(a_5) \vee Q(a_1) \vee Q(a_2) \vee Q(a_3) \vee Q(a_4) \vee Q(a_5)$$

The state description thereby gives us the complete list of the members and non-members of class  $C$ , the extension of a property. We are also interested in any other properties  $C$ 's members possess, whereas other properties of non-members are irrelevant to class  $C$ . So concerning class  $C$  of all things  $P$ , the information contained in (1) boils down to:

$$(2) P(a_1) \vee P(a_2) \vee P(a_3) \vee P(a_4) \vee P(a_5) \vee Q(a_1) \vee Q(a_3) \vee Q(a_5)$$

We can now measure the amount of information (1) contains about  $C$  as the ratio of the relevant atoms (those are the ones in (2)) to the total number of atoms, i.e. 8/10 or 80%. A state description containing 100% relevant information about a class  $C$  is then considered "strictly about  $C$ ".

In spite of the successful use of a method of this kind in practical applications, philosophy has not put paid on the issue. Not only is the opposite way of being more or less about something regarded as equally relevant, it is also obvious that there is no one way to measure the topics covered in a text, both in terms of their number – for which we will first need to define what it is for a text to be about a topic – and in terms of their share of the overall information imparted by the text. So the problem of degree is still pending.

## 2.4 The non-problem of non-existence

Before we move on, some space deserves to be dedicated to what is now a non-issue in aboutness theory, although it had originally been "imported" to it from other areas of philosophy where it is of great importance: (non-)existence.

Let us use two sample sentences making assertions about something non-existent in order to explain how it had once slipped into the debate:

---

<sup>31</sup> Turing (1950:434)

(1) The king of France is bald.

said in 2016.

(2) Jane loves Jack.

where (2) is a false statement – imagine that Jane doesn't even know Jack, she only sat next to him by coincidence and her happy smile was due to some sweet memory of Sam.

We will agree that (2) is *about* Jane and *about* Jack, but is it also *about* Jane's love for Jack? Similarly, most of us will be happy to say that it is *false about* Jane, also *false about* Jane and Jack, but some views have trouble accepting that it is *false about* Jane's love for Jack as there is no love of Jane for Jack for it to be false about. The problem is even greater in (1), which on some views cannot even be false, because there is nobody for it to be *false about*. Can (1) nevertheless be *about* something, and if so, what?

These questions seem to be very similar at first glance – they are all due to reference failure – but their philosophical backgrounds differ substantially.

For those coming to aboutness from epistemology or the philosophy of science, concern about successful reference is a reflection of their core issues. We cannot perceive what doesn't exist, hence not have first-hand knowledge; a string of problems about fallibility of knowledge from perception, about illusion and hallucination, about accuracy and precision of perceptual knowledge ensue (to list but a few). In science, theoretical terms and their conceptualisation, hypotheses and research questions add to the complexity. We cannot investigate or describe what doesn't exist. So in both epistemology and the philosophy of science, the question whether a descriptive statement about what isn't there can be true, and if so, in what sense of 'true', is of great importance.

Now, if a sentence cannot be true about what doesn't exist in this strict epistemological-scientific sense, it may seem natural to think that it cannot be false about that non-referent either. Transposed to the philosophy of logic and language, this takes us to a view on which sentences are regarded as true (or false) predications of an object, or in Fregean terms, functions taking objects to a truth-value, resulting in a narrow-scope view of falsehood. "Jane is bald" is false because baldness is not instantiated by Jane. Such views particularly get into trouble with statements about objects that don't exist, such as our (1). Without a referent, they cannot consistently say that it is false because there is nothing the predication is false of.

By contrast, wide-scope (Russellian) views can declare the whole statement to be false because successful reference to an object is not a relevant factor. For them, it is false that there is a king of France who is bald, and thus, (1) is false about there being a king of France who is bald. Note that these views therefore have truth and falsehood about a state of affairs, while Fregean views have truth and falsehood only about predications made of specific objects. This also means that in either case we have discussed a sort of aboutness that can only be found in what is inherently truth-apt, i.e. assertions and thus propositions.

(We will return to this issue.) We have discussed what it is for a sentence to be ‘true about’ and ‘false about’ something, not ‘about’ it *tout court*.

Pretty much all the theories discussed here agree that a sentence and its negation are about the same thing. Therefore, if a sentence is false about something, we should usually obtain a true sentence, one that is then ‘true about’ that thing, by negating part or all of it. This means that ‘true about’ and ‘false about’ both boil down to simply ‘about’. (The fact that the inverse does not hold has all too often been overlooked.)

Nevertheless, the ontological worry was very much on the mind of two early works on aboutness. Ryle<sup>32</sup> introduces a special sort of aboutness for philosophers explaining that, logically, a sentence can only be about objects, stuff or activities that exist in the world. By this extra-rigid referential criterion, not just objects of fiction like Pickwick, but also concepts like justice or the equator are not there for any sentence to be ‘about-referential’ any of them (likewise presumably for Jane’s *love*, but he might have accepted Jane’s *loving* Jack as long as (2) is true). Goodman<sup>33</sup> offers an adjectival solution, whereby the aboutness of sentences that have no referent in the world (such that their aboutness cannot be a two-place predicate because there is nothing to take the place opposite the sentence) is a one-place predicate including the non-referent. Thus whereas “Jane speaks” is about Jane, “Pickwick speaks” is only Pickwick-about.

There are many philosophical reasons and/or ways to eschew this problem. For mental /internalist views concerning meaning, the issue does not arise for language (it is relegated to the philosophy of mind instead). But also externalist views of meaning need not define aboutness in ontologically committed referential terms. Views that build on facts (presumably all possible facts) or states of affairs, presumably across all possible worlds, or directly on possible worlds, have no worries concerning the actual (present?) existence of a sentence’s object. Their criterion is logical possibility or conceivability. So “Pickwick speaks” is as innocuously about Pickwick as “Jane speaks” is about Jane, but “The round square is red” is just plain nonsense. Finally, for those interested in language taken in isolation and therefore interested in aboutness as a relation (or two-place property) independently of the ontology of its relata, whether a sentence’s object physically exists in our or any other possible world or not is as irrelevant as whether the sentence is spoken, written or signed.

So while the disappearance of existence as a problem in aboutness theory may be mainly due to technical developments, it seems to me that from a philosophical point of view, too, this is as it should be. Aboutness is not reference; it takes us to, or carves out, whatever the sentence represents, which can be an abstract topic just as well as a physical object. In fact, we need to allow unrestricted composition for the sentence’s object, which is therefore ontologically not even definable. This is just as well, because ontological worries, as we have seen, were imported to Logic and Language from other areas of philosophy and have been properly returned there.

---

<sup>32</sup> Op.cit.

<sup>33</sup> Goodman (1961)

### 3. Goodman's solution to the problem of occurrence and of degree

#### 3.1 A prominent instance of the problem of occurrence

In *The Logical Syntax of Language*, Rudolf Carnap misleadingly translated the “material/quasi-syntactical” sentence

(S1) Yesterday's lecture treated of Babylon.

into the “formal/syntactical” sentence

(T1) In yesterday's lecture the word ‘Babylon’ (or a synonymous designation) occurred.<sup>34</sup>

The reasoning behind this translation was evidently that “if, and only if, yesterday's lecture was concerned with a certain object, did a designation of that object occur in the lecture.”<sup>35</sup>

Now, while the right-to-left reading of this biconditional (occurrence in case of aboutness) is certainly plausible for an entire lecture dedicated to a topic, its plausibility diminishes proportionally to the length of the text in question. As we have seen (2.1 above), Ryle (1933) pointed out that for an individual sentence, it is no longer true. Moreover, the left-to-right reading (aboutness in case of occurrence) is certainly not right, as Carnap himself showed in the very same section. The word ‘Babylon’ or a synonym could well have occurred in yesterday's lecture without the lecture thereby treating of Babylon, just as yesterday's lecture could also have treated of Babylon without the word ‘Babylon’ or a synonym having occurred. So, Carnap's translation fails due to the problem of occurrence.

But it fails for another reason, too – for confusing use and mention. Curiously, Carnap had offered an interesting informal explanation of the difference between formal/syntactical use and mention only a few paragraphs earlier in §74:

Let us consider as an example the following sentence S1: “Yesterday's lecture was about Babylon.” S1 appears to assert something about Babylon because the name ‘Babylon’ occurs in it. In reality, however, S1 says nothing about the town Babylon, but merely something about yesterday's lecture and the word ‘Babylon’. This is easily shown by the following non-formal consideration: for our knowledge of the properties of the town Babylon it does not matter whether S1 is true or false.<sup>36</sup>

What marks the difference between use and mere mention, and hence between inconsequential occurrence and aboutness, Carnap explains, is whether the text in question potentially contributes to (if we hear, see or read it), or reflects (if we say, sign or write it), our knowledge of the properties of the object, in other words whether it predicates

---

<sup>34</sup> Carnap (1934/37) pp. 286 and 289, §74 and §75

<sup>35</sup> Op.cit. p. 288 (§74)

<sup>36</sup> Op.cit. p. 285 (§74)

anything of the object. In effect, this means that the object has to be the logical subject of a proposition, or be able to be turned into it by some simple transformation, and it must matter to our state of knowledge whether the proposition is true or not. (Note that Carnap confuses something else, too: Saussure's *signifiant* and *signifié*, one type of the form/object distinction, in claiming that S1 merely says something about the word 'Babylon'. It doesn't say anything about the word, of course. Instead, it uses the word in order to tell us that yesterday's lecture was about what that word signifies, i.e. the town Babylon. But we need not press this point any further here.) Carnap's translation T1 therefore falls prey to the very use/mention equivocation he wants to illustrate by it. It is S1 and S1 that do not predicate anything of the town of Babylon, not the lecture; so it is S1 and S1 in which the word 'Babylon' merely occurs by way of mention, but during the lecture, we may safely assume, something genuinely about Babylon will have been asserted.

### 3.2 Goodman's solution

#### 3.2.1 The extent of the problem

When Goodman (1961) took up the issue, he was mindful of Ryle's argument, but also of Carnap's propositional approach and his 'non-formal consideration'. His seminal paper begins with an outline of the sheer magnitude of the problem.

First he shows (against Carnap) what Ryle had merely remarked, viz. that the occurrence of a word is not necessary for the sentence to be about what it designates. Yes, the sentence

(1) Maine has many lakes.

is clearly about Maine. But since Aroostook County is in Maine, it would seem, not least by Ryle's "about-conversational", that the sentence

(2) Aroostook County grows potatoes.

is also about Maine. Carnap's informal criterion is met as well, as (2)'s truth matters for our knowledge of the properties of Maine. And for the same reason, since Maine is in New England,

(3) New England is north of Pennsylvania.

is about Maine, too.

At the same time, the occurrence of the word "Maine" is not sufficient for a sentence to be about Maine. For one, there is Carnap's use/mention problem (in fact, presented in its most obvious shape, that of Saussure's *signifiant/signifié* problem):

(4) "Maine" has five letters.

is clearly not about the state of Maine. But there is also the issue of logically valid but irrelevant sentences like tautologies, or true statements augmented into disjunctions such as

(5) Maine or Florida is Democratic.

which uses “Maine” all right but does not say anything about Maine by Carnap’s informal criterion because the truth of the sentence does not depend on what Maine is like.

Now, what (2) and (3) have in common is that their logical subjects Aroostook County and New England stand in a relation of parthood to Maine. Maybe that relation suffices to make them be about Maine, too? (We will see that David Lewis thought it did.) The trouble is that if we accepted this without further qualification, every sentence would come out as about anything because everything is part of the universe, so every sentence would ultimately be about the universe and hence about anything in it. But even if there were a stop-block to this, parthood doesn’t seem the right choice. Take:

(6) New England borders on New York.

Although Maine is part of New England, it clearly does not border on New York. So it seems counter-intuitive to most people to claim that (6) is about Maine. We need another criterion, and it has to be one that not only solves the problem that the occurrence of a designating term is neither necessary nor sufficient for a sentence to be about the object thus designated, but it also needs to ensure that the sentence does not come out as being about anything at all.

### 3.2.2 The criterion: selectivity and differential consequence

In order to pin down why some of the examples above, including some that build on parthood, seem arbitrary and fail to justify aboutness, Goodman points out that, intuitively, aboutness works just like selection. He says:

[...] “about” behaves somewhat as “choose” does. If I ask Johnny to choose some presents and he replies “I choose everything”, he has not chosen anything. Choosing something involves not choosing something else. That Johnny chooses every  $x$  is always false. Likewise, saying so and so about an object involves not saying so and so about some other. Nothing said about every object is said about Maine.<sup>37</sup>

So a sentence is only about an object if it says something about that object that it doesn’t also say about everything else in the universe.

There are two aspects to this requirement, the positive one of picking out something, and the negative one of not selecting something else, and Goodman insists that there must be something that is *not* selected.

---

<sup>37</sup> Goodman (1961) p. 5, (1973) p. 251

There are different ways this might be achieved formally. We could treat aboutness as a function that picks out certain elements in a domain. We could treat it as an intension yielding a set of objects; or as an equivalence relation between the elements in a set; or as a partition of a domain into elements thus selected in and out respectively. But for all this we would still need to add the requirement that the function / intension / equivalence relation must not yield all the elements in our domain, i.e. that the partition has something on either side of it. We will come back to this issue when we discuss later set-based proposals.

Goodman, famously not a friend of sets, takes none of these approaches. Instead, he builds his proposal on logical consequence. The idea is that, like Carnap, he wants to ensure that any occurrence of a designation is not one of mere mention but of use, and additionally cater for cases where sentences don't contain an explicit designation of what they are about. But unlike Carnap, he does not want to translate statements into a more formal language – his pluralistic-constructivist views would not allow for somewhat arbitrary preferences of one 'language' over another, nor assume translatability between 'languages'<sup>38</sup> – but rather wants to remain within one language or logic. Therefore, although he, too, uses a second sentence as the tool to distinguish aboutness from non-informative occurrence, rather than a translation, this second sentence is now one that follows logically from the first: A statement *S* is about an object *k* if another statement *T* follows logically from *S* with respect to *k*.

But he still needs to prevent a statement coming out as about anything at all. So additionally, he introduces the requirement that no generalisation of the statement with respect to a particular object should follow logically from it. This means that for an expression *E*, e.g. "Maine", in *S*, no statement *T* in which every occurrence of *E* is replaced by a variable governed by a universal quantifier should follow from *S*. For instance, (5) above follows logically with respect to Maine from

(6) Florida is Democratic

but so does its generalisation

(7)  $\forall x$  ( $x$  or Florida is Democratic),

so (5) is not about Maine.

Sentences that meet this requirement of selectivity are those that *follow differentially* from another sentence with respect to the subject selected. Goodman's formal definition of differential consequence therefore runs:

A statement *T* follows from *S* differentially with respect to *k* if *T* contains an expression designating *k* and follows logically from *S*, while no generalization of *T* with respect to any part of that expression also follows logically from *S*.<sup>39</sup>

We can see that Goodman has taken Carnap's idea of the occurrence of the object's designation on board, but mindful of Ryle's problem of occurrence the requirement now

---

<sup>38</sup> cf. Elgin (1998),

<sup>39</sup> Goodman (1961) p. 7

applies not to the statement itself, but to one following logically from it – logical consequence has replaced Carnap’s translation of material into formal sentences. The additional requirement that *T* should not likewise follow for a generalisation taking the place of *k* is the stop-block against *S* being about anything at all.

Nevertheless, there is still a difference in the way (1) and (2) above are about Maine, and it is not just about occurrence but also about degree. In fact, Goodman defines a total of three different forms of aboutness with the help of differential consequence. Let us look at them in detail.

### 3.3 Goodman’s solution to the problem of degree

#### 3.3.1 Absolute aboutness

There are some sentences that are straightforwardly about some object *k*, in the way (1) above is about Maine. For them, Goodman defines *absolute aboutness* as follows:

A statement *S* is absolutely about *k* iff some statement *T* follows from *S* differentially with respect to *k*.

(1) has a *k* that is referred to by its proper name, but we also have sentences containing designations of classes instead, like Hempel’s

(8) Ravens are black.

Now, in this case, the definition of absolute aboutness not only yields the class of ravens as our *k*, it also makes (8) come out as absolutely about black things, as well as the complementary classes of non-black things and non-ravens, because

(9) Non-black things are non-ravens.

follows differentially from (8) with respect to both non-black things and non-ravens.

As opposed to Putnam (1958), who wanted to avoid this result because it seemed undesirable from a confirmation theory perspective, Goodman thinks this is as it should be – logically equivalent statements should come out as about the same things. Moreover, since it is objects and the property classes referred to that fall out of differential consequence, a sentence and its negation come out as being about the same thing. Note that he thereby formalises the traditional, fairly broad concept of aboutness as selecting an issue rather than what is said about that issue (in contrast to later accounts, in particular Yablo’s; cf. 5.4.4 and ch. 6). It is not *that* a black thing is a raven but *whether* it is a raven, and not *that* ravens are black but *whether* they are black that is comprised in the concept.

Should this seems counter-intuitive, it may help to think that in philosophical debates, for instance, disagreement means that there still is a common topic – as a minimum the point people are disagreeing about. Conversely, when the conceptual differences are too big, which often happens when people want to explain very different matters, a debate becomes impossible because people are simply not talking about the same thing.



### 3.3.2 Immediate aboutness

Nevertheless, as this consequence is unwelcome in many contexts outside logic and mathematics, Goodman makes a concession and offers an additional definition, that of *immediate aboutness*, whereby a sentence is now no longer about things not named or designated in it. It runs as follows:

A statement *S* may be called *immediately about k* if *S* follows from itself differentially with respect to *k* – and therefore both mentions and is absolutely about *k*.<sup>40</sup>

“Mentions”, here, is not to be understood as the opposite of “use” but rather in the sense of occurrence. Note that we now no longer have another statement involved. Some designation of *k* is therefore necessary for *S* to come out as about *k*. However, occurrence is still not sufficient, as mere occurrence would not yield differential consequence with respect to *k*. So in line with Carnap’s informal requirement, the definition still ensures that *S* predicates something of *k*.

This option seems to be introduced with some reluctance because Goodman considers it a disadvantage that in immediate aboutness logically equivalent statements are no longer about the same things. For hyperintensional contexts, and therefore ordinary human communication, this result is, however, quite appropriate – much of what is expressed in natural language, even in statements of facts, cannot be subjected to the stringent rules of bivalent logic. This is not the place to stray into a discussion of whether logic should consequently be adapted to cover such needs, or whether its use should instead be limited to contexts where such stringency is appropriate, but relevance, and relevant logics, is another logical concern intimately linked to aboutness (we will get to this in ch. 4).

### 3.3.3 Relative aboutness

But let us now turn to what is perhaps the most interesting part of Goodman’s account, *relative aboutness*. More obviously than the two accounts for absolute and immediate aboutness, it comes in answer not just to the problem of occurrence but also to the problem of degree. In immediate aboutness, it is not sufficient, but necessary for a designation of *k* to occur in a sentence in order for that sentence to be about *k*. In absolute aboutness, the occurrence of a designation of *k* is neither necessary nor sufficient for *S*’s being about *k*, but *S* needs to say something of direct consequence about *k*. *K* can therefore be the logical contrapositive of something designated in *S*. Still, as we have seen illustrated in the first three examples above, Goodman thinks a sentence can be even less directly about something. But whereas Putnam and Lewis give accounts of degree that set the screw at the object of aboutness and take a quantitative approach – Putnam by calculating proportions of information and Lewis, as we shall see, by offering various accounts of parthood – Goodman, like Ryle before him, sees the variation in the relation

---

<sup>40</sup> Goodman (1961) p. 12

itself, i.e. in how various objects of aboutness stand to the sentence (cf. 1.1.5-7, 2.3). Ryle distinguishes degrees of aboutness according to criteria from discourse and sentence analysis, but Goodman's account must, of course, continue to build on the ideas of selection and logical consequence.

This is no easy thing to do. After all, selection does not come in degrees, you either choose something or you don't, nor does logical consequence, something either follows logically or it doesn't. But we already have a hint what to do about this from the difference between absolute and immediate aboutness. In absolute aboutness, a new statement  $T$  follows from our statement  $S$ , whereas in immediate aboutness,  $S$  follows from itself – no other statement is involved.

In relative aboutness, Goodman now wants to cater for the intuition that, for instance, statements about Aroostook County are also about Maine, however in some sense that is different from statements absolutely about Maine. The ingenious solution is to spell out what makes them seem to be about Maine, viz. our knowledge that

(10) Aroostook County is in Maine.

This formerly implicit information links (2) above to Maine, so that (2) is about Maine relative to (10) – we have thereby got one more statement. Therefore, relative aboutness now works with three rather than two statements. The technical difficulty lies once more in selection. Goodman needs to make sure again that relevance is guaranteed such that a sentence like

(11) Ghana is tropical and Maine prospers

is excluded from counting as a valid link. The linking statement  $Q$  has to be about some designated object  $l$  from statement  $S$  and about the object  $k$  not mentioned in  $S$  which  $S$  is considered relatively about, in a way that is relevant. Differential consequence on its own cannot provide for this. So Goodman introduces the concept of *unitary consequence*, roughly one that cannot be split in the relevant places. Technically, a unitary consequence is a statement in which any conjunction sign which might link objects  $k$  and  $l$  in  $T$  is captive, i.e. within the scope of the existential quantifier, and the statement cannot be modified to remove the conjunction from there. With this in place, Goodman now requires the conjunction of the two statements in question,  $S$  and  $Q$ , to take us to a third statement  $T$  which is their unitary consequence. The resulting definition is that

$S$  and  $Q$  are about  $k$  relative to each other if and only if some unitary consequence  $T$  of  $S \cdot Q$  follows differentially with respect to  $k$  from  $S \cdot Q$  but not from either  $S$  or  $Q$  alone.<sup>41</sup>

We now have differential consequence with respect to  $k$  from two statements jointly. The fact that Aroostook County grows potatoes is thereby understood to tell us something about Maine because Aroostook County is in Maine. Note that the link between Aroostook County and Maine just happens to be parthood relation in this particular case. Goodman's account caters for any connection between an absolute and a relative topic as

---

<sup>41</sup> Goodman (1961) p. 16

long as that relative topic follows by the applicable set of logical rules (on which he abstains from judgment).

Let us now look at the advantages and shortcomings of Goodman's proposals.

### 3.4 The pros and cons of Goodman's account

#### 3.4.1 Logical pluralism

Logical pluralism is certainly one of the advantages of Goodman's account. He avoids any commitment concerning the logic to be applied. All that is required is that there be rules on what proposition follows from another, surely the minimal requirement one can make of anything deserving of the name 'logic'. In marking the difference between absolute and immediate aboutness, he does seem to assume bivalence (else contrapositive statements would not follow differentially as in the raven example above), but multivalued logics could still use his definition, only the result as to what counts as 'logically equivalent' would obviously be different.

#### 3.4.2 Selectivity

Goodman made two seminal contributions to aboutness theory. The first is selectivity, the idea that aboutness singles out an object from among others. This not only reflects our intuitions of what the role of a topic is, it is also technically very important. We will see that Lewis's favourite proposal is severely flawed because he disregards this principle all together and is therefore unable to keep sentences in his account from turning out about anything at all; and that Yablo's recent repair is also not fully satisfactory in this respect because he only delimits his topic externally but does not provide a stop-block for internal infinite detail. It is both intuitively and technically crucial that an account of aboutness afford complete clarity about what is singled out if it wants to serve any purpose outside philosophy.

#### 3.4.3 Relative aboutness

The other seminal contribution of Goodman's is his account of relative aboutness. In spelling out why a statement like (2) may be considered to be about Maine, Goodman explicates what happens when we communicate in language about things we do not explicitly denote, when we use any sort of implication, indirect reference, Gricean conversational implicature, but also metaphors, particularly when they are new. These cases, all variants of the problem of occurrence, seem puzzling at first glance, in particular to views that do not believe in permanent background inferences going on when we understand language utterances, and they have also been troublesome to radical compositionists about meaning. In such cases of non-explicit denoting, there often

actually is some underlying reasoning going on when we communicate in this way, and Goodman was the first to offer a formal definition of it. We will see how Yablo adapts the general concept to his own account of aboutness.

After these truly ground-breaking pros, we must now turn to the disadvantages in Goodman's account.

### 3.4.3 Ontology

The first one, already discussed in 2.4, seems strangely out of place in this paper today, 56 years after its publication. In analysing how objects stand to sentences, Goodman took on an aspect from Carnap and Ryle that has meanwhile been passed back to epistemology, where it properly belongs, namely the ontological status of those objects. For Goodman a sentence can only be absolutely, immediately or relatively about an object that physically exists in the world. Sentences designating fictional characters, for instance, are about nothing (and thereby logically equivalent and hence indistinguishable). In order to account for the difference between statements talking of Pegasus and those talking of Pickwick, he therefore proposes to distinguish between a two-place predicate representing a relation between a sentence and an object on the one hand, and a one-place predicate schema whereby sentences are “*x*-about” (I use *x* as a place-holder for any object, in particular a non-existent object, of a sentence) on the other hand. Also in his 1977 paper co-authored with Ullian,<sup>42</sup> in which they distinguish “dependent on *k*” and “about *k*” from “true / false about *k*”, the ontologically motivated distinction is upheld and definitions analogous to that of 1961 are given for “*x*-true-about” and “*x*-false-about”.

But this is a strange move to make. Goodman was clearly interested in the nature of aboutness *per se* (hence his point about selectivity). Stretching his account to include the relata seems an entirely unnecessary liability. The trouble on the one side of the relation is that his explication only works for assertions – we will get to that shortly. But there, the restriction to a single sort of relatum is an – unfortunate – result of the way he formalises aboutness, it is not created on purpose for ontological reasons. For the other relatum, however, a further restriction, beyond the one inherent in differential consequence, is wholly unnecessary. The way a sentence relates to its object is no different, no matter what sort of object is picked out. Where there actually is a difference in the relation, viz. in problem of interest, we will see (in 6.1.1) that this sort of “thick” predicate may be of some help. But for ordinary aboutness, all the relatum needs to be is something with respect to which a statement can follow differentially. In particular, whether the object is something that physically exists or not makes no difference to the way it is picked out by one or more assertions.

The explanation for this odd move is very likely to be found in Carnap's influence. Striving to draw a line between what science as opposed to what metaphysics, psychology or poetry should deal with, Carnap's philosophy builds on observability and thereby on the physical existence of the objects of scientific statements. Goodman considers

---

<sup>42</sup> Ullian & Goodman (1977)

aboutness a semantic relation. If one defines semantics as the relation between language and world, one may be inclined to look for semantical objects of language only among the things in the world and end up thinking a sentence cannot semantically relate to characters of fiction, abstract objects, etc. But as I have pointed out (in 2.4), this is mistaking “about” for “true about”.

Note the big difference between aboutness in language (and any other medium of representation) and intentionality in this respect. Goodman does say: “The problem of thoughts about, beliefs about, feelings about, etc. is another matter.”<sup>43</sup> He overlooked that it is only there that existence becomes important.

#### 3.4.4 Propositionality

The ontological issue, however, is trifling compared to the real handicap built into Goodman’s account: propositionality. Rather than picking out objects directly, as the set-based solutions can, Goodman makes them fall out of propositions – they are that with respect to which a statement follows from one or more others (as a minimum, from itself). This has pernicious consequences.

First of all, it cannot give us an account of what any sentence that is not an indicative assertion is about, because his account rests entirely on logical consequence and can therefore not be applied to the kinds of sentence from which nothing can logically follow. Therefore, when at the end of the paper Goodman notes that he has “not discussed exclamations about, questions about, phrases about, etc.; but these should not present any grave new difficulties”,<sup>44</sup> this comment seems spurious.

Secondly, his account not only excludes non-propositional kinds of sentence, it is also not helpful for texts consisting of more than one sentence. It is hard to imagine what criterion he could offer for telling us what a longer piece of text is about, other than perhaps a collection of all the *ks* all assertions in the text are about, which would hardly be what we are looking for. Differential consequence seems a bad start for a convincing account of what a story or a book is about.

And finally, the technical propositionality requirement entails that Goodman’s proposal is also unable to tell us what any form of non-verbal representation – paintings, pictures, sculptures, music, whatever they are – or quasi-verbal piece of language (emojis, arrows, etc.) are about. While this is not the place to discuss non-verbal representation, neither in nor outside Goodman’s philosophy, we do need an account for the increasing number of quasi-verbal elements used more and more frequently in everyday written language.

Unfortunately, the propositionality issue afflicts most later accounts, too, although to a lesser degree. We will therefore return to this problem.

---

<sup>43</sup> Op.cit. p. 24

<sup>44</sup> Op.cit. p. 24

### 3.5 Goodman's influence

Goodman's paper spurred a flurry of responses in philosophy,<sup>45</sup> initially dealing mostly with logical issues (many concerned the definition of absolute aboutness), duly replied<sup>46</sup> to, and is also cited widely in literature outside philosophy.<sup>47</sup> It has influenced all subsequent accounts of aboutness.

A recent one, Urbaniak (2009),<sup>48</sup> is noteworthy because it takes from Goodman (and thus ultimately from Carnap, as we have seen) the idea that aboutness requires reflecting or furthering knowledge concerning the object in question. However, he disregards the problem of occurrence which showed that whatever grip we try to get on the aboutness of a sentence, we had better not link it to the occurrence of words. But Urbaniak's bespoke formalisation of aboutness does just that and therefore remains limited to applications in logical models.

Urbaniak had spotted a problem of aboutness in Leitgeb's 2002 argument concerning Yablo's paradox – logically permissible additions and transformations should not be allowed to tamper with a statement's aboutness. In analogy to Goodman's 'differential consequence' (cf. section 3.2.2), he solves the problem by introducing model-theoretic 'informative aboutness'.<sup>49</sup> A constant *a* or predicate *P* occurs informatively in a sentence, iff there is another constant *b*, or predicate *Q*, such that its replacing *a*, or *P*, would render the sentence logically inequivalent. He then defines that a sentence is about *x* iff *x* is referred to by *a* or *P* that occur informatively in the sentence. While this tool solves Urbaniak's Leitgeb – Yablo problem, it is not applicable to natural language sentences. Tying aboutness to occurrence means that a sentence like "The Queen's maid's shoelaces' tip is splitting" comes out as about the Queen, her maid, the maid's shoelaces, their tip and everything that is splitting, although we learn nothing about either the Queen or her maid or other splitting things. Conversely, the sentence does not come out as about the quality of the material and manufacturing of the shoelace, the result of careless treatment of shoelaces or about improper attire of the Queen's maid, because no reference to these occurs in the sentence. This extremely narrow formalisation is therefore not useful for applications outside logical models.

In the following chapters we will be dealing with accounts using possible worlds semantics, both of which were influenced by Goodman's. The first one, Lewis's, takes up the Carnap-Goodman idea that aboutness is connected to relevance, but unfortunately, it drops the idea of selection. However, it also has no ontological worries and can serve sentences other than assertions. In Yablo's account, selection is vindicated to a large

---

<sup>45</sup> Ullian (1962), Rescher (1963), Patton (1965a,b), Putnam & Ullian (1965), Hodges (1971) and even Niebergall (2009)

<sup>46</sup> Goodman (1965, 1972), Ullian & Goodman (1977)

<sup>47</sup> Ironically, it is not listed on Google Scholar nor "CrossRef"-ed at the time of writing this, so details can't be stated, but I have come across it in all LIS literature on aboutness, but also in various areas of the humanities.

<sup>48</sup> Urbaniak (2009)

<sup>49</sup> Vranas (2017) has another account of 'informative aboutness'.

extent, and Goodman and Ullian's take on partial truth is strongly reflected in the account of the relations between subject matters.

## 4. Lewis's mereological *tour de force*

### 4.1 What drove Lewis

#### 4.1.1 Observation sentences

Aboutness is an issue Lewis took up relatively late in his philosophical work, a fact that is underlined by the apparent historicity of the first motivation he states: Vienna Circle ideology and, more specifically, the desire to draw a line between scientific and non-scientific deliberations. The Vienna Circle wanted philosophy to be about science, without what they called metaphysics; they wanted it to deal with facts, i.e. things that are at least in principle verifiable and hence observable, and stay clear of unverifiable conjectures, personal judgments of taste or value and other expressions of mental states. The obvious way to achieve that seemed to be by censoring texts. Naively, one might think that science should consist of observation statements only; but that would mean that no hypothesis could ever meaningfully be phrased nor could science ever speak about things that are too small, or too big, or too distant in space or time, to be observable – all things that could and should not be banned. So some broader criterion was needed. Rather than looking to the locus classicus, Carnap's *Aufbau*, for it, Lewis picked a formulation from A.J. Ayer's *Language, Truth and Logic*.<sup>50</sup>

Ayer proposed to regard only those sentences as meaningful which are statements of fact whose truth or falsity could be verified empirically, any statements logically derivable from them, and analytic statements which served as a kind of dictionary in that they expressed “our determination to use symbols in a certain fashion” (p. 9). The key to meaningfulness for any sentence other than a tautology was therefore its compliance with the *Principle of Verification* which stated:

[...] that a statement is verifiable, and consequently meaningful, if some observation-statement can be deduced from it in conjunction with certain other premises, without being deducible from those other premises alone.<sup>51</sup>

This first version, dating back to 1936, failed spectacularly. One important way in which it fails is by a notorious aspect of material implication: A conditional comes out true whenever the antecedent is false (or the consequent is true). Let *O* be the observation-statement, *S* the statement whose verifiability is in question. *S* → *O* is true if ¬*S* is true, so *O* can be deduced from *S* in conjunction with ¬*S* without being deducible from ¬*S* alone. *S* thereby meets the criterion of verifiability and meaningfulness when it is false. The principle was emended ten years later to run:

[...] a statement is directly verifiable if it is either itself an observation-statement, or is such that in conjunction with one or more observation-statements it entails at

---

<sup>50</sup> A.J. Ayer (1936/46)

<sup>51</sup> Op.cit. p. 179



least one observation-statement which is not deducible from these other premises alone;

[...] a statement is indirectly verifiable if it satisfies the following conditions: first, that in conjunction with certain other premises it entails one or more directly verifiable statements which are not deducible from these other premises alone; and secondly, that these other premises do not include any statement that is not either analytic, or directly verifiable, or capable of being independently established as indirectly verifiable.<sup>52</sup>

So in order to be meaningful, by the emended version, a statement should be directly or indirectly verifiable according to the new criteria above. However, the principle was no more successful in its new version than in the old one. The emended version fails by strict implication:  $(S \supset O)$  comes out true whenever  $O$  is a logical truth or  $S$  a contradiction. But if  $S$  is a contradiction and we make  $O$  follow from it as in  $(S \supset \neg S) \supset O$ ,  $S$  still meets these new criteria for direct verifiability.

Lewis gives Ayer's problem a new twist, pointing out that the distinction Ayer needs is between statements that are at least partly about some observation and those that are wholly unrelated to observation. The first step of the solution he proposes is splitting Ayer's *Principle of Verification* in two, the *Entailment Principle* whereby any statement that entails a verifiable statement is itself verifiable; and the *Compositional Principle* whereby any truth-functional compound of verifiable statements that is not analytic is itself verifiable. He then shows that provided we start from an observation statement, closure under both these principles yields a set of statements that has the desired characteristics. What remains to be done is to show in what sense a statement can be entirely or partly about some observation. We will get to this in 4.3 and 4.4.

#### 4.1.2 Relevant logics

The second motivation Lewis states is relevance in logic. In the debate whether so-called 'classical' logic should be adapted to cater for our pre-logical intuitions or not, Lewis stands on the latter side and, moreover, defends first-order logic. He therefore owes an answer to the concerns of relevant logics, the movement that wants to prevent logical consequence from yielding statements that are irrelevant to their antecedents. We have just seen two examples. The first is material implication as in  $S \supset O$ . In bivalent logic, the conditional is valid whenever  $O$  is true, irrespective of whether  $S$  is true or not, and whenever  $S$  is false, irrespective of whether  $O$  is true or not. (The conditional only comes out false when  $S$  is true and  $O$  is false.) So it seems that there is no intrinsic connection between the antecedent and the consequent. This flies in the face of our pre-logical intuitions in several ways.

One is that  $S \supset O$  follows logically from  $O$ , even if  $S$  is in no way relevant to  $O$ . Take: "If Salzburg is built from salt, Oxford is in England." As  $O$  is true,  $S \supset O$  follows logically irrespective of the fact that what Salzburg is built from is irrelevant to where Oxford is.

---

<sup>52</sup> Op.cit. p. 181

Another way, that is perhaps worse, is that  $S \rightarrow O$  follows from  $\neg S$ . Take: “If Salzburg is in Sussex, Oxford eats oxygen.”  $O$  is not just unrelated to  $S$ , it is plain nonsense. Nevertheless,  $S \rightarrow O$  follows because  $S$  is false.

But even less far-fetched examples are problematic. On pre-logical intuitions, the first issue may still be acceptable when  $O$  is desirable, for instance if the conditional is “If you do your homework, you’ll get an ice cream.” If the homework is not done and there is no ice cream, that is as expected; if there is ice cream in spite of the homework not having been done, there won’t be protests. But imagine a pre-logically equivalent conditional: “If you don’t do your homework, you won’t get ice cream.” Here, a false  $S$  entailing a true  $O$  (i.e. the homework done but no ice cream served) will do little to boost the next generation’s enthusiasm for bivalent logic.

The second example in 4.1.1 is strict implication, C.I. Lewis’s attempt to solve at least part of the problems just described. It aims to guarantee the relevance of  $S$  to  $O$  by having  $S \rightarrow O$  hold in all  $S$ -worlds by restricting it to  $\neg (S \rightarrow \neg O)$ . So whenever there could be  $S$ -worlds that have no  $O$  (which would be the case where  $S$  is irrelevant to  $O$  as in our Salzburg/Oxford examples above),  $S$  does not strictly imply  $O$ .

Nevertheless, strict implication does not prevent *ex falso quodlibet*, the rule that anything follows from a contradiction; nor does it prevent a logical truth following from any statement whatsoever. These are two further “fallacies of relevance” that relevant logics aim to tackle. We will see that D.K. Lewis has an interesting answer regarding the issue with material implication, but demands that we bite the bullet on strict implication.

## 4.2 Lewis’s apparatus

Lewis’s account of aboutness builds on his possible worlds semantics. For Lewis, logical space consists of all possible worlds (but does not contain impossible worlds). Worlds are the jointly exhaustive, individually maximal ways things can be. One of them is ours. Tichý<sup>53</sup> points out correctly that since we cannot know everything about our world, we cannot know which among all those worlds in logical space we inhabit. But this will hardly faze the modal realist. On the one hand, every new fact we learn about our world further restricts the class of worlds among which we know ours to be, so the argument will not discourage scientific investigation or any other form of human curiosity. On the other hand, this epistemic worry is quite alien to the areas where possible worlds are generally of interest. As worlds are causally isolated from each other and thus epistemically mutually inaccessible, approaching them with an epistemic interest is futile in principle. They mostly serve logical purposes where they rid us of worries to do with modality that afflict rival theories (prominently those which evolved out of Vienna Circle ideology).

One of these purposes is modelling propositions. Metaphysically, the idea is much like Russell’s when he pointed out to Frege<sup>54</sup> that in “Mont Blanc is more than 4,000 metres high”, Mont Blanc with all its snowfields is itself a component part of the proposition. In

<sup>53</sup> Tichý (1975)

<sup>54</sup> In his famous 1904 letter

other words, a thing, the way it is, or a state of affairs instantiates – and thereby just is – the proposition expressed by a statement. Expanded by modality, Lewis takes all the ways the proposition can be instantiated, i.e. all the worlds possessing that state of affairs, together, such that the proposition just is the class of worlds where it is true. The proposition thereby partitions logical space into the class of worlds where it is true and the class of worlds where it is false. It is sometimes reduced to just that partition. For a number of views this will simply be unpalatable.<sup>55</sup> But here, we shall follow Lewis in this.

As part of his apparatus, Lewis therefore also needs set theory, albeit very little of it. It does not go beyond some very basic rules about how sets, or classes, relate to each other. Nevertheless it will be good to bear in mind that Lewis tried to reduce set theory to what he called “megethology”,<sup>56</sup> i.e. mereology plus plural quantification. Since he published *Parts of Classes*<sup>57</sup> only three years after his three aboutness papers, we may assume that he thought about both problems at roughly the same time. For our purposes, two aspects are relevant. First, Lewis considers subsets, not implausibly, parts of the sets whose subsets they are. This is therefore the starting point for his mereological approach. Secondly, he finds the metaphysics of sets and the set membership relation as puzzling as any student rebel does, too, in particular when it is used to create singletons. Nevertheless, he (and all student rebels) must live with it or else lose classes all together, because without the encapsulating effect of set membership, we could never pair sets, only create their unions, we could never have different ‘levels’ and thereby not build a hierarchy of sets (for instance ZFC’s V). However, we shall see that Lewis tries to do without it as far as at all possible – too far, as will become apparent in 4.6.

### 4.3 Aboutness, entire

With his motivations and apparatus under our hats, we are all set to delve into Lewis’s hugely influential account of aboutness. In spite of the evident differences, it bears a remarkable similarity to Goodman’s account in that it, too, lets subject matter result from two elements, two statements in Goodman’s account and pairs of worlds in Lewis’s, and by starting from propositions with truth being an essential element in the account. Lewis, however, takes a metaphysical approach based on the propositional realism outlined in 4.2, whereas Goodman’s account is abstractly logical.

Let us first look at the elements involved in aboutness. Effectively, these are the elements we discussed in 1.1.5ff – a piece of text, a subject matter and the relation between them. For the piece of text Lewis takes a statement and looks first at its object and last at its form. We thus get:

---

<sup>55</sup> This is the case, in particular, for platonists about propositions who refuse to regard propositions as sets of anything. They will therefore not be able to form intersections or subsets, which constitute the basis of Lewis’s account of partial aboutness. (I thank Barbara Vetter for pointing this out to me.) Lewis’s reduction must, however, also be rejected by modal realists who defend a subjectivist account of meaning (as I do), because this view regards the meaning of statements as hyperintensional. It can therefore not be reduced to the way things objectively are, even across all possible worlds.

<sup>56</sup> Lewis (1993)

<sup>57</sup> Lewis (1991)

- i. content, given by the class of worlds the statement excludes;
- ii. subject matter, given by an equivalence relation on worlds;
- iii. the supervenience of the statement's truth value on its subject matter; and
- iv. the statement's verbal and syntactical form.

Except for (iv.), they are all based on the reduction of statements to propositions and of propositions to the sets of worlds in which they are true as outlined above. We will discuss them in detail in the section on partial aboutness. For now, note that content is defined by its contrapositive, the set of excluded worlds – but subject matter must, of course, cut across this partition because the subject matter of a statement is the same as that of its negation.

Lewis gives the following definition:

- (1) A statement *S* is entirely about some subject matter *M* iff its truth value supervenes on that subject matter.<sup>58</sup>

Let us call the worlds where *S* is true the *S*-worlds, and the worlds where it is false the  $\neg S$ -worlds. The *S*-worlds must all have a part that makes *S* true, which is the part that is *M*; the  $\neg S$ -worlds either lack that part all together or have an *M*-part that makes *S* false. As a first possibility, Lewis therefore regards subject matter as just those *M*-parts (or the function that picks them out) in all possible worlds. But the idea behind (1) is that two worlds exactly alike with respect to that *M*-part must either both make *S* true or both make it false. Likewise, if *S* is true at one and false at the other world, they must differ with respect to their *M*-parts. In other words:

- (2) A statement *S* is entirely about a subject matter *M* iff whenever two worlds are exactly alike with respect to *M*, they also agree on the truth-value of *S*.<sup>59</sup>

Lewis's intuition is perhaps best explained with the help of one of his own examples, the 17<sup>th</sup> century. Each set of worlds whose 17<sup>th</sup> centuries are exactly alike forms a cell; these cell-mate worlds are therefore characterised by their equivalence concerning the 17<sup>th</sup> century. The totality of those cells then represents all the ways the 17<sup>th</sup> century can be and can be picked out by the equivalence relation governing the cells. We can therefore reduce subject matter to that equivalence relation – the second option.

As a third option, we can look at what the equivalence relation does to logical space. It splits it into cells of maximally specific ways things are with respect to *M*. This partition into cells is therefore a third way to think of subject matter.

The fourth way is to associate the partition with a question such that each cell is a possible answer. So, in a Carnapian spirit,<sup>60</sup> subject matter could be regarded as that question.

There are two important upshots to this definition and its four interpretations. One comes from (2) and concerns cell size versus subject matter size. The 17<sup>th</sup> century is a larger subject matter than, say, the 1680s. It is therefore more “difficult” for worlds to agree on

---

<sup>58</sup> Lewis (1988b) p. 136

<sup>59</sup> Op.cit. p.139

<sup>60</sup> Ramharter (2006)

the 17<sup>th</sup> century than on the 1680s. This in turn means that (i) worlds agreeing on the 17<sup>th</sup> century *a fortiori* agree on the 1680s, and (ii) there are fewer worlds agreeing on the entire 17<sup>th</sup> century than there are agreeing on the 1680s (they could be quite different with respect to the 1690s, for instance). So the larger the subject matter, the smaller the equivalence cells of worlds concerning it.

The other upshot comes from (1) and is that Lewis's "entirely about" is to be understood as "not about anything else". The supervenience of *S*'s truth value on a subject matter *M* means that any change to any part of *M* must bring about a change concerning the equivalence relations governed by the truth value. So the definition yields least subject matters, but the truth value will supervene likewise on any larger subject matter of which the least subject matter is a part. This means that a statement entirely about the 1680s is also entirely about the 17<sup>th</sup> century; it is not, however, entirely about 1689, because in also saying something about 1680-88, it has subject matters going beyond 1689, but none of what it says about the 1680s goes beyond the 17<sup>th</sup> century. We will see why Lewis chooses this approach when we get to partial aboutness in 4.5.

#### 4.4 Subject matters and relevance

So, like Goodman, Lewis thinks that a statement can be about several subject matters. Although he does not discuss a statement's relations to different disconnected subject matters ("The 1680s were exciting times." could be about the 1680s, excitement, exciting times, and others), he does discuss the way subject matters can relate to each other, irrespective of the statements they are of, specifically with a view to explaining relevance.

We have just seen that subject matters come, in a sense, stacked and that equivalence classes yield least subject matters. We have also seen that content is given by the excluded worlds. As a result, contradictions, that hold in no world, give us maximum content or information about no subject matter while logical truths, that hold in all worlds, give us no information about every and anything. On the other hand, we wanted statements and their negations to share a subject matter. But the negation of a contradiction just is a logical truth and the negation of a logical truth just is a contradiction. So Lewis resolves to call subject matters of non-contingent statements 'degenerate'.

Concerning all others, there are the usual mereological relations of overlap (having a common part), being disjoint (having no common part), sum (including all the parts) and intersection (being a common part). Moreover, we are given the quasi-topological relations of connection and orthogonality. Two subject matters  $M_1$  and  $M_2$  are orthogonal iff any way for  $M_1$  to be is compatible with any way for  $M_2$  to be. In effect this means that  $M_1$  and  $M_2$  are irrelevant to each other. Subject matters that are not orthogonal are connected.

There are therefore four ways propositions can be relevant to each other. They can share the same least subject matter (identity); the least subject matter of one can be included in that of the other; their least subject matters can overlap, or be connected. If no common part of the two subject matters counts as a genuine subject matter (Yablo will take us back to this problem), identity and inclusion do not imply overlap, otherwise they do. While we

disregard non-contingent sentences, identity implies inclusion, and both inclusion and overlap imply connection.

With these definitions established, we can now turn to Lewis's answer to the worries of relevant logics, in particular concerning material and strict implication.

Implication in possible worlds semantics is defined as follows:

(3) Proposition  $P$  implies proposition  $Q$  iff every world that makes  $P$  true makes  $Q$  true as well.<sup>61</sup>

Since statements and their negations share a subject matter, whenever  $P$  or its negation implies  $Q$  or its negation,  $P$  and  $Q$  are relevant.

An argument from  $P$  to  $Q$  is truth-preserving iff  $P$  implies  $Q$ , and relevant iff  $P$  is relevant to  $Q$ . Lewis now explains that there are some argument-forms that are neither truth-preserving nor relevant ("If you don't agree that A, I shall beat you with this stick. Therefore A.") and others that are relevant but not truth-preserving ("A. Therefore not A."), but that there can be no argument that is truth-preserving but not relevant. He does not explicitly give an example of material implication, but the problem there was that in  $S$

$O$ ,  $O$  followed from both  $S$  and  $\neg S$ . This means that any way for  $S$ 's subject matter to be is compatible with any way for  $O$  to be. This means that  $S$  and  $O$  are orthogonal and thus irrelevant to each other. Lewis therefore goes with relevant logics concerning material implication.

The case is different for strict implication, which cannot prevent *ex falso quodlibet*.

Remember that a contradiction is about every subject matter, so it necessarily shares a subject matter with the conclusion (as does a tautology with which the contradiction shares a subject matter). Likewise, a tautology is made true by every world, hence also by the worlds that make the premise true, so that a tautology is implied by every proposition. As Lewis puts it: "The very last place to look for irrelevance [according to the present treatment] will be an argument-form where either the premise or the conclusion is either a contradiction or a tautology."<sup>62</sup>

So Lewis's account answers only part of the relevant logicians' concerns, but by the way subject matters are stacked, he also gives us an explanation of how statements can be about things they don't mention – the problem of occurrence.

Let us now look at what he can do for "Old Vienna"; he will thereby also give us his solution to the problem of degree.

#### 4.5 Aboutness, partial

Ayer's – and the Vienna Circle's – problem was to offer a criterion for the meaningfulness of statements, and Lewis's suggestion is to require that statements should be at least partly about an observation. He therefore needs to give an account of partial aboutness. Starting from the four elements listed in 4.3, he shows how each of them can be parted so as to yield only partial instead of entire aboutness. We can have parts of a piece of text (in

---

<sup>61</sup> Lewis (1988c) p. 119

<sup>62</sup> Lewis (1988c) p. 121

Lewis's case a statement), where in turn we can distinguish between form, i.e. syntax, and content; part of the subject matter; or parthood in what relates the two. Lewis puts all four possibilities on the table (in 1988b), before developing subject matter in greater detail (in 1988c) as we have just seen.

It will be helpful to have an example. I suggest:

(a) I am in the library and it is dark outside.

Let us begin with Lewis's last option, (iv.) above.

#### 4.5.1 Syntactical form

In terms of (iv), the syntactical form, (a) is a statement consisting of a conjunction of two observations, namely that I am in the library and that it is dark outside. Compare this to another of Lewis's examples where only one of the conjuncts is an observation statement:

(b) The Absolute is crafty and it is dark outside.

In (b) we therefore have a statement partly about observation (as Lewis puts it). Lewis's suggestion for Ayer is therefore that statements only need to be partly concerned with observables in this sense of 'partly' – another part of them can be about something that cannot be observed. This is therefore the reason why "entirely about" is defined as "not about anything else" – thus (a) is entirely about observations.

Lewis did not define (iv) in terms of classes of worlds, although he could have. The remaining three elements are all worlds-based and thereby closely related to each other.

#### 4.5.2 Content

The intuition behind (i) is very similar to the one we have just seen in (iv), but instead of the statement's syntactical form it is now its content that is divided, content being understood as the proposition which is in turn understood as a class of worlds. Lewis demarcates it from outside, as it were, giving the content of a statement by the class *E* of excluded worlds. For (a) these are the worlds where I am either not in the library, or it is not dark outside, or both; for (b) the worlds where the Absolute is not crafty, or it is not dark outside, or both.

If we want to obtain parthood of aboutness from "part of the content", we need only a part of *E*. Thus in (b), the subset of *E* that excludes the worlds where it is not dark outside is the one that yields the part that is "about observation". Lewis defines this sort of partial aboutness as follows:

(3) A statement *S* is partly about a subject matter *M* iff part of its content is entirely about that subject matter *M*.<sup>63</sup>

---

<sup>63</sup> Lewis (1988b) p. 144

This is not all that far away from Goodman's solution. The example Lewis gives is of a conjunction and since conjunctions entail their conjuncts, it brings us very close to Goodman's account, particularly in Lewis's rephrased form:

(4) *S* is partly about *M* iff *S* entails some statement *T* entirely about *M*.<sup>64</sup>

Lewis thereby explicates entailment as the inclusion of one class of worlds in another, a point we will find to be particularly prominent in Yablo's account. Unfortunately, Lewis does not include Goodman's provision of differential consequence. His definition therefore makes this sort of aboutness transitive, so that any *S* whatsoever that entails *T* comes out as being partly about *M*. But since a contradiction entails any statement, this means that any contradiction is partly about any *M*.

Nevertheless, this account has been used by Robert Demolombe in Library and Information Science for a formal delineation of subject matters.<sup>65</sup>

As far as Ayer's problem is concerned, it helps determine whether a statement is partly about an observation, but not whether it is meaningful, as the case of (b) has shown.

#### 4.5.3 Subject matter

The next proposal, Lewis's favourite (he develops it further in his 1988c), tackles parthood at the opposite side of the relation, subject matter. As explained in 4.3, subject matter can reductively be defined as the equivalence relation holding between any two worlds exactly alike with respect to that subject matter. This means that these worlds each have a part that is metaphysically, i.e. intrinsically, the same as its counterpart part in the other world. It is not immediately obvious how we can get to partial aboutness here in a way that helps determine whether a statement is partly about an observation, for instance. This is where we need Lewis's definition of 'entire aboutness' as 'not about anything else' again. Partial aboutness can be obtained by having statements about our subject matter *M* and about something else as well. *M* must therefore be a part of what *S* is about. The resulting definition might have been

(5) A statement *S* is partly about a subject matter *M* iff it is entirely about a larger subject matter *M*<sup>+</sup> which includes *M* as a part.

But this will not do, because it would allow *M*<sup>+</sup> to contain anything at all added to *M*, for instance by conjunction. So Lewis adds a patch to the definition, which therefore runs thus:

(6) A statement *S* is partly about a subject matter *M* iff it is entirely about a certain suitable larger subject matter *M*<sup>+</sup> which includes *M* as a part.<sup>66</sup>

Suitability is to prevent completely unrelated topics being brought in by conjunction as well as too distantly related topics resulting from partitioning classes too finely. Remember that the larger the subject matter, the smaller the classes of worlds agreeing on

<sup>64</sup> Lewis (1988b) p. 145 – calling the second statement “*T*” is my addition

<sup>65</sup> E.g. in Robert Demolombe and Luis Fariñas del Cerro (2000). Thanks to Gabriel Sandu for pointing me to this paper and thereby to this research area.

<sup>66</sup> Lewis (1988b) p. 146



it. So  $M+$  yields smaller classes than  $M$  does, but they shouldn't get too small, in order not to find ourselves straddled with Goodman's problem that any statement comes out as about anything at all (cf. 3.2.1). This patch makes Lewis's off-hand dismissal<sup>67</sup> of Goodman's solution, viz. selectivity through differential consequence, look astonishingly bold considering that all he has to offer instead is an appeal to charity. But there are more issues with this account – we will discuss them below. Let us first see Lewis's last proposal.

#### 4.5.4 Supervenience on truth value

This last option truly works with aboutness, the way a statement relates to a subject matter. It is Lewis's answer to the problem of degree, although apparently not one he is particularly interested in (he works out the proof but takes it no further). It bears some similarity to Putnam's scheme, as we shall see. Here is how he deals with it.

In (1) Lewis defined aboutness as supervenience on truth value. We now get an extended version of the definition:

(7) The truth value of a statement supervenes on subject matter  $M$  within class  $X$  of worlds iff, whenever two worlds in  $X$  are  $M$ -equivalent, they give the statement the same truth value.<sup>68</sup>

The difference to (1) is the restriction to a class  $X$ . It is what makes aboutness partial: supervenience within the class of all worlds is supervenience simpliciter, supervenience within a smaller class  $X$  is partial supervenience. The difficulty is what worlds need to be in class  $X$ . Whereas Putnam worked out his proposal in the artificial setting of a small set of states of affairs/worlds, Lewis has to give an account for all of logical space, i.e. an infinite number of worlds. So whereas Putnam could simply calculate percentages, Lewis needs another measure. He works with probability instead. But first, we need a patch in order to keep out trivial cases of supervenience, e.g. on single worlds, uniform classes of worlds, etc. The definition of partial supervenience therefore runs:

(8) A statement is partly about a subject matter iff its truth value partially supervenes, in a suitably non-trivial way, on that subject matter.

With respect to non-triviality, Lewis says that class  $X$  must contain a majority of worlds where  $S$  is true and where  $S$  is false such that we get a probability distribution of  $\text{Prob}(X/S)$  and  $\text{Prob}(X/\neg S)$  both above 50%. Within that set of worlds, we now want another statement entirely about a subject matter (for instance observation) to be relevant to the probability of our statement  $S$  being true in the classical Bayesian sense in which the probability of  $S$  given  $E$  is greater than the probability of  $S$  alone.

<sup>67</sup> Lewis (1988b) p. 147f FN 20: "[...] Nelson Goodman, in 'about', Mind 70 (1961 1-24, raises this dilemma: 'Apparently we speak about Maine whenever we speak about anything contained in Maine, and whenever we speak about anything that contains Maine. But to accept this principle is to be saddled with the conclusion that anything is about Maine.' (p. 2) He concludes that our ordinary notions concerning aboutness 'are readily shown to be inconsistent.' (p. 1) I conclude that he should have distinguished entire from partial aboutness, and the present conception of the latter from others, and suitable from unsuitable subject matters."

<sup>68</sup> Lewis (1988b) p. 149

Lewis's example is balls in an urn, some but not all of which are green. Very many samples are drawn from the urn. The subject matter is the frequency (=percentage) of green balls in the urns. This frequency is not the same as the frequency of green balls in the samples, but the likelihood of any ball drawn being green supervenes on urn frequency. Sample frequency thereby constitutes something like second-order frequency vis-à-vis urn frequency. Now, for a statement *S* that specifies a certain urn frequency of green balls, its truth value supervenes partly on the sample frequency.

This scheme is therefore Lewis's answer to the problem of degree, setting the screw on the relation itself. It is supervenience that is partial and thus comes in degrees of probability, rather than the statement in form or object or the subject matter being split in parts. It is also a good explanation of how observation can be relevant to a statement in Ayer's sense – it constitutes evidence for the statement's truth (or falsity). Nevertheless, it is, of course, no help in delimiting the meaningful, since it cannot prevent irrelevant sentences from being joined together.

## 4.6 Difficulties afflicting Lewis's account

### 4.6.1 Question-begging set-ups

If we approach the topic of aboutness with an epistemic interest, with the expectation, therefore, that a formalisation will enable us to tell from certain elements what a piece of text is about, that information must not figure in the set up. If this is the aim, Lewis's proposals will not be of much use to us. What they do instead is describe what about a case we have already picked out constitutes partial aboutness. Nevertheless, the three set-ups differ as to where they beg the epistemic question. As their applicability varies accordingly, the issue seems worth considering.

There is a relatively harmless circularity already in the first step, the partition of worlds into cells when they are equivalent concerning a subject matter, that Lewis himself points out. Remember that a statement *S* is entirely about a subject matter *M* iff whenever two worlds are exactly alike concerning *M*, they give *S* the same truth value. This means that their *M*-parts must be intrinsic duplicates of each other, i.e. have exactly the same intrinsic properties. As Lewis points out,<sup>69</sup> a property is intrinsic iff a statement that predicates that property of something is entirely about that thing (if it were not intrinsic, it would be about something else, too, and thereby no longer entirely about that thing). So there is a circle between subject matter and intrinsic properties running via the statement: subject matters are parts of worlds and when a statement is entirely about a subject matter, it partitions worlds by truth value in the exact same way as the subject matter does by equivalence relation.

This circularity is harmless for metaphysical reasons. Remember that Lewis understands propositions in a Russellian way as the objects-cum-properties that statements speak of, but across all possible worlds. There is therefore the statement *qua* string of words on the one hand, and the set of worlds containing parts that make that statement true on the other. While we remember that statements *express* propositions, but are not propositions

---

<sup>69</sup> Lewis (1988b) p. 138, FN 14

themselves, the circle above is merely descriptive. We can understand the sets of worlds as instantiating or, on other views, as modelling the proposition and there is no harm in it.

For those who don't distinguish clearly between statement and proposition, however, this is dangerous (we will come back to this issue when we discuss Yablo's work).

There are two more circularities, however, that create more important epistemic problems. One we have just seen in 4.5. Lewis describes partial aboutness in terms of probability. However, in order to show which factors enter into the calculation of probability, he selects a suitable set of worlds such that the majority of worlds making the statement true or false are in the set and we have a "reasonable initial probability distribution". Only in such a set, the relation is one of "suitable, non-trivial supervenience". But this selection, of course, constitutes a restriction by content – we have to know how our worlds relate to the statement in order to select them into the restricted class  $X$ . Lewis's aim is to describe a situation in which such partial aboutness obtains. But if we wanted to use the definition in order to determine whether we are dealing with a case of partial aboutness or not, the circle would thwart the project. If we first selected worlds into class  $X$ , we would be gerrymandering the bounds of class  $X$  in logical space and thereby create an epistemic circle when we specify that in his urn example, for instance, we can expect sample frequency to come very close to urn frequency, because that is how we have selected worlds. While we thereby 'only' manipulate the composition of the class we start from, not the result (we'll get to that in a moment), the impact on the result is as big as the degree of supervenience Lewis is modelling. So while this proposal is useful as an explanation of how a supervenience relation can be partial, it does not give us a properly modal picture because it does not include all of logical space, nor does it give us epistemic guidance.

The truly pernicious circularity, however, appears in Lewis's favourite approach from part of subject matter. It is one part of what I want to call the Budapest problem.

In 4.5.3 we saw that Lewis patched up his definition by requiring that the smaller subject matter  $M$  be part of a "certain suitable" larger subject matter  $M+$ . Here is the definition once more:

(6) A statement  $S$  is partly about a subject matter  $M$  iff it is entirely about a certain suitable larger subject matter  $M+$  which includes  $M$  as a part.

This patch is due to the fact that Lewis does not want a statement about Budapest, for example, to come out as about any small street in Pest (indeed, without it, Lewis couldn't prevent  $S$  coming out as about any pebble in any small street in Pest).

But as the relation between  $M$  and  $M+$  just is what grounds the statement's partial aboutness of  $M$ , the suitability requirement is not merely frustrating to find in a formal definition because of its inherent appeal to charity, it constitutes an intolerable circularity. In order to know whether a certain  $M+$  is "suitable" for a certain  $M$  (and vice-versa) we need to know what it is that  $S$  can relevantly be 'partly about'. But this is exactly the information we seek from the definition. So here, Lewis's proposal doctors the result. Again, the dissatisfaction comes from an epistemic interest that Lewis clearly did not share, but even for a mere description, the patch begs the question. It tells us that when  $S$

is entirely about some  $M+$ , it is thereby partly about a part  $M$  of that  $M+$  – however not any part  $M$ , but only one to which  $M+$  is still relevant. Considering that this proposal comes in answer to the complaint of relevant logics, and that Lewis regards it as a “well-motivated formal analysis of relevance”<sup>70</sup> (although he grants that it won’t deliver a relevant logic), the definition begs the question in the most straightforward way possible even when taken merely descriptively.

So it is not surprising that Demolombe uses the first proposal for LIS. There, the circle is merely descriptive, whereas the third proposal already gerrymanders the basis from which to obtain the result, but this second proposal doctors the result itself.

#### 4.6.2 Zigzagging

But there is worse to come in connection with Budapest. As the definition stands, even with the patch Lewis cannot prevent zigzagging between subject matters. Concerning the example of the city with its two parts, Buda and Pest, on either side of the Danube, Lewis says that “it seems not bad to say that a statement entirely about Buda is partly about Pest”.<sup>71</sup> I beg to differ. What he relies on is his understanding of ‘entirely about’ as ‘not about anything else’, which also makes a statement entirely about  $M$  come out as entirely about any  $M+$  of which it is a part. In being entirely about Buda, the statement is also entirely about Budapest, and therefore partly about Pest.

Let me illustrate this with another example that shows the implausibility of the result even better. Let us take the French MEPs<sup>72</sup> as our subject matter  $M$  and all the MEPs as subject matter  $M+$ . The left-to-right conditional, which states that a statement  $S$  is partly about  $M$  if it is entirely about a certain suitable larger subject matter  $M+$  which includes  $M$  as a part, seems perfectly sensible. Take this statement entirely about our  $M+$ :

(c) All the MEPs went home for Christmas.

It is surely partly about the French MEPs, our  $M$ . But now consider the right-to-left conditional which says that a statement  $S$  is entirely about a certain suitable larger subject matter  $M+$  which includes  $M$  as a part if it is partly about subject matter  $M$ . It seems a strange inference to make that as (c) is partly about the French MEPs, it is entirely about all the MEPs. But in combination with Lewis’s definition of ‘entirely about’, the biconditional leads to the zigzagging. By that definition, a statement entirely about some  $M$  is also entirely about a suitable larger  $M+$ . By (6), however, it is thereby partly about another  $M$ . Take:

(e) The French MEPs voted in the French elections.

By the definition, (e) is *entirely about* our  $M+$ , i.e. all the MEPs, including those that are not French, an intuition that is hard enough to share with Lewis. But I find it impossible to

---

<sup>70</sup> Lewis (1998) p.3

<sup>71</sup> Lewis (1988b) p. 147

<sup>72</sup> In Europe, ‘MEP’ is the acronym used for ‘Member of the European Parliament’.

follow his Budapest reasoning here where by applying (6), (e) is also partly about the Lithuanian MEPs, for instance.

In the Budapest case, Lewis goes from one  $M$  to another via a common  $M+$ . We know from Goodman that this means that since every  $M$  is part of the universe, any statement about  $M$  would come out as partly about anything else whatsoever. Lewis was pointed out the problem by William Tolhurst and Terence Horgan (he thanks them in a footnote), but surprisingly this only led him to include the patch in his definition that the larger subject matter should be “suitable”, and to demand that the smaller  $M$  be a sufficiently large or important part of  $M+$ . This is a plea for charity to keep the universe out, but the zigzagging between sufficiently large and suitable subject matters is not prevented.

Setting the screw for partial aboutness not only at the sentence, the proposition and the relation, but also at the subject matter, is an obvious move to make, but the result doesn't seem right. The issue clearly has two aspects: Lewis's conception of aboutness and parthood. It seems to me that the problem we are seeing here is due to the way Lewis brings them together. Dissatisfaction with the result has led Yablo to offer a new account of partial aboutness building only on the analogue to Lewis's least subject matter, as we shall see in the next chapter. But we have seen that Lewis overlooked the aspect of selection. So, as an alternative to Yablo's suggestion, the definition in (6) of what it is for a statement to be partly about a subject matter could be amended with the help of the set theoretic hierarchies which Lewis neglected. Let us see how this might work.

#### 4.6.3 Hierarchies

The Budapest problem is connected to another problem that hasn't been addressed so far. In order to explain what it consists in, let us first take a step back and reflect on what it is for a piece of text to be about a subject matter. A simple example, inconspicuous and unphilosophical, can illustrate the problem: birds.

There are people who observe and study birds and share their findings with others. There are therefore papers about a disease among blackbirds, articles about the behaviour of hooded crows, books about birds of prey, research projects about certain migrant birds, etc. All of this is work in ornithology, they are ornithological papers, books, etc., and they are part of what ornithology consists in. But they are not *about* ornithology. Any work about ornithology would have to tell us something very different, e.g. the scope of what is considered ornithology, probably something about its history, what techniques are used to observe birds, maybe something about a few famous ornithologists, etc.<sup>73</sup>

Above, I have sometimes corrected Lewis's wording from statements being “about observation” to their being “about *an* observation”, taking it as a metonymy, i.e. understanding that Lewis actually meant to say that they can be about a fact ascertained by

---

<sup>73</sup> I must point out that a small number of people I have spoken to about this issue did not think that ‘about’ should be used only in the way I suggest, but that Lewis's use of it is unproblematic. However, that means that they could not account for the difference between work *in* an area and work *about* that area. I therefore insist on the distinction.

observation.<sup>74</sup> There is, however, a world of a difference between this and a statement truly about observation. The latter would tell us something about what it is or takes to observe anything. It would speak about the activity not about its object. The fact that Lewis overlooks this difference is at the root of the problem which I now want to describe.

We saw that a statement entirely about  $M+$  was partly about its proper part  $M$  in our examples (although, does it still feel right to say that “Budapest is the capital of Hungary” is partly about Pest?), but that a statement partly about  $M$  is not often entirely about  $M+$ . But parthood is transitive, so we should really be able to go from any  $M$ , how ever small, to any  $M+$  whose proper part  $M$  is. Why can’t we do this?

I would like to bring in an additional tool to shed some light on the issue. In *Parts of Classes*,<sup>75</sup> David Lewis gives an account of the set membership relation and how it differs from parthood. Starting from the null set, i.e. anything that has no members, we can build sets by forming the null set’s singleton. Singletons can be parts of larger classes. Anything can be the member of a singleton, but only classes (including singleton classes) can be parts of other classes. In order to be able to build the universe of set theory  $V$ , a clear distinction must be made between parthood, which is transitive but confined to the same level in the set theoretic hierarchy, and set membership, which is intransitive and always lifts the member to the next hierarchical level. Without this distinction, the axiom of extensionality would prevent us from building  $V$  from a single set. We could never pair sets or form power sets, as they would always collapse back into the set we started out from. Let us now use this distinction to resolve the puzzle of partial aboutness.

What happens when we say that  $S$  is partly about  $M$ ? Aboutness is a relation that holds between  $S$  and  $M$ . We saw that Lewis goes through three forms of parthood, two picking out part of  $S$ , one where “partly” referred to the relation itself, and in the present case, “partly” quantifies over an unnamed  $x$  to which  $M$  stands in – as “partly” tells us – mereological relation. Here, to be partly about  $M$  means ‘to be about  $x$  of which  $M$  is a proper part’. It seems to me that what aboutness does is precisely what set membership does: it singles out a subject matter and isolates it, turning it into a thing in its own right. This means that in order to get to parts, we have to start from the whole – in the other direction, all we will get is a new, independent subject matter. This is why once we talk about Buda, we can no longer treat it as part of Budapest, it can only be its member. Buda only counts as a part of the city when we speak about Budapest. Thinking about the MEPs, the French MEPs are a part of them and what we say about the MEPs can therefore be partly about the French MEPs. But speaking about the French MEPs, the MEPs form a different class. Seen from the 17<sup>th</sup> century’s point of view, the 1680s are a part of it; but when we speak about the 1680s, they can only become a member of the 17<sup>th</sup> century. We will see that Yablo, surely upon a similar intuition, does not generally allow for the transition of aboutness from smaller to larger subject matters, and even extrapolation is reinterpreted as subtraction of an implication.<sup>76</sup>

---

<sup>74</sup> Yablo (2014) and Fine (2017) correct this usage as well.

<sup>75</sup> Lewis (1991), cf. Bennett (2015), Burgess (2015) for Lewis on parthood

<sup>76</sup> Yablo (2014) p. 138ff.

Because aboutness encapsulates its object and seals it off against the others, it is intransitive. From the fact that a paper is about blackbirds, it does not follow that it is about ornithology, even though that paper is clearly ornithological. Nor is a statement about *an* observation a statement about observation. Its intransitivity is also apparent in Lewis's patch: what is or is not "suitable" is a judgment that will have to be made in light of what is predicated of the whole (which may not allow for parts to be considered at all). Aboutness singles out its object and raises it to another level in the same way set membership does. It is not comparable to the subset relation which is transitive and unable to illustrate the selective process underlying aboutness. In the first two forms of parthood above, part of content and partial supervenience of truth value, the confusion does not make much of a difference, but here it is pernicious.

One way to resolve the issue is to change the definition of aboutness so as to prevent a statement from coming out as (entirely) about  $M$  in the same way as about any larger  $M+$ . This is what the subsequent accounts (Yablo and Fine) do. Alternatively, we can amend (6). Let us see where that would get us.

As an immediate repair, what we need to do is delete one 'f' to turn the biconditional into a conditional.

Unfortunately, this is not the end of the trouble. Remember that for Lewis "partly about" means "also about something else"; it is not to be confused with Goodman's "relatively about" whereby a statement about Budapest can be regarded as somehow also concerning Buda because we add a second statement "Buda is part of Budapest". Lewis does not provide for such a move. Therefore, we cannot get around a semantic distinction: Only those statements can be partly about something whose predicates can be asserted distributively of each part of the whole; collective predicates will usually not be applicable to individual parts. The statement "Budapest is in Hungary" is also true for each of its parts, however small. But the statement "Budapest lies on either side of the Danube" is not.

One might now be inclined to think that an apparatus which can handle a distinction between distributive and collective predicates would solve the problem,<sup>77</sup> so that all we would need is to treat all sets as pluralities of their subsets. But this will not help for a statement like "Budapest is the largest city of Hungary", for instance. 'Being the largest city' is certainly a distributive, not a collective predicate, and yet, it just cannot be applied to parts of cities. So grammar alone will not resolve the issue for us. In order to be partly about  $M$ , the statement has to be about  $M$  *qua part of*  $M+$ . We need another patch but can remove Lewis's:

---

<sup>77</sup> Oliver & Smiley's logic of plurals comes to mind

A statement is partly about a subject matter  $M$  if it is entirely about a certain ~~suitable~~ larger subject matter  $M+$  understood as the mereological sum of its parts and which includes  $M$  as a part.

Or better:

A statement is partly about a subject matter  $M$  if it is entirely about a certain larger subject matter  $M+$  understood as the mereological sum of its parts of which  $M$  is one.

Does this semantic addition vitiate Lewis's account? I think not. Aboutness is essentially semantic. It is the recursive notion for all things semantic, the relation by which we can roll them up from behind, as it were. At the present stage of development, we have to know what a statement means before we can tell what it is about anyway. Adding that we have to know whether it refers to a mereological sum or to a singleton makes a difference in degree of granularity of the requirement, not its quality. Nevertheless, it seems neater to reduce the number of semantic terms we use to one. So here is another proposal, which also allows us to get rid of 'entirely':

A statement is partly about a subject matter  $M$  if it is about each of the parts of a certain larger subject matter  $M+$  and  $M$  is one of those parts.

This is my best stab.

#### 4.8 A stepping stone

With Lewis's account, aboutness theory has taken a semantic turn. Using possible worlds makes it inherently rich, and in particular subject matter regarded as an intrinsic part of worlds and modelled by cells of worlds sharing that part contains potentially much more information than Goodman's " $k$ ". Nevertheless, Lewis's subject matter is clearly an object and can therefore be shared by any number of statements and thus serve larger pieces of text as well. Adding a revised definition for partial aboutness might give us a very useful account for many purposes involving texts made up of many sentences, including non-assertive sentences like questions, commands, interjections, ellipses, etc. Lewisian subject matter can even be used for texts without sentences (as contained in databases) because although Lewis's account starts from statements, its subject matters are not propositional in structure. We will return to this issue in chapter 6. A problem that is much harder to solve is possible worlds semantics' inherent difficulty to model hyperintensionality.

Let us now turn to Yablo's account, built on Lewis's and containing some improvements, and also address Fine's counterproposal to both.



## 5. What Yablo is talking about

### 5.1 Back to the future

So far, it seems a bit as if aboutness theory were somehow linked to Carnap's philosophy. Ryle may well have published his 1933 paper in response to Carnap's work still written in Vienna; Putnam directly applied some of Carnap's ideas in his account; Goodman's was part of his struggle with Carnap's *Aufbau*; and Lewis expressly aimed to vindicate some of Vienna Circle ideology. Nevertheless, the focus of their accounts varied substantially, shifting from the pertinent objects of philosophical inquiry, past computability and confirmation theory, to a vindication of bivalence, and, indeed, first order logic in the face of the rise of relevant logics.

The most recent comprehensive account of aboutness, Yablo's 2014 book *Aboutness*, builds on the earlier ones, in particular Lewis's, but rather than using aboutness as a tool in the discussion of a single issue, it moves it to centre stage, giving a panoramic view of its utility in a wide variety of areas: epistemology, the philosophy of science, philosophy of language, logic, and the philosophy of mathematics. Nevertheless, mathematics was probably a primary motivation for the project.

#### 5.1.1 Giving up the pretence

Yablo doesn't think that mathematical objects such as natural numbers exist, so he wants to give another explanation of what it is that mathematics deals with. The account he was sympathetic to in the past said that there are no mathematical objects to be found anywhere in the world; what we do when we do mathematics is to simply pretend that they exist.

A strong argument against this view, however, stresses that pretence is a conscious act, following a decision. It would require our full awareness that there are no mathematical objects and, following that, the decision, in spite of this knowledge, to pretend they exist. And this just doesn't seem to be what mathematicians do. In fact, most mathematicians, and indeed, anyone doing even the most basic arithmetic, don't tend to waste a thought about whether or not numbers, for instance, "exist" in any sort of ontologically committed way. Instead, Yablo now thinks, our dealing with mathematical objects as if they existed seems better explained as some sort of presupposition. The way we deal with them seems to presuppose they exist, but whether they actually do is not relevant to what we do with them.

This new presupposition view therefore has a vested interest in two aspects of Lewis's theory: relevance and partial aboutness. Yablo uses it to explain talk of mathematical objects as partly true about them in a sense very similar to an account Goodman and Ullian<sup>78</sup> give in a story of a court case. A witness was shown to have been lying about almost everyone he mentioned in his statement, but what he said about the defendant was true. So in being false, but true about the defendant, his statement was partly true, and the

---

<sup>78</sup> Goodman & Ullian (1977)

true part was the one relevant to the proceedings. Similarly, hyperbolic statements have a part that is true. “This is the greatest mess in history”, said of a teenager’s room, is literally false, but true insofar as the room is a mess. Likewise, talk of mathematical objects can be true by being true in what it says about them (e.g. that 2 plus 2 is 4), without thereby implying that they exist in the same way people, trees, water or cars do.

### 5.1.2 Sticking to the subject matter

But Yablo doesn’t just expand Lewis’s account on partial subject matter into a fully-fledged formal account of presupposition. Although presupposition is an important theme throughout the book (Yablo introduces a special conditional for suppositions and uses subject matter to elucidate the linguistic phenomenon of presupposition), the main objective is to develop a tool that should allow us (i) to keep what is irrelevant out of philosophical deliberations, and (ii) to fill in what is relevant where it is not explicit. Perhaps the most striking application of (i) is a compelling contribution to the debate about the closure puzzle – the puzzle that we may know that *p*, and also that *q* follows from *p*, and yet not know that *q*. Similar to Lewis’s strategy for dealing with scepticism expounded in ‘Elusive Knowledge’,<sup>79</sup> Yablo uses aboutness to show that knowledge is not closed under logical consequence when the consequent changes subject matter. He gives a number of well-known examples from the recent history of philosophy, of which I’ll just quote two:

(Moore) I have a hand. There are physical objects.  
(Dretske) That is a zebra. So it is not a cleverly disguised mule.<sup>80</sup>

Yablo’s rendering highlights that in Moore’s point the antecedent is about my having a hand. Whether or not there are physical objects in the world is not part of the antecedent’s subject matter. Likewise for Dretske’s zebra: Knowledge that this is a zebra may be about knowing the name of this sort of animal or being able to distinguish zebras from donkeys. Knowing that it is a *real* zebra rather than, say, a painted mule is a different matter. The consequent has changed the subject matter from recognising the genus to recognising disguises.

A good illustration of (ii) is enthymemes, logical inferences with a premise missing. Yablo gives an example from Mark Twain: “There is no law against composing music when one has no ideas whatsoever. The music of Wagner, therefore, is perfectly legal.”<sup>81</sup> We seek premise 2 that must share a subject matter with premise 1 (that composing music without ideas is legal) *and* the conclusion (that Wagner’s music is legal). “Wagner is a composer” or “Wagner’s actions are all strictly legal”, for instance, would not fit the bill because Wagner’s profession is a different subject matter, as is the legality (or lack thereof) of his actions generally.

---

<sup>79</sup> Lewis (1996); many thanks to Stephen Yablo for pointing me to this surely important source of inspiration for his theory of aboutness.

<sup>80</sup> Yablo (2014) p. 112

<sup>81</sup> Yablo (2014) p. 179

The way Yablo achieves both (i) and (ii) is by developing Lewis's thoughts about topological and mereological relations between subject matters. The first step into the argument is designed to yield relevant implication. It is based on the idea that subject matters can be parts of each other, and when a statement  $q$ 's subject matter is a proper part of the subject matter of a statement  $p$ ,  $p \rightarrow q$  is an instance of what Kit Fine aptly calls "analytic entailment".<sup>82</sup>

Yablo starts by showing that implication does not automatically correspond to subject matter inclusion – not so much because of the relevance issues with material implication that Lewis dealt with (cf. 4.1.2), although that, too, plays a role, but because of the rule of or-introduction.<sup>83</sup> No matter how false or abstruse a statement is, we can make it come out true by adding a true disjunct to it. Yablo's example is "Snow is hot and black" to which he adds "or else boiled tar is". However, the inference from "Snow is hot and black" ( $p$ ) to "Snow is hot and black or boiled tar is hot and black" ( $p \vee q$ ) always comes out true because of the truth-value of  $p$  only.<sup>84</sup> So  $p \rightarrow p \vee q$  is not ampliative in terms of its truth conditions, yet aboutness is certainly not preserved. Disjuncts imply their disjunction as much as conjunctions imply their conjuncts, but while conjunction is, as Yablo puts it, a "paradigm of inclusion", disjunction is, if anything, a "paradigm of non-inclusion".<sup>85</sup> The example shows that a statement's truth-conditions evidently underdetermine its subject matter, and truth comes apart from subject matter.

It is therefore subject matter inclusion that yields relevance. Proper parthood of sets of truthmakers models analytic entailment and their overlap models partial relevance. Yablo's formal account therefore expands and corrects Lewis's.

### 5.1.3 The plan

He proceeds in various steps. First he adds a restriction, viz. similarity (cf. 5.2), to Lewis's account, so that instead of stacked subject matters we now have only one subject matter for each sentence (cf. 4.6). This subject matter consists of the sentence's truth- and falsemakers, for which we are given two options – one recursive, the other reductive (cf. 5.3). Via these sets of truth- and falsemakers, subject matters can now enter into various relations with each other. One can contain the other, they can overlap, they can be subtracted from, expanded by extrapolation or complemented by interpolation. Where no obvious parts of subject matters are given, we can even create them by "dividing through" a set of truth-/falsemakers to obtain the quotient set. All these procedures have immediate useful philosophical applications, similar to the examples above, but we mustn't stray. What is important for present purposes is the fact that aboutness thereby comes out as what is preserved when, and to the extent that, a statement's subject matter includes that of

<sup>82</sup> Fine (forthcoming)

<sup>83</sup> Yablo (2014:3); Yablo credits Gemes (1994) with the insight concerning relevance issues with disjunctions, but we find it already catered for in Goodman (1961), cf. 3.2.2 on differential consequence.

<sup>84</sup> See the truth table for it:

| <b>p</b> | <b><math>p \vee q</math></b> | <b>p</b> | <b><math>p \vee q</math></b> |
|----------|------------------------------|----------|------------------------------|
| t        | t                            | t        | t                            |
| f        | t                            | t        | t                            |
| f        | f                            | t        | t                            |

<sup>85</sup> Yablo (2014) p. 11f

another. This means that we can talk about selected, relevant aspects of some subject matter without thereby making any farther reaching commitments. Our commitment to an assertion does not go beyond what we assert; if any logically underlying supposition turns out true, that is fine, otherwise our assertion still stands as far as it goes (Yablo introduces a “suppose”-conditional for this purpose).

The account thereby still hinges on truthmaking. A sentence’s proposition is the set of worlds where it is true, and aboutness is to complement this simple partition of logical space with selection criteria for a much more fine-grained division telling us *why* worlds make the sentence true. This is where similarity comes in: it is the relation that holds between worlds with respect to the subject matter, grouping them into sets for each way the statement can be true and thereby also preventing a further partition that Lewis could not avoid. Each such set, aka “true-way”,<sup>86</sup> is itself a proposition, stating one possible reason for the sentence to be true. Subject matter is then the set of all those “true-ways”, i.e. a set of sets of worlds; it is supplemented by the subject anti-matter, the set of all ways the sentence can be false, the “false-ways”. Aboutness is the relation a sentence bears to that subject matter.

Subject matter therefore makes an important addition to mere truth conditions with regard to sentence meaning, yielding what Yablo calls “directed propositions”. His example is Frost’s “The world will end in fire or in ice”, whose proposition in classical possible worlds semantics is the set containing the unordered collection of all fiery-ending and all icy-ending worlds. Subject matter can subdivide them into those ending in fire and those ending in ice.

Yablo’s account of aboutness therefore consists of two essential elements. The similarity relation that groups worlds into “ways” (of making the sentence true or false), thereby providing the semantics, and truth-/falsemaking that labels those ways “true-ways” and “false-ways”, thereby providing the logical underpinning. We will begin by discussing similarity, for which the account is not entirely satisfactory. In view of the importance of similarity for the account, section 5.2 will dedicate all the space needed to analyse the technical issues, look at the philosophical import and options, and explore another solution Yablo proposes. We will then turn to truthmakers and falsemakers in section 5.3. After this, we can discuss the account’s advantages and drawbacks in 5.4. Additionally, an important response to Yablo’s account of aboutness by Kit Fine, which has become available as a final draft, will be introduced in the final section. Some criticism it contains will be referred to earlier in this chapter where appropriate.

## 5.2 Re-enter similarity

### 5.2.1 What similarity is meant to contribute

Yablo aims to repair two shortcomings in Lewis’s account. First, he wants to prevent the open-ended stacking of subject matters that necessitated Lewis’s appeal to charity (cf. 4.6). Secondly, he wants to use cells (often also called ‘classes’) in order to explain *why* a statement is true or false. He does both in one go.

---

<sup>86</sup> Yablo (2017)

Remember that Lewis's statements are entirely about a subject matter by not being about anything else. Subject matters, in Lewis's first-order formalisation, are sets of cells of worlds identical with respect to the subject matter and singled out by truth-value equivalence concerning a statement. But that statement is thereby likewise entirely about any more fine-grained partition of that set and thus any subject matter larger than the one we started from (subject matter size being inversely proportional to set size). So Lewis gives us a least subject matter and thereby an upper bound to cell size, but has no stop-block to fineness of grain concerning the partition of that set. That is where he therefore introduced the patch for partial aboutness when he asked that the part in question should be sufficiently large and important. But there is no such patch for entire aboutness, so a statement entirely about the 1680s is also entirely about the 17<sup>th</sup> century, all of history, and how matters stand everywhere.

The logical issue comes hand-in-hand with a philosophical one. Lewis defined subject matter in terms of intrinsic parts of worlds, understood as things that can be picked out in terms of space-time points, whether coherent (e.g. the 17<sup>th</sup> century) or dispersed (all the world's styrofoam). Yablo takes on Lewis's challenge to find a solution for subject matters that are not thus "stored up" in specific space-time regions, such as 'how many stars there are'.<sup>87</sup> He conceptualises subject matter not as parts but as properties or aspects of worlds – their property of being a world that makes statement *S* true (or false, as the case may be). This, however, is a determinable property, and worlds must now be grouped into cells with all other worlds exactly like them with respect to that property to yield the determinate ways they make the statement true.

In fact, Yablo once proposed a non-reductive modal way of dealing with the determinate – determinable relation.<sup>88</sup> In his (1992) he defines:

- ( ) *P* determines *Q* (*P* > *Q*) only if:  
 (i) necessarily, for all *x*, if *x* has *P* then *x* has *Q*; and  
 (ii) possibly, for some *x*, *x* has *Q* but lacks *P*.<sup>89</sup>

This, when applied to events, is to be understood as follows:

- ( ) *p* determines *q* iff: for *p* to occur (in a possible world) is for *q* to occur (there), not *simpliciter*, but in a certain way.<sup>90</sup>

This is just what sets of properties of worlds are to show about a subject matter. Moreover, it is appropriate to gear Yablovian similarity along the lines of events because his subject matters are propositional in structure and the role of true-ways as elements responsible for the truth of a statement is perhaps near enough the kind of causal role Yablo saw in determination as bridging the mental-physical divide<sup>91</sup> in order to justify the reference.

<sup>87</sup> "Maybe an ingenious ontologist could devise a theory saying that each world has its *nos* [number-of-stars]-part, as we may call it, such that the nos-parts of two worlds are exact duplicates iff those two worlds have equally many stars. Maybe – and maybe not. We shouldn't rely on it. Rather, we should say that being exactly alike with respect to a subject matter may or may not be a matter of duplication between the parts of worlds which that subject matter picks out." Lewis (1988b) p. 138f

<sup>88</sup> See Wilson (2017) for a categorisation of accounts of determination.

<sup>89</sup> Yablo (1992) p. 252

<sup>90</sup> Yablo (1992) p. 260

<sup>91</sup> Wilson (2009) defends the approach

The relation that governs these determinate true-way sets is similarity. The set of all these similarity cells then constitutes the subject matter.

For his definition, Yablo takes up Lewis's upper-bound to cell size which ran:

(3) A statement is entirely about some subject matter iff its truth value supervenes on that subject matter. [...] Contrapositively, if one world makes the statement true and the other makes it false, that must be because they differ with respect to the subject matter.<sup>92</sup>

and adapts it to make room for statement *S*'s ways of being true:

(4) *S* cannot be differently true in two worlds, unless things have changed where its subject matter is concerned.<sup>93</sup>

To this, he adds the lower-bound, which is to ensure that only changes that are relevant to the truth of *S* count:

(5) Something has changed, between one world and another, where *S*'s subject matter is concerned, only if *S* is differently true in the two worlds.

This, in turn, ensures that we cannot get a larger subject matter than the one we started from. Subject matter can now be defined in terms of dissimilarity:

(6) the subject matter of *S* = the relation *m* such that worlds are *m*-dissimilar iff *S* is differently true in them.<sup>94</sup>

For the formal semantic account, however, Yablo turns from dissimilarity to similarity.

In analogy to partitions of logical space according to whether a proposition is true in its worlds or not, similarity creates a *division* of logical space according to whether worlds are similar with respect to a certain subject matter ("**m**-similar")<sup>95</sup> or not. In his "Appendix", sadly not included but only hyperlinked to in his book, he defines:

(7) A decomposition is a *division* iff (i) each cell is closed under **m**-similarity (it contains every *x* **m**-similar to all its members), and (ii) every set closed under **m**-similarity is one of its cells. Divisions determine similarity relations and vice versa.  $x \sim_{\mathbf{m}} y$  iff some **m**-cell contains both.<sup>96</sup>

So a division gives us similarity cells which contain all the worlds that are similar to each other with respect to the subject matter. But while truth gives us an equivalence relation that is not just reflexive and symmetric but also transitive, similarity is not required to be transitive. The important difference between divisions and partitions is therefore that similarity cells are not mutually incompatible and hence exclusive, but only *incomparable*. Worlds can therefore be members of several such cells. The relation between cell members is also not metaphysical as it was in Lewis's design, but epistemic; cell-mate worlds are not intrinsically alike but indiscernible with respect to the subject matter.

---

<sup>92</sup> Lewis (1988b) p. 136

<sup>93</sup> Yablo (2014) p. 41

<sup>94</sup> *ibid.*

<sup>95</sup> In the "Appendix", subject matter is marked by bold letters, in the book by sans-serif font. This is followed in the quotes.

<sup>96</sup> Yablo, "Appendix", p.2

Subject matters are therefore not parts, but properties of worlds. We will return to the technical details concerning the similarity relation in 5.2.5.

Let us pick an example to show where Yablo improves Lewis's approach, e.g. the statement:

(8) "There are a billion stars in the universe."

This proposition partitions logical space into the class of worlds where there are, and the one where there are not, a billion stars in the universe. Now, one of this statement's subject matters is "how many stars there are in the universe". With Lewisian subject matter cutting across the truth-value partition, we now have an equivalence relation between worlds intrinsically alike with respect to the number of stars in them (and thereby either both making the statement true or both making it false). This equivalence relation again partitions logical space into mutually exclusive cells of worlds according to the number of stars in them, e.g. a cell of worlds with one billion, a cell with one billion and one, a cell with two billion, a cell without stars, etc. Now, for Lewis, this statement likewise comes out as about whether there are stars in the universe, about what there is in the universe, etc. because it is not about anything else (cf. 4.3) and because Lewis gives us only the upper bound of class size.

Yablo's similarity cells, adding the lower bound, comprise the cells epistemically alike with respect to how many stars there are. This means that larger subject matters are kept out, because the (smaller) cells of worlds epistemically alike with respect to what there is in the universe, for instance, get swallowed up in the star-similarity cells.<sup>97</sup> It also enables Yablo to give us subject matters like "the number of stars give or take ten", where each cell comprises worlds within a corresponding range of numbers of stars, e.g. 1000 – 1009 stars in one cell, 1001 – 1010 stars in the next one, 1002 – 1011 in another one, etc. This is possible, because similarity cells are not mutually exclusive.

## 5.2.2 A dilemma

### 5.2.2.1 One horn: 1

There is a problem with this, however. If the idea is not just to model what it is for a statement to have a subject matter, namely there to be similarity cells giving us the determinates for the (or one of the) determinable(s) brought up by the statement, but rather to allow us to read off those cells what the subject matter is, and if, moreover, we think that for this purpose the number of cells should at most be countably many, Yablo's solution may not give us the desired result in many cases. The subject matter "how many stars there are" will surely only give us some countable, and indeed finite, natural number of similarity cells (presuming that no matter how many stars there are in a possible universe, they will always be finitely many). If we accept "give or take"-numbers as well, the maximum number of similarity cells will be its Cartesian product, but still strictly smaller than aleph-nought.

---

<sup>97</sup> Yablo thereby uses what is known as the "companionship problem" to his advantage; we will get to that in 5.2.2.2.

But it seems to me that for other sorts of subject matter we may well get something substantially larger. Let's return to Lewis's example of the 1680s, for instance in a statement like "The 1680s were exciting times", and let its Yabloian subject matter be 'the excitement of the 1680s'. So we want to have a similarity cell for each way the 1680s might have been exciting. We thereby get similarity cells with and without the Rye House plot, the Monmouth rebellion, the Bill of Rights, etc. and for those with the Bill of Rights, we will get some cells where a flea bites the Queen's maid just as she signs it, and here again different similarity cells depending on where the flea bites, and the same for two fleas and where they bite. There are infinitely many distances between the two flea bites. Now the same for the valet standing next to the maid. And the pitch of his squeaks and the pitch of her squeaks, and the time between the bites and the squeaks, etc. If we take each of these scenes as one factor in the excitement of the 1680s, and hence as constituting one similarity cell, and remembering that worlds can be in more than one cell, we end up with the power set of infinitely many such similarity sets, i.e. at least aleph-one many cells.

First of all, that seems too many to read off anything from them. Secondly, it is also not the desired improvement on Lewis. Remember that the trouble was that starting from the 1680s as our least subject matter we had no stop-block to refinement, and therefore ended up with a subject matter like "how matters stand everywhere". In this revised version now, since subject matter also gives the similarity sets of the falsemakers, i.e. the dull 1680s worlds, we end up with a division of logical space that tells us how matters stood in the 1680s. So where Lewis gave us a progression of subject matters of increasing size, and hence increasing fineness of grain of the corresponding cells, Yablo's design leaves us with no stop-block to fineness of grain concerning the excitement (or lack thereof) of the 1680s. We do remain within the 1680s all right, but we have equally fine-grained cells, except that there is now many more of them.

But it may be a mistake to think this is an issue. After all, Yablo's technical specification of similarity, (7) above, says that all and only the worlds similar with respect to the subject matter belong into the same similarity cell. This maximality requirement may well solve the issue I just described. But if it does, we get a result Yablo is himself unhappy with – the other horn of the dilemma.

#### 5.2.2.2 The second horn: "nested" truthmakers aka companionship

Rather than worrying about fineness of grain, Yablo remarks that similarity cells are too coarse-grained for some subject matters. The first example he gives in the Introduction to his (2014) is designed to exemplify the problem of what he calls "nested truthmakers". These are truthmakers of properties that only occur jointly with another property (but not vice-versa), for instance all *F*s being *G*s, but not all *G*s being also *F*s; the smaller set of truthmakers is therefore contained within the accompanying property's larger one. But due to the maximality condition on similarity sets, such smaller sets are "swallowed up" by the larger ones. The members of the subset share a property with the members of the superset, and as (i) the superset contains all elements similar to each of the elements in it and therefore all the members of the subset (the *F*s all being *G*s, too), and (ii) the subset must also contain all elements similar to each of its elements and can therefore not keep out those we'd like to have in the superset only (the *non-F G*s being similar to the *F*s by their



all being *Gs*), subset and superset coincide. There can be no proper subset of truthmakers in this design. Here is Yablo's description of the issue:

A division's cells are incomparable, so allowance has not been made for "nested" truthmakers: truthmakers some of which are stronger than others. *There are infinitely many moments of time* is true because  $t_0, t_1, t_2, t_3$ , etc. are moments of time. But the fact that  $t_1, t_2, t_3$ , etc. are moments of time, which is weaker but still sufficient, ought presumably to be a truthmaker as well. It seems we need to loosen up still further, and allow as a possible subject matter for *A* any old sets of worlds that cover between them the *A*-worlds – any old "cover" of the *A*-region, in the jargon.<sup>98</sup>

The problem here is that in addition to what Yablo evidently considers the compelling set of truthmakers, there is also a subset of those truthmakers which, although "weaker", is still sufficient for making the statement true and would deserve to count as an **m**-cell in its own right. (The solution Yablo points to, covers, is the subject of 5.2.6.)

Elsewhere, Yablo considers variations of this issue. In footnote 4, for instance, he points out that not every truthmaker for *Tom is red* is implied by a truthmaker for *Tom is scarlet*; Tom being crimson, for example, isn't.<sup>99</sup> This is therefore a case of a lower-level determinate contained in a higher-level one. Colours are, in fact, a popular example of the problem in the similarity debate since Carnap (cf. 5.2.4), where it is known under the name of "companionship problem".<sup>100</sup>

The problem in both cases is due to the fact that the maximality of similarity classes does not admit proper subsets within a superset of truthmakers. Before we discuss just how much of a problem this is, two more issues due to the maximality condition need to be mentioned.

### 5.2.2.3 Two further bugs: imperfect communities and coextension

The first issue results from maximality jointly with defining similarity as a two-place relation and is called the problem of imperfect communities. These are sets of elements each two of which resemble each other, without however sharing one and the same property amongst all of them. This problem, too, goes back to Carnap's *Aufbau* and has been discussed widely.<sup>101</sup> Hazen & Humberstone (2004), to which Yablo refers for the technical details, point out that they are happy to live with such sets. This issue may be rare in connection with subject matters – why, will be discussed in 5.2.5.1 – but when it occurs, it means that instead of getting a single way of making the statement true per cell, we get several in the same cell, and that is unacceptable.

Another old problem afflicting some similarity accounts because of a maximality condition, is the issue of coextension. For properties that only occur jointly – famously

---

<sup>98</sup> Yablo (2014) p. 5f

<sup>99</sup> Yablo (2014), p. 6

<sup>100</sup> Carnap (1933/1969), Goodman (1966), Leitgeb (2007), Paseau (2012), (2015), Rodriguez-Pereyra (2002)

<sup>101</sup> Goodman (1951), Lewis (1969), Rodriguez-Pereyra (2002), Leitgeb (2007, 2011), Paseau (2015); Fine (forthcoming) also raises the issue (p. 20f) and seems to regard it as a major drawback; he must be overlooking that it is not likely to occur often in a possible worlds account because it would require members to share no more than one property between each two of them.

‘having a heart’ and ‘having kidneys’ – it is often thought that the issue vanishes with the inclusion of modal properties. Even if in our world there are no animals that have a heart but no kidneys, there are certainly possible worlds with animals having either but not both of these organs. By breaking subject matters up into true-ways and their relevant false-ways, Yablo also solved the analogous problem of coextensive subject matters like “the number of stars” and “their combined mass”. For two kinds of cases, however, the issue is still pressing: logical truths and contradictions. Like Lewis, but unlike Fine (cf. 5.5), Yablo’s main account only admits possibilities but not impossibilities, making contradictions false in all worlds. As this doesn’t allow for modelling hypotheses that are impossible *all* things considered, but that we want to consider anyway with respect to some things, the account is supplemented by an option for admitting the impossible. It uses a watered-down and thereby *possible* version of the hypothesis making the impossible statement “relatively possible”.<sup>102</sup> This, however, is evidently only meant for the rare instances where a model for such cases must be offered. We will therefore not consider it here.

#### 5.2.2.4 The dilemma spelled out

The dilemma is this then: The spirit of Yablo’s definition of subject matter in (4) – (6) above is to demand a similarity cell for each way a statement can be true. If followed through, this will not only yield cells of worlds exactly alike with respect to the subject matter (as Lewis’s equivalence relation does), but also their power set; the former, because the slightest difference between worlds concerning the subject matter puts them in different cells; the latter, because every more generous aspect (e.g. the signing of the Bill of Rights, irrespective of specific goings-on during the ceremony) should also be reflected in a – duly larger – similarity cell of its own. Plenitude, the principle that for every possibility there is a world instantiating it, and thus the density of logical space make the number of these similarity cells explode on us.

But if instead we apply the letter of (7), and in particular clause (i) which sets the condition of maximality, any two worlds similar with respect to the subject matter belong into the same cell. But what constitutes such similarity? All the squeak scenes are similar, but so are all the flea scenes more generally, even if no one squeaks; then again, so are all the signing ceremonies, all the English contributions to excitement in the 1680s, etc. In fact, all ways for the 1680s to be exciting share that one property: to be sets of worlds with exciting 1680s. Maximality turns all the different ways for the 1680s to be exciting into “accompanied” properties and collapses all the cells which definitions (4) – (6) gave us into only two large sets: the *S*-set and the  $\neg S$ -set. But this means that we have lost all true-ways and false-ways specifying why *S* is true or false and are back to the proposition itself. Being unable to prevent this, as it seems to me we are, may be considered the ultimate maximality problem.

Let us take a step back and think about similarity in order to see whether there is a way to avoid both of these problems.

---

<sup>102</sup> Yablo (2014) pp. 92-94

### 5.2.3 Why bother with similarity?

Before tackling the topic, it may be necessary to motivate the exercise. After all, similarity is not a big issue in Yablo's book, nor has it been given much space in the debate that followed its publication. Instead, the focus has been on subject matter, why it is important, what we can do with it, how subject matters can relate to each other, and what we should understand subject matter to be in the first place.<sup>103</sup> Nevertheless, similarity is the tool Yablo uses for constructing subject matter.

Now, exciting though all of this is, our topic here is aboutness, i.e. the question what it is for a piece of text to be *about* a subject matter. So, while subject matter, and how it is modelled, is highly relevant to the present inquiry, it is still only an ancillary topic. Thus, where other authors, most prominently (at the time of writing this) Kit Fine, focus on the logic and semantics of subject matter, to us subject matter might well be nothing but a somewhat black-boxed relatum (as, in fact, it is in most of the other accounts discussed so far) - were it not for the fact that in Yablo's account, aboutness *falls out* of the semantics of subject matter. His strategy is very similar to the strategy once popular concerning a related issue, meaning. In the Tarski-Davidson tradition, meaning is not defined, but instead made to emanate, as it were, from a schema that doesn't even mention it: the famous T-sentences of the pattern "*p* is true (in language *L*) iff *p*". Likewise, Yablo's aboutness is best understood as resulting from the relation between the sentence, its truth-/falsemaking worlds and its subject matter defined in (6).<sup>104</sup> This is also the reason he dedicates fairly little space to aboutness in his book of that title.

But with the (dis)similarity between worlds *qua* *S*-worlds (or  $\neg S$ -worlds, as the case may be) being constitutive of subject matter, it is also a core element of aboutness. For the semantic account, it tells us how possible worlds model a sentence's subject matter; and for the logical account, it tells us how the *S*/ $\neg S$ -partition of logical space relates to the *m*-sets. So, I think it is fair to stress the importance of its role in analogy to Yablo's Wittgensteinian question, viz. what is left over if we subtract my arm going up from my raising my arm, and ask (rhetorically) what is left over if we subtract the similarity between *S*-worlds with respect to *S*'s subject matter from aboutness. Maybe, tongue in cheek, one might even call similarity the behaviourist's aboutness in this setting. It is not just that the account depends on it, in Yablo's account similarity constitutes the core of the relationship between a sentence and its subject matter, which we call aboutness.<sup>105</sup> This is why it seems to me to deserve detailed treatment here.

### 5.2.4 Similarity vs. resemblance

Similarity is a complex topic, moreover one with a long history, but we needn't go back further than we have done, till Carnap. In order to peel out what is relevant to Yablo's scheme, we'll begin with the philosophical issue.

---

<sup>103</sup> Braido (2015), Yalcin (2016), Gendler Szabo (2017), Moltmann (2017), Rothschild (2017), Fine (forthcoming), Yablo (2017a,b, forthcoming)

<sup>104</sup> Better, in fact, than from the definition of "exactly about", hidden in a footnote (Yablo 2014, p. 41 fn 36): "*S* is exactly about *m* iff worlds differ with respect to *m* just when *S* is differently true in them."

<sup>105</sup> Kit Fine seems to be raising a similar point (forthcoming, p. 17), but given his focus on subject matter and the brevity of the remark, I am not sure how much agreement with his charge there is in my argument (which has, in any case, not been influenced by his paper).

Similarity is a property we predicate of two or more objects relative to each other. ‘Objects’ is here to be understood in the widest possible ontological sense: things, events, even properties can be similar to each other, and not just determinate properties, also determinables can have similarities (as when we say that both colours and sounds are perceived by one sense only). In order to set the scene for the technical discussion, we must therefore deal first with the issue that has shaped philosophical debates about properties since antiquity: their ontological status. Specifically, we need to decide whether similarity in Yablo’s scheme is to be understood as something inherent in two objects, or whether it depends on a perceiver’s judgment when she compares these two objects. In other words, whether it is a metaphysical or an epistemic issue. Paseau (2015) would have liked to call the former “similarity” and the latter “resemblance”; although it is probably too late to try and introduce this terminology generally and, moreover, in many other languages the distinction cannot be made, let us use it for our purposes here.

The reason the question is of relevance is that there are a number of issues that arise for similarity but not for resemblance. Resemblance theories can always point to the observer as the ground and ultimate judge of resemblance holding between objects. Similarity, by contrast, must emanate from the objects only; it must therefore be something inherent in and between them, and the logician’s task is to depict that relation in a non-circular, objective (i.e. non-observer dependent) way, while in the case of resemblance she only needs to describe what it is for objects to be regarded as similar in some respect.

If, like Carnap, we construct the world in a way that gives perception a pivotal role – Carnap goes from atomic sensations and thereby from the subjective aka “autopsychological” via the (analogous) “other subject” to the intersubjective, assumed to be the objective – resemblance can safely be taken as given and used as the basis for abstracting properties. Problems like “companion”-properties<sup>106</sup> (described in 5.2.2.2 above) or “accidental similarity circles”<sup>107</sup> (i.e. imperfect communities, see 5.2.2.3), can be ignored if it is resemblance we are dealing with. Companion properties may psychologically not even be perceived as separate properties but only as a variant of the ‘larger’ one, and if they are distinguishable to the observer, that is all it takes for them to constitute two properties rather than one. Likewise, imperfect communities need not be formed – for Carnap, a class is not formed by the collection of its elements but by the property they share.<sup>108</sup> We first perceive a resemblance and then group things according to that aspect into a property class. The “work” is done by the observer. (I am brushing over the obvious tensions in Carnap’s account arising for instance from the fact that he wanted his construction system to be usable with *any* basic elements, not just sensations.)

If, instead, we take things to be similar because they share certain properties, we can still take the property as prime (in a quasi-platonist fashion) as long as we don’t want the property to be reduced to similarity *qua* equivalence relation (cf. Leitgeb 2007). But if it is the binary relation itself, and only it, that is the ontological basis of the property, we have to buy all and only the properties it yields (as Hazen & Humberstone,<sup>109</sup> and also Lewis<sup>110</sup>

---

<sup>106</sup> Carnap (1961/1967) §70, §81

<sup>107</sup> Carnap (1961/1967) §72

<sup>108</sup> Carnap (1961/1967) §37, §76

<sup>109</sup> op.cit.

<sup>110</sup> Lewis 1988b, p. 141; 1988c, p. 121

do), otherwise we face all the well-known issues of coextension, companions, mere intersections and imperfect communities.<sup>111</sup>

It seems to me that for Yablo's design, there is therefore a choice between three options. The first is to go squarely for similarity and follow Lewis and Hazen & Humberstone in giving primacy to the relation. At first blush, this would mean buying any property (and thereby any way of making *S* true/false) that results from the reflexive, symmetric relation and living with the fact that they do not always match our intuitions.

The second is opting for resemblance and thereby the empirical path we find in Carnap, for instance. The empirical approach is, of course, also the one linguists take, for example, when they analyse why speakers find some interpretations of sentences acceptable and why they reject others, in order to pick out a pattern that can be generalised (usually with a view to formulating a rule). Here, we start from the resemblance and try to derive the relation from there. This means, however, that we may not get a result that is logically watertight, but there is no good reason why rules should not come with exceptions.

The third option is to refuse to choose an explanatory direction and instead offer a conceptualisation of "*S*'s ways of being true" in order to illustrate what it is for a sentence to be about a subject matter. This path would not require primacy of either the relation or the classes, but if the result is to be more than mere hand waving towards similarity, it would have to be fully consistent and coherent.

Much in Yablo's work seems to point towards the "relation first" option. He conceptualises subject matter *m* effectively as the content of the sentence (as opposed to its object, like the authors before him; we will discuss this in 5.4.4) and then seems to start from *m*-similarity in order to obtain all the similarity classes that jointly make up *S*'s whole possible content. It is only when the result is not satisfactory that he looks for a corrective.

The inductive option doesn't seem a likely one, since in Yablo's framework it means that we'd need to start from the sets of similar worlds and abstract the similarity relation from them. However, that means that we'd first need to *have* the sets of worlds for each way the sentence can be true. This raises two worries concerning practicability: I don't know how we could obtain these sets without the help of *m*-similarity (which we wanted to derive from the worlds, so we can't use it to pick them out on pain of circularity), and if we could, the cardinality problem I have pointed out above might be a serious obstacle. But supposing that the practicalities can be solved, we would expect to have nested truthmaker sets here, for instance. But this in turn would mean that the 2-place similarity relation Yablo defines would not be derivable from these sets.

The third option is perhaps the one that makes the least demands in terms of logical stringency. We can just take the theory to suggest a way to model aboutness in possible world semantics, explaining that for *S* to be about a subject matter is for logical space to be partitioned into *S* and  $\neg S$ -worlds and those in turn to be grouped into sets – one set for each way to make *S* true (or false), such that worlds in each set are similar in terms of that way of being true (false) – with the set of those sets just being *S*'s subject matter. For a conceptualisation, this may be all it takes and we may be permitted to shrug off questions

---

<sup>111</sup> Goodman (1951), Rodriguez-Pereyra (2002), Leitgeb (2007, 2011), Paseau (2012)

on details of that similarity relation or the formation of those sets of worlds. But considering that the topic here (and, it may be pointed out, the title of Yablo’s book) is aboutness, and aboutness, according to this conceptualisation, just is for a sentence to have a set of sets of worlds similar according to how they make it true, maybe we can do better than this.

So whichever option we choose, it seems to me that similarity is an important, perhaps crucial, issue. Let us therefore have another look at the proposed as well as other possible similarity relations before we turn to Yablo’s own proposal of covers to replace divisions.

## 5.2.5 The similarity relation

### 5.2.5.1 Pinning down the problem with $S^T$

Yablo’s formal definition of the similarity relation he uses is in the (non-)Appendix; we have already quoted a part of it, but now we need the whole paragraph:

Decompositions induce similarity relations in the obvious way:  $x \sim_m y$  iff some **m**-cell contains both of them. (Call that **m-similarity**.) But the relation here is many-one; we focus therefore on a certain kind of decomposition. A decomposition is a *division* iff (i) each cell is closed under **m**-similarity (it contains every  $x$  **m**-similar to all its members), and (ii) every set closed under **m**-similarity is one of its cells.<sup>3</sup> Divisions determine similarity relations and vice versa.  $x \sim_m y$  iff some **m**-cell contains both. **m**’s cells are maximal sets of similars. A division’s cells are called *similarity classes*.<sup>4</sup> <sup>112</sup>

There are several important points to be stressed here. One is that the difference between equivalence cells and similarity cells is only that equivalence cells are disjoint whereas similarity cells share members between them. A division’s cells share the maximality requirement of equivalence cells, which is what causes the problem concerning “nested” truthmakers and companionship.

A second point is that similarity is a 2-place relation between individuals (let’s follow Paseau (2015) and call it  $S^T$ ). Therefore, just like equivalence, it yields pairs of members between which the relation holds. That, together with maximality, entails the problem of imperfect communities.

A third point worth noting is that the purpose of maximality is that the relation determine the division and the division determine the relation; we should be able to recover each from the other.

A last point, only implicit in the definition, is the number and kind of properties this formalisation can deal with. The definition does not say anything about how we are to understand “similarity” because it does not state what qualifies  $x$  or  $y$  to be members of an **m**-cell.<sup>113</sup> For Hazen & Humberstone (2004), referred to in the footnotes, the question does not arise because they are exclusively concerned with the technical relation, not with

<sup>112</sup> Yablo “Appendix” p. 2; here subject matters are set in bold letters. The footnotes contain references to Hazen & Humberstone (2004).

<sup>113</sup> In keeping with the book rather than the (non-)Appendix, subject matters, like “**m**”, will continue to be distinguished by font rather than bold letters in the text.

what use it may be put to, but here it is relevant. In ordinary English, we call two (or more) things “similar” when they are not exactly alike, but within some range of “almost alike”. They must therefore share some, but not all their properties (irrespective of the ontological status of those properties).<sup>114</sup> In the philosophical tradition, however, similarity is usually regarded as established as soon as a single property is shared. This minimalistic view is the basis of most of the formal work on similarity that I have come across.<sup>115</sup>

It sometimes seems as if Yablo’s take on similarity were closer to the “almost alike” interpretation than to the minimalistic one, for instance when he considers similarity ranges such as the subject matter the number of stars give or take ten. In view of the density of logical space, an “almost alike” view of similarity may be better served by a topological model, where the similarity between particulars (which may, of course, still be worlds) in a metric space corresponds to the distance between them according to the relevant metric. Properties would then correspond to convex sets, possibly clustering around archetypical particulars.<sup>116</sup>

But the worry about nested truthmakers indicates that the idea is to go for the minimalistic version. This works tolerably well for Carnap and Rodriguez-Pereyra because they work with very simple properties that are, or are treated as, atomic. Carnap started from (memories of) elementary sense data, defined as indivisible,<sup>117</sup> and built his similarity circles from them. Rodriguez-Pereyra, who takes a similar, but multi-levelled approach in his defence of resemblance nominalism, works with sparse properties. Indeed, sparse properties were defined by Lewis<sup>118</sup> in order to fend off a kind of property, which he calls “abundant”. For reductionist views according to which a property just is the set of all and only the things that have that property, non-sparse properties can cause trouble if there is no restriction on the composition of the relevant sets. As all members of a set share the very property of being members of that set, things that seem intuitively wholly unrelated (say, this tree, the noise my phone makes and the rim of Elina’s hat) jointly represent a property simply by virtue of being members of the same, rather erratic set. But in most cases, the property of being members of a set *per se* is of no interest, so while set members don’t share another property, too, we would like to keep such property sets out of our account – which we can’t, because properties, on this account, are nothing over and above the set of the things that have them. Since, moreover, plenitude implies that every object whatever belongs to infinitely many such erratic sets, they are called abundant. That said, Lewis’s definition of sparse properties as intrinsic and highly specific<sup>119</sup> is so narrow that many properties we do want to have in our accounts also fall into the “abundant” category. Now, it may seem that by specifying that our worlds be m-similar, we have the restriction

---

<sup>114</sup> Neil Barton reminds me that for some views that take the identity of indiscernibles to fail, even two things that share all their properties can turn out to be similar rather than identical.

<sup>115</sup> Gärdenfors (2004a,b), Leitgeb (2007, 2011), Paseau (2012, 2015), Rodriguez-Pereyra (2002)

<sup>116</sup> Hannes Leitgeb pointed me to Peter Gärdenfors’s work on conceptual spaces (Gärdenfors 2004a, 2004b). Cf. also Blumson’s (unpublished) argument concerning the independence of similarity spaces from set-based similarity designs.

<sup>117</sup> Carnap (1961/1967) §68, Leitgeb (2007, 2011)

<sup>118</sup> Lewis (1986) p. 60

<sup>119</sup> Lewis writes: “Sharing of them makes for qualitative similarity, they carve at the joints, they are intrinsic, they are highly specific, the sets of their instances are *ipso facto* not entirely miscellaneous, there are only just enough of them to characterise things completely and without redundancy” *ibid.*

on composition we need in order to stay clear of the *pointless* abundant properties. The trouble is that m-similarity is defined as joint membership in an m-cell and m-cells are in turn defined as maximal cells of similars. This means that if we cannot *start* from the property, but want it to be recoverable from the set and vice-versa, we cannot prevent similarity from consisting in nothing but joint membership in such a cell. So the definition as it stands does not avoid the worst sort of abundance Lewis envisaged, and it would be good to be able to work with sparse properties instead.

But sparse or otherwise atomic properties are unavailable to us in principle because ways for a sentence to be true will always consist of complex properties due to their propositional structure. Even the simplest *S* expresses a proposition and propositions consist of (at least) an object – *S*'s referent – and a property that *S* predicates of that object; a way for *S* to be true must therefore also consist of an object and a property. But the upshot of complexity is that any aspect whatever that we try to pick out will come on top of other properties (in fact very, very many other properties, which is why the imperfect community problem will be rare, cf. 5.2.2.3), some of which will be necessary but not sufficient for establishing a way for *S* to be true – a situation discussed in Yablo (1992) and (2017). Let me give an example to illustrate why this makes working with a 2-place relation problematic.

Suppose that among the ways for the 1680s to be exciting (more precisely: the ways worlds can make the sentence “The 1680s were exciting times” true) there is the Rye House Plot (RHP) in all its variations. Suppose a refinement of the RHP set contains those worlds where somebody breaks a glass (call them the RHP-g worlds), which spikes the excitement – the noise of it shattering may give away the conspirers. So a necessary element in the RHP-g worlds is that there must be at least one glass being broken during the conspiracy in the Rye House. But this is something the RHP-g worlds share with many other non-RHP worlds where it does not contribute to the excitement of the 1680s: perhaps some of the Bill of Rights worlds or some of the Monmouth rebellion worlds that don't have a RHP, and even some of the dull-1680s worlds.

Now, if our similarity relation is to pick out all worlds that have *at least one* m-property in common between each two of them, all *S*-worlds will ultimately go into one cell because they all share the property of being *S*-worlds (that's the ultimate maximality problem of 5.2.2.4).

If instead we can somehow restrict the cells to *specific* m-properties, such that we can have a cell of worlds with a glass breaking in the Rye House, then that cell would have to contain *all* the worlds that have that property, including those where there is no plot in the Rye House, and amongst them even some that are  $\neg S$ -worlds. This set would then no longer represent a way for the 1680s to be exciting.

If, as a third option, we demand the 2-place relation to take into account *all the* m-properties each two worlds share and build maximal cells of those, we would obtain cells of worlds identical with respect to the way they make *S* true – but these just are Lewis's equivalence cells, and we would thereby also waive the possibility of having overlaps between the cells.

The problem is due to the combination of the kind of property we are dealing with, the 2-place relation and the maximality condition. We cannot have sparse properties, as pointed



out above. Nor can we give up the maximality condition, because if we want sets to represent properties – in our case, the ways worlds make  $S$  true or false – they must contain all elements that have that property. But maybe we can choose another sort of relation.

#### 5.2.5.2 Other similarity relations

Paseau (2015) gives a number of options worth considering (I will stick to the names he uses there rather than in his 2012, hoping the “ $S$ ” in them, which here, of course, stands for “similarity”, will not be confused with statement  $S$  in the rest of this chapter).

$S^T$ : The relation I suggest to discard is the traditional reflexive, symmetric 2-place relation in which the relata share at least one property. It is symbolised as  $S^T(x,y)$ .

There are two variations of  $S^T$  which are both relevant. One recasts the intuition behind  $S^T$  in plural logic as  $S(\text{the } Xs)$  understood as “the  $Xs$  are  $S$ ”. It thereby makes  $S$  come out as a collective property rather than a relation. This seems a nice way of explicating the reductive take on properties as the sets of the things that have them and would help prevent imperfect communities. However, it does not say anything in addition to the fact that the  $Xs$  are  $S$  (where  $S$  can be any property we like), so effectively it is a sort of deflationism about similarity. In fact, it cannot even avoid the pointless abundant properties, because the  $S$  that the  $Xs$  are said to be, may very well just be the property of being members of that set. But deflationism alone is enough not to recommend it for our purposes, since we need similarity spelled out to get to subject matter. As, moreover, it also doesn’t solve the problem of nested truthmakers, it is not a viable option.

$S_F^T$ : The other variation on  $S^T$  is similarity in a specified *respect*. Paseau calls it  $S_F^T(x,y)$  where  $F$  stands for a specified property in terms of which  $x$  and  $y$  are similar. If we allow  $F$  to stand for a determinable property, and there is no reason why we shouldn’t, then  $S_F^T$  is even closer than  $S^T$  to the 2-place relation of  $m$ -similarity we are seeking to replace. However, although it would – trivially – solve all our issues, it is not an option for us because we would have to be able to specify all the properties for which we want similarity sets *first*. Should this be technically possible (it rather seems to me that the only two properties we can be supposed to have at the outset are “being an  $S$ -world” and “being a  $\neg S$ -world”), the approach doesn’t seem desirable for philosophical reasons; it exacerbates the issues with the inductive approach considered in 5.2.4 and renders similarity superfluous – if we *have* the properties  $F_1, F_2, F_3, \dots$ , we can get the sets of worlds from them directly and the fact that set members will be similar because they share a particular property  $F_i$  does no work for us. Moreover, using this relation, or, *mutatis mutandis*, its plural version, in actual practice is impossible due to the cardinality issue (cf. 5.2.2.4).

So let us turn to three more elaborate relations.

$S^C$ : The first is a contrastive proposal by David Lewis<sup>120</sup> which Paseau renders as “ $x_1, x_2, \dots$  are similar to one another and not likewise similar to any of  $y_1, y_2, \dots$ ”. The idea is

---

<sup>120</sup> Lewis (1983)

that  $x_1, x_2, \dots$  share a property  $y_1, y_2, \dots$  don't have. It, too, has a counterpart formulation in plural logic:  $(the\ Xs)S^C(the\ Ys)$ . This version again solves the imperfect community problem, but it doesn't help with nested truthmakers because they are, of course, similar to the worlds in the superset and thereby among the  $Xs$  or some of  $x_1, x_2, \dots$ . Nevertheless, we shall return to  $S^C$  below.

$S^n$ : Next, there is Rodriguez-Pereyra's degree version<sup>121</sup> of  $S^n(x, y)$  spelled out 'x and y are similar to degree n' for  $n \in \mathbb{N}$ , where n stands for the number of properties x and y share. This relation is designed for work with sparse properties, which would seem to lend themselves to individuation such that we can count them and of which there are arguably only finitely many. Even supposing that aspects of our worlds concerning how they make S true can also be split up into distinct properties, our worlds share infinitely many properties before we even get to the ones we are interested in. We might consider a "respect"-variant along the lines of  $S^T_F$ , for instance "similarity with respect to m", but this will not save the day for us. Even if it gets all irrelevant properties out of our way so that our count includes only the m-properties,  $S^n$  would not allow us to distinguish, say, between the worlds sharing the RHP and the Monmouth Rebellion (MR) and those sharing the MR and the Bill of Rights (BoR) – they would all come out as similar to the same degree. So, degree alone is of no use to us.

$S^{4+}$ : As his own improvement on  $S^n$ , Paseau proposes comparative similarity  $S^{4+}(the\ X_1s, the\ X_2s, the\ X_3s, the\ X_4s)$  which combines the contrastive and the degree versions to read "the  $X_1s$  are more similar to the  $X_2s$  than the  $X_3s$  are similar to the  $X_4s$ ".<sup>122</sup> While this solves the problem for designs working with sparse properties, in particular those which can assume things to have the same number and kinds of properties (e.g. all having a mass and a charge, etc.), it will not help our project for the same reason as before: we don't want worlds sharing the same *degree* of similarity lumped together, but only worlds sharing the same properties. Comparative similarity makes things that are red, square and wooden come out as similar as things that are blue, round and metal. That said,  $S^{4+}$  is not committed to representing degree of similarity in *numbers* of properties, any other measure would do just as well.

$S^{C<}$ : Maybe this advantage can be used to get us a little closer to a solution by combining Lewis's and Paseau's relations into a comparative contrastive similarity relation: ' $x_1, x_2, \dots$  are more similar to one another than they are to any of  $y_1, y_2, \dots$ '. This, too, is probably more easily dealt with in pluralities as  $S^{C<}(the\ Xs, the\ Ys)$ . It is recoverable from  $S^{4+}$  as  $(the\ Xs, the\ Xs, the\ Xs, the\ Ys)$  but perhaps easier to handle for our purposes;<sup>123</sup> it also avoids the counter-intuitive notion of self-similarity understood as "x being similar to itself".<sup>124</sup>  $S^{C<}$  is a version of what Oliver calls "vague resemblance",<sup>125</sup> of x resembling y more than z.<sup>126</sup> But its vagueness is really not a handicap for us, since we are not interested

<sup>121</sup> Rodriguez-Pereyra (2002)

<sup>122</sup> It is similar to a four-termed similarity relation considered in Williamson (1988).

<sup>123</sup> Thanks to Hannes Leitgeb for pointing this out to me.

<sup>124</sup> Paseau (2012, 2015) builds his account on it.

<sup>125</sup> Oliver (1996) p. 52

<sup>126</sup> Williamson (1988) points to Jean Nicod for this same notion of resemblance.

in degrees of similarity. We only need the notion of “more similar than” in order to (i) allow accompanied properties to have a set of their own, and, if at all possible, (ii) keep out the undesirable sort of abundant properties.  $S^{C<}$  would yield (i) because the nested truthmakers would be more similar to each other than to the truthmakers in the superset. Thus the RHP-g worlds would be more similar to each other than to the rest of the RHP worlds; but the RHP worlds would in turn be more similar to each other than to the BoR or the MR worlds.

What, if anything,  $S^{C<}$  can do about (ii) is a more complex issue. If properties are reduced to set membership such that sharing a property is nothing over and above belonging to the same set as outlined above (5.2.5.1), even  $S^{C<}$  will not solve the problem. But if we have any other way of determining properties, the members of meaningful sets will have two properties in common: membership in that set *and* the property the set represents to us (e.g. having a RHP). In that case, all “meaningful” sets would consist of members that are more similar to each other than to non-members of that set. Lewis’s cells had the advantage of operating with intrinsic properties, so similarity was constituted by the worlds’ sharing of one or more of these properties and membership in the same set *per se* did not count. Intrinsic properties would take us a long way, but they do not ground all of the subject matters Yablo wants to cater for (cf. 5.2.1).

In its plural version  $S^{C<}$  would solve the imperfect community problem trivially. However, it cannot solve the coextension problem concerning logical truths and contradictions because they are aspects shared by all or by no worlds, respectively.

But let us now look at the solution Yablo points to, covers.

### 5.2.6 Covers

As we have seen in the quote in 5.2.2.2, Yablo points towards covers as a solution to the issue concerning nested truthmakers. His most detailed description of the problem comes in connection with motivating the introduction of divisions against Lewis’s partitions. Yablo points out that often we cannot give reasons for a statement’s truth in the shape of incompatible sets of worlds, but need them to be incomparable instead, as for instance when  $(p \rightarrow q)$  is true for the same reason in  $(p \rightarrow q)$ -worlds as in  $(p \rightarrow \neg q)$ -worlds (if it is true because  $p$ ), but for a different reason in  $(\neg p \rightarrow q)$ -worlds (where it is true because  $q$ ). Divisions allow us to represent that.

What divisions cannot model, however, is a part-whole relation of such reasons, which amounts to a refinement of truthmaker cells and thereby a subset-superset relation. This is explained in a footnote, which is best quoted in full:

I suspect we will want ultimately to depart even further from Lewis. A division is made up of maximal sets of pairwise similar worlds. No maximal set can include another, so the sets are incomparable, making the ways things can be m-wise incomparable too; none entails any other. Consider now The number of stars is between 95 and 105 and The number of stars is

between 98 and 103. Both are ways for things to be where the approximate number of stars is concerned, but, or rather so, the approximate number of stars is not a division. More general than divisions are *covers*: assorted subsets of the set that is covered that contain between them all its members. Every cover induces a similarity relation; items are similar if one of the chosen subsets contains both. But the same similarity relation is induced by any number of covers. I have decided for practical reasons to stick with divisions, leaving covers to footnotes, but “really” the whole thing should be redone with them.<sup>127</sup>

The example of the number of stars here is similar to the example of moments of time we had in 5.2.2.2 and illustrates again the problem of nested truthmakers in connection with the maximality condition on divisions. Divisions yield sets of elements each of which shares at least one property with each of the others. Being maximal, every element that shares at least one property with each of the elements in the set is also in the set. The problem in the case Yablo mentions is therefore that all worlds that have between 98 and 103 worlds also have between 95 and 105 worlds, so they fall into the larger set and we cannot have both sets separately.

Covers, by contrast, are made up of subsets of the set they cover. Membership in those subsets is not established by  $S^T$ , they are simple property sets. The only condition is that they must jointly cover the entire original set, or, as Yablo puts it more recently: “... a “cover” of  $S$  is a collection of its subsets which sum to the whole...”<sup>128</sup> Therefore the subject matter the approximate number of stars can be represented by a cover containing both the set of worlds that have between 98 and 103 stars and the set of worlds that have between 95 and 105 stars (together with many other sets, each representing another way for things to be as far as the approximate number of stars is concerned).

Before discussing what covers can and what they cannot do for us, let us lay the technicalities on the table.

#### 5.2.6.1 What exactly are covers?

The following definition seems to spell out well the notion of covers we need for Yablo’s proposal:<sup>129</sup>

A family of nonempty subsets of  $X$  whose union contains the given set  $X$  (and which contains no duplicated subsets) is called a cover (or covering) of  $X$ . For example, there is only a single cover of  $\{1\}$ , namely  $\{\{1\}\}$ . However, there are five covers of  $\{1,2\}$ , namely

$\{\{1\},\{2\}\},$   
 $\{\{1,2\}\},$   
 $\{\{1\},\{1,2\}\},$   
 $\{\{2\},\{1,2\}\},$  and  
 $\{\{1\},\{2\},\{1,2\}\}.$ <sup>130</sup>

<sup>127</sup> Yablo (2014) p. 37, fn 27; Yablo uses *Courier* to indicate propositions and *Calibri* for subject matters.

<sup>128</sup> Yablo (2017) section 8

<sup>129</sup> Painfully lacking the necessary background in mathematics, I insert the explanations that have helped me understand the issue and on which my attempts to weigh the advantages and disadvantages of covers are based.

<sup>130</sup> Weisstein, ‘Cover’ on MathWorld – I have changed the formatting for clarity.

So a cover set of a set  $X$  contains any combination of sets from  $X$ 's power set (i.e. the collection of all of  $X$ 's subsets) that, between them, contain each element of  $X$  at least once. A cover can normally comprise more than what it covers (it must contain *all* of  $X$ 's elements, but not necessarily *only* them), but for our purposes, Yablo restricts the cover to  $X$ .<sup>131</sup>

Kelly<sup>132</sup> adds the definition of a *subcover* that will be useful: A subcover of is a subfamily which is also a cover. So each of the five lines above contains one of the five subcovers of  $\{1,2\}$ . Unfortunately, there doesn't seem to be a special name for the family of all (sub)covers; we will follow the general custom of using 'cover' interchangeably for both the whole family and individual subcovers while this is harmless.

This Hasse diagram of the power set of set  $X\{x,y,z\}$  helps to visualise the covering relation, a partial order that holds among some of the subsets of the power set. The sets the arrows point to cover the sets the arrows come from. The empty set is not usually included in covers; it is part of the diagram because it is part of the power set.

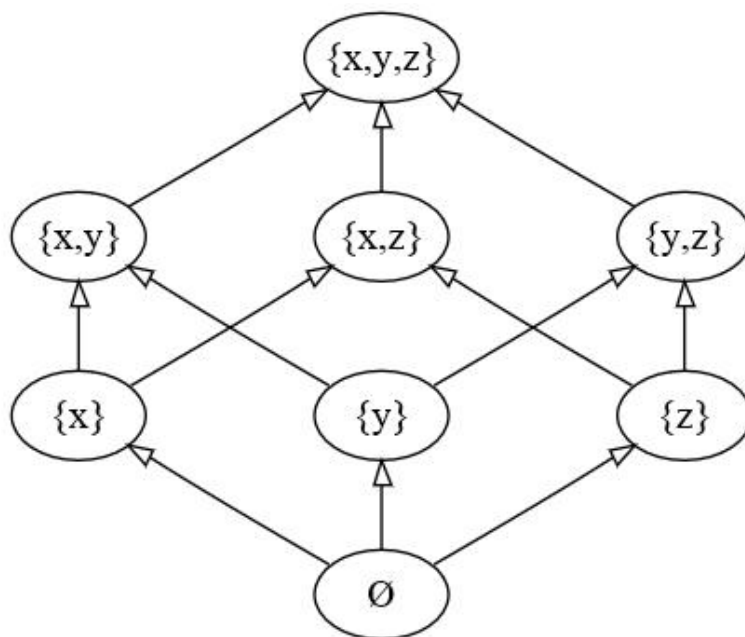


fig. 1<sup>133</sup>

The largest cover is the power set itself, i.e. all the sets above (except the empty set) – it is what caused the cardinality issue described in 5.2.2.1 and 5.2.2.3; the smallest cover of  $X$  is simply  $X$  itself.  $X$  and the set of singletons of  $X$ 's members are also among the covers

<sup>131</sup> See his footnote 3 on page 6: "I am thinking here of sets that sum to *exactly* the  $A$ -worlds. Normally the sum would be expected only to include the  $A$ -worlds."

<sup>132</sup> Kelly (1955) p. 49

<sup>133</sup> Taken from Wikipedia: KSmrq, CC BY-SA 3.0,

<https://commons.wikimedia.org/w/index.php?curid=2118211>, last retrieved on 25 June 2016; a set's power set is the set of all its subsets.

most parsimonious with respect to the occurrence of  $X$ 's members in their members, but neither of the two is any use to us as they do not express similarity:  $X$  itself makes everything turn out similar to everything, while the set of all singletons makes everything turn out dissimilar to everything else.

Between these extreme cases, however, there is a very large number of subcovers, as the example of the 2-membered set above illustrated. For these, the big question, that we'll get to in a moment, is how to pick the subcover that models the subject matter we are looking for.

#### 5.2.6.2 Why minimal covers are not an option

But first, let us get a tempting tool out of the way. The cardinality issue is an incentive to try and bring the number of sets down. This seems also reasonable considering that there is a lot of redundancy in ordinary cover sets – after all,  $X$ 's members have to appear *at least* once, but can reappear very often. Such a reduction can be achieved with *minimal covers*. Weisstein (on MathWorld again) explains them as follows:

A minimal cover is a cover for which removal of one member destroys the covering property. For example, of the five covers of  $\{1,2\}$ , only  $\{\{1\},\{2\}\}$  and  $\{\{1,2\}\}$  are minimal covers.<sup>134</sup>

This example is slightly misleading with respect to the number of sets in a minimal cover. The true implication is better shown in the next larger example he gives, which corresponds to the one in our Hasse diagram above:

Similarly, the minimal covers of  $\{1,2,3\}$  are given by

$\{\{1,2,3\}\},$   
 $\{\{1,2\},\{1,3\}\},$   
 $\{\{2\},\{1,3\}\},$   
 $\{\{2,3\},\{1,2\}\},$   
 $\{\{2,3\},\{1,3\}\},$   
 $\{\{2,3\},\{1\}\},$   
 $\{\{3\},\{2\},\{1\}\},$  and  
 $\{\{3\},\{1,2\}\}.$

The numbers of minimal covers of  $n$  members for  $n=1, 2, \dots$ , are 1, 2, 8, 49, 462, 6424, 129425, ... (OEIS A046165).<sup>135</sup>

So minimal covers are covers that consist of one or more sets, each of which contains at least one element from  $X$  that no other set in the cover contains. Each minimal cover on set  $X$  above therefore consists of one of the subsets together with all other subsets in its power set that are neither covered by it nor covering it or each other, if such there are (for the improper subset  $\{x,y,z\}$  there is none). So the power set that caused the cardinality issue is no longer a worry because it is not a minimal cover. However, the cardinality problem would only be abated if we specified that only *one* minimal cover is admitted; if we admitted all minimal covers of logical space jointly, we would still not have a countable number of sets, because they would again sum to the power set of logical space.

<sup>134</sup> *ibid.*

<sup>135</sup> Weisstein, 'Minimal Cover' on MathWorld – my formatting again

Unfortunately, minimal covers are not an option. The purpose for which Yablo wanted to deploy covers was to give nested truthmakers their own sets, in order to cater for accompanied properties or refinement. The trouble with them was precisely that they do *not* have elements the larger sets don't also possess, and that disqualifies them for minimal covers. So the dilemma (5.2.2.4) strikes again, and tempting though minimal covers might have been for solving at least part of the cardinality issue, they are no option for us. We have to work with ordinary covers.

#### 5.2.6.3 How covers solve the nested truthmaker problem

Yablo suggests covers for a big advantage they offer over divisions, namely that they admit subsets. They therefore allow us to model all the ways a statement *S* can be true by having a set of worlds representing each such way included in the cover. The set of all these sets, i.e. the cover, is then the subject matter *S* of *S*.

Returning to our example, the cover representing the excitement of the 1680s contains a set of worlds with a RHP, another set with the MR, another one with the BoR, three sets with each two of them, one with all three; but moreover, it also contains a set with a maid being bitten by a flea during the signing ceremony of the BoR, another set with two fleas, etc. Each refinement of a way sentence *S* "The 1680s were exciting times" can be true is represented in a set of its own and contained in the cover without being swallowed up by its superset.

For all contingently true or false statements, this is an excellent way of modelling them.

The biggest remaining issue with what covers – once we have them – are meant to do is how to include the degree of hyperintensionality contained in the bigger picture of subject matter. Remember that subject matter is to be given not only by *S*'s truthmakers but also by its falsemakers. Take one way for *S* to be true, expressed in statement *Sq* "A maid squeaked during the signing ceremony of the Bill of Rights." What we take to be a falsemaker for *Sq* can point us to what it is about *Sq* that makes it a true-way for *S*. We might think, for instance, that the squeaking of a maid is not a factor that makes the 1680s exciting. It is only her squeaking at the signing ceremony of the Bill of Rights that is a true-way for *S*. So, the sort of false-way we are looking for is worlds where it is not during the signing that she squeaks. She may squeak at any other time, or not at all. Conversely, there not being a maid at the signing is not an *m*-relevant false-way.

Now, these sets of falsemaking worlds should somehow be tied up with the respective truthmaking worlds and it is not clear to me how covers can be expanded or supplemented in order to match up the right truthmakers and falsemakers.

But even if there is no easy solution for the falsemakers, covers of truthmaking worlds are in themselves an excellent way of depicting Yablovian subject matter. The big question is now how to obtain them.

#### 5.2.6.4 How to obtain the right subcover

The question may seem ill-formed because assuming plenitude, all the covers we may ever want already exist. It might be thought that all we need to do is take into account only the subcover we need and which that is should be salient, as it were, from the statement in question.<sup>136</sup> The trouble with this, however, is that salience seems to be as much an integral part of aboutness as  $m$ -similarity. It seems to me that it is at the core of what we seek to explain, so much so that an explanation of aboutness that tries to build on salience cannot take off. Before we consider the options, let's take stock of what we've got.

At this stage in the project we have a statement  $S$  that expresses a proposition  $S$ . The proposition partitions logical space into  $S$ - and  $\neg S$ -worlds. We also have the power set of logical space. Some family of sets from that power set make up the subcover that models  $S$ 's subject matter  $s$ .

Now, what we are looking for is some way to pick out those sets for our subcover: a property only they share; or a relation that holds between them (and not between any other subsets of the power set of logical space); or a function from one of our three givens – logical space, its power set, or its  $S$ -partition – to the cover  $s$ ; or anything else that might replace Lewis's equivalence relation or the discarded similarity relation. This substitute, whatever it is, will tell us how  $S$  relates to  $s$  and thereby, what it is for  $S$  to be about  $s$ . And just like Lewis's equivalence relation that partitioned logical space into  $s$ -cells was recoverable from the partition, and the similarity relation that divided logical space into similarity sets was recoverable from the division, we would also like whatever replaces them to be recoverable from the cover (no pun intended).

Put in somewhat more formal terms,<sup>137</sup> we seek the  $\models$  that gives us  $s \subseteq \mathcal{P}(L)$ , where  $L$  is logical space. This would make  $s$  the set  $Y$  of all sets in the power set of logical space that model  $\models$ :

$\{Y \mid \forall x \in \mathcal{P}(L), x \models \quad x \in Y\}$ . The question, in other words, is what it is for a set  $x$  to model  $\models$ . A possible difficulty is that, intuitively,  $\models$  would be a way for  $S$  to be true. But then,  $\models$  doesn't stand for a determinate property but instead for a determinable. Anyway, the right definition of  $\models$  would yield a cover that falls neatly into two super-subsets, one containing all the sets for ways of making  $S$  true, the other those for making  $S$  false.<sup>138</sup>

Similarity is one of two key aspects in Yablo's account of aboutness; the other one that we shall turn to now, is truthmaking.

---

<sup>136</sup> This is a good point to thank all the mathematicians and logicians I have pestered with this over the past months for their patience, most prominently my supervisor Esther Ramharter and Steve Yablo himself.

<sup>137</sup> Many thanks to Neil Barton for help with this.

<sup>138</sup> I wonder whether  $S^{C<}$  may be used here for something along the following lines. Instead of starting from the power set of logical space, we might be starting from its  $S$ -partition, i.e. the set of all  $S$ -worlds, and perhaps we can then create the set of these worlds closed under  $S^{C<}$  (provided we look only at intrinsic properties). Perhaps in this way, we can obtain all the refinements of  $S$ , and the refinements of the refinements, and so on up to the finest grain of refinement, viz. the cells of worlds identical with respect to their (exciting) 1680s. These would, in fact, be the cells we get from Lewis's equivalence relation. And then do likewise for the  $\neg S$ -worlds.



### 5.3 Truthmaking<sup>139</sup>

Those branches in the philosophy of language that explicate the meaning of a statement by its truth conditions, i.e. by what might make the statement true, owe us an account of two issues: first, what it is that can make it true (aka its truthmakers), and second, what it is for it to be made true, i.e. how it relates to what makes it true. Yablo's account uses possible worlds semantics, where the traditional answer to the first question is: the set of all worlds where matters are as the statement claims – worlds that make the statement true, in the jargon. This is perhaps good enough for atomic statements taken on their own, but for complex statements made up of more than one atomic statement and the necessary connectives ( $\neg$ ,  $\wedge$ ,  $\vee$ ), and for inferences, it is often ill suited for reflecting our pre-logical intuitions. This is what Yablo wants to tackle by making his account more fine-grained with the help of subject matter. His answer to the first issue is therefore: an aspect of a truthmaking world, which can be individuated by that world's membership in the set of worlds with which it shares that aspect. Each such set is then a true-way, a way to make the statement true, and thereby a truthmaker. We have discussed the technical details at length in 5.2.

This section is dedicated to the second issue, how these truthmakers relate to the statement, in particular to complex statements and conditionals. This issue has logical and metaphysical aspects. As truthmaking is an important research area in analytic philosophy, there is ample literature on it, which we shall not revise here. We will only discuss Yablo's own logical account in the first part of this section, and his metaphysical account in the second.

#### 5.3.1 Truthmaker logic

For the logical aspects, Yablo uses his true-ways to ground logical relations, thereby turning them into relations between the fine-grained contents of atomic statements. He offers two different accounts, one recursive and one reductive. A problem raised by Rodriguez-Pereyra (2006) for the Entailment Principle in truthmaker theory complements the concerns Yablo raised in his book and may therefore help to elucidate the different advantages between the two accounts.

The Entailment Principle<sup>140</sup> claims that for any proposition  $p_1$  entailing a proposition  $p_2$ ,  $p_1$ 's truthmakers must also be truthmakers for  $p_2$ . This issue is of relevance here because Yablo presents subject matter inclusion, i.e. the inclusion of the truthmakers of one subject matter in those of another, as aboutness-preserving entailment. Rodriguez-Pereyra refutes the Entailment Principle on the grounds that individual conjuncts are not usually made true by the truthmakers of the whole conjunction; thus,  $p$  is not made true by  $\{p \wedge q\}$ <sup>141</sup> because  $\{q\}$  is irrelevant to the truth of  $p$ .

Truthmakers are also the tool for dealing with a problem that has plagued aboutness theories since Putnam, viz. that we cannot distinguish subject matters of sentences that are always true/false (universal statements, tautologies, logical truths/contradictions) because

---

<sup>139</sup> This section 5.3 is partly identical with section 2.3.1 of my Critical Notice on *Aboutness* (2016).

<sup>140</sup> Not to be confused with Lewis's principle of the same name (cf. 4.1.1)

<sup>141</sup> In this section, proposition will always be represented by small letters in italics and their truthmakers by small letters in curly brackets.

being true/false everywhere, they don't partition worlds. How well truthmakers serve to solve this problem will depend on what it is they make true. So let us look at the two options Yablo proposes, recursive and reductive truth-/falsemakers.

For the first option, Yablo borrows van Fraassen's positive and negative atomic facts,  $\{p\}$  and  $\{p\}$ , respectively. A sentence or sentence part is then made true by  $\{p\}$  and false by  $\{p\}$ ; disjunctions are made false by the union of the falsemakers for the disjuncts and true by one (or more) truthmaker(s), and conjunctions are made true by the union of the truthmakers for the conjuncts and false by one (or more) falsemaker(s). These recursive truthmakers do not supervene on truth conditions; here, the truthmakers for  $p \vee \neg p$  are  $\{p\}$  and  $\{p\}$ , not  $\{q\}$ . *Tautological entailment*, a form of relevant entailment, can therefore be defined thus:

- (1)  $\{$  tautologically entails  $\Xi$  iff each of  $\{$  's truthmakers contains (as a subset) a truthmaker for  $\Xi$ .

But while this prevents  $q$  from following from  $p \circ \circ p$  (*ex falso quodlibet*), for example, it does not prevent it coming in by or-introduction as in  $p \Xi p \circ q$  (one of Goodman's worries, and, indeed, Yablo's own, as we have seen in 5.1.2). So, Yablo defines *inclusive entailment*:

- (2)  $\{$  inclusively entails  $\Xi$  iff
1. each of  $\{$  's truthmakers contains (as a subset) a truthmaker for  $\Xi$ , and
  2. each of  $\Xi$  's truthmakers is contained in a truthmaker for  $\{$ .

Recursive truthmakers will now keep non-black non-ravens from making Hempel's 'All ravens are black' true. They can *prevent* irrelevance, however they cannot *eliminate* it in structures like  $(p \circ q) \circ (p \circ \circ q)$  where we really only care about  $p$ . They are not helpful concerning Rodriguez-Pereyra's challenge either, because  $p \circ q \circ p$  constitutes inclusive entailment all right: the truthmakers for  $p \circ q$ , viz.  $\{p, q\}$ , contain  $p$ 's truthmaker  $\{p\}$  as a subset.

In all these cases, the second option Yablo proposes, reductive truthmakers, are the better tool. They are derived from the (Quinean) idea that a sentence is *primely implied* by a conjunction when it is not implied by the conjuncts individually. This can be modelled by truthmakers in minimal models, so by Boolean absorption the reductive truthmaker for both  $p \circ (p \circ q)$  and  $p \circ (q \circ \circ q)$  is  $\{p\}$ , whereas the recursive truthmakers would have been  $\{p\}$  and  $\{p, q\}$ , and  $\{p, q\}$  and  $\{p, q\}$  respectively. The difference is well illustrated by Yablo's example 'If you two are ready, that makes three of us', where his reductive intuition is that we only need me to be ready, all three of us as truthmakers would be an overkill, while my intuition goes with the recursive option instead.

While Yablo only deals with simple sentences being true for complex reasons, reductive truthmakers are now also the solution for Rodriguez-Pereyra's opposite problem. The minimal model for  $p \circ q \circ p$  is  $\{p, q\}$ . Now  $p \circ q \circ p$  translates into  $\circ(p \circ q) \circ p$ , which in turn becomes  $\circ p \circ \circ q \circ p$ . But neither  $\{p\}$  nor  $\{q\}$  is part of our minimal model, so  $p \circ q \circ p$  is made true only by  $\{p\}$ , the desired result.

In his review, Fine argues against reductive truthmakers and in favour of a mereological account of truthmaking. An example he gives is the proposition "God or Mind and Matter

exist” of the form  $p \supset (q \wedge r)$ .<sup>142</sup> He thinks that  $p \supset q$  (God and mind exist) is differently true from  $p \supset r$  (God and matter exist) although God’s existence alone is sufficient for making the proposition true. But it seems to me that this would only be so if the existence of either mind or matter would make a relevant addition to the existence of God, when in fact the conjunction suggests otherwise. Replacing the example by one with the clear liquid on Putnam’s twin earth<sup>143</sup> (“twater”) and water, we might say: “Twater or hydrogen and oxygen exist”. Surely, here we would follow Rodriguez-Pereyra’s and, I take it, Yablo’s intuition and go for the reductive rather than the recursive account.

Now, the obvious question is which truthmakers to use. Yablo wants to take this decision on a case-by-case basis, which is, of course, bad news for computer applications, e.g. for repositories, LIS or, indeed, any other area where we want to have a single, standard procedure.

### 5.3.2 Truthmaker metaphysics

So much for the logical options. But let us also look at the metaphysics. At the core of the truthmaking debate, there is the old problem of explaining how two things of different natures, a sentence and things or events in the world, can relate to each other such that the latter make the former true. Yablo follows Lewis in regarding propositions as sets of worlds. But unlike Lewis, he regards facts as properties rather than parts of worlds, and properties are, of course, themselves sets of worlds. Facts *qua* truthmakers (or true-ways) are thereby of the same category as the propositions they make true. Instead of Armstrong’s metaphysical necessitation, a proposition is now logically necessitated, i.e. implied and explained by ways things can be. The only cross-categorical relationship is that between sentences and propositions, and, Yablo says,<sup>144</sup> it is simply one of expression.

But this doesn’t seem right, for if facts are the sets of worlds that make a proposition true and propositions are the sets of worlds where the proposition is true, they both pick out the same worlds, and for the same reason. Of course, individual true-ways don’t induce the proposition. But all these truthmaking facts taken together do, because taking them together means taking the union of all these facts and that just is the proposition; and the union it must be, because the *set* of all facts is the subject matter and therefore not a truthmaker. It seems to me that to prevent the collapse, what we need is “directed propositions”, i.e. propositions-cum-subject matters. Then the true-ways come out as the subsets of the proposition and the members of the subject matter. In instantiating one way the proposition can be true, each of them showcases one explanation of the truth of the sentence; and as its worldly members are included in those of the proposition, the proposition is implied by this true-way. This gives us different sets. Nevertheless, it cannot resolve the issue about metaphysical categories.

Remember that in following Lewis, we are buying into a modal version of Russellian metaphysics (cf. 4.2). This means that a possible-world-semantical proposition is the set of all the worlds that make a sentence true, even if, in a second step, we might reduce it to the way it partitions logical space. But a set of worlds cannot be explained or implied, it

<sup>142</sup> Fine (forthcoming) p. 14

<sup>143</sup> Putnam (1973)

<sup>144</sup> Yablo (2014) p. 74

can only be included or itself include, intersect, etc. The proposition itself is of the same nature as any of its subsets, including the most fine-grained true-ways, which are themselves only worlds grouped together according to more precise specifications of the state of affairs the proposition itself constitutes. Truthmaking, however, is the flip-side of expression. A sentence expresses a proposition and the proposition makes the sentence true. So, the old problem, if it is one, remains the same because on this view, what is made true is never a proposition, but a sentence.

In a related worry, the circularity Lewis pointed out (cf. 4.6.1), strikes again. In Lewis's design, it was due to the fact that his subject matter parts of worlds share intrinsic properties. A statement is entirely about a subject matter iff it is not about anything else. But if it were about anything else, the property it states would no longer be intrinsic.

In Yablo's design, subject matters are not parts, but aspects of worlds, so the property of being an *S*-world (or  $\neg S$ -world, as the case may be) is not about possessing a certain part. Nevertheless, it is still a property of the world. Properties are sets of the things that have them. So, the property is now intrinsic to that set rather than the individual world. (We might also draw up the argument via facts instead: *S* is made true by facts, i.e. sets of worlds, rather than the worlds themselves.) We just shift the issue one set-level up from where it was rooted in Lewis's design – it is now intrinsic to each true-way set (i.e. each way the fact can play out, i.e. each determinate version of the fact). From here on, the problem is the same as for Lewis: A statement is exactly about a subject matter iff it is not about anything else. But if it were about anything else, the property of the fact would no longer be intrinsic.

## 5.4 The strengths and weaknesses of Yablo's account

Leaving the open technical questions aside, Yablo's account seems to solve most of the problems discussed in 2.1 – 2.3. However, we shall see that this success is largely due to the fact that he defines "subject matter" differently than past accounts. Rather than a topic, for Yablo, and also for Kit Fine, subject matter is what other people (Gemes,<sup>145</sup> to whom Yablo refers, for one) call "content". Before arguing that this is a high a price to pay, let us begin by showing how the old problems are solved.

### 5.4.1 The problem of occurrence

The problem of occurrence comes in two forms: (i) statements containing words that don't concern their subject matter, and (ii) statements being about things they don't "mention".

We have seen that Yablo builds on Lewis's account which works with interpreted statements, i.e. propositions, and thereby eschews all issues to do with expression, taking a statement's meaning as given. This entails that individual words are irrelevant to the account and synonymous expressions (if such there are<sup>146</sup>) will yield the same set of true-ways and false-ways. To give an example, the following three statements would yield the same sets of possible worlds:

- (8a) She woke up from the sound of her phone ringing.
- (8b) What woke her up was the ringing of her phone.

<sup>145</sup> Gemes (1994, 1997)

<sup>146</sup> As a translator, hypersensitivity to different shades of meaning is a professional "defect". cf. Leitgeb (2008).

(8c) She woke up because her phone rang.

The words “sound” (in 8a) or “what” (in 8b), for instance, don’t make a difference with respect to these sentences’ true- and false-ways and thus their subject matters. This illustrates why issue (i) does not affect the account.

Issue (ii) comes in various forms. One is the Lewisian sense in which a statement is about a subject matter if it is not about anything else, such that it is not just about the least subject matter but also about any subject matter of which the least one is a part. We have seen that Goodman caters for this case, and potentially for others, too, with his relative aboutness. Thus a statement about the 1680s may be considered to say something about the 17<sup>th</sup> century by being “relatively about it” on Goodman’s account and even “entirely about” the 17<sup>th</sup> century by Lewis’s account although it makes no explicit mention of it. While Yablo does not agree with this aspect of Lewis’s take on aboutness, he does cater for such cases in his account of partial aboutness, but we would rather start from our sentence again. As all true-ways making up, say, the excitement of the 17<sup>th</sup> century are contained in true-ways of the excitement of the 1680s, and all true-ways of the excitement of the 1680s contain true-ways of the excitement of the 17<sup>th</sup> century, the excitement of the 1680s is a part of the excitement of the 17<sup>th</sup> century. A statement about the 17<sup>th</sup> century is therefore partly about the 1680s. We will discuss further details in 5.4.3.

The other form arises from the ambiguities and pragmatics of natural language, where it is often not necessary to make detailed, let alone complete reference to a subject matter. To some extent, this is again dealt with because the account deals with propositions more than with natural language sentences. So, true-ways would directly contain whatever indexicals and anaphora, for instance, stand for in the sentence.

Nevertheless, there are other phenomena in natural language where we don’t expressly say what we mean, such as presuppositions, metaphors, hyperbolic expressions and the like. Yablo dedicates a whole chapter in his book to them, showing how aboutness can solve these problems. Indeed, this is an area of application where the account excels.

Let us illustrate this with one of the examples in the book, the statement:

(9) My cousin is not a boy anymore.

Among the true-ways for this statement are some where my cousin has undergone sex reassignment surgery and become a girl, others where a magic spell turned him into a frog, and also some where he has grown up and become a man. Yablo invites us to suppose that nothing more drastic than passage of time has happened. This presupposition allows us to pick out only those truthmakers where @-style nature takes its course and my cousin has turned into a young man. They are simply a subset of all the true-ways, and here we can also see how well they serve as explanations or reasons for the statement (a point Yablo stresses repeatedly). Lewis’s account could not have delivered this so easily. He would have given us “my cousin” as the subject matter in the shape of cells of worlds identical with respect to what my cousin is like in them. We would then have partitioned these cells (i.e. effectively all my cousin’s counterparts) into those where he still is a boy and those where he isn’t. But that still doesn’t yield frogs, girls and young men in separate sets. In

order to obtain my cousin having grown up, we would need to partition the cousin-cells once more.

Yablo's subsets of all of a statement's true-ways can be singled out in various ways: by intersection with the true-ways of another statement, by subtraction, and in difficult cases (such as my raising my arm as a subset of the true-ways of my arm going up) by "dividing through" the set of truthmakers to obtain the desired quotient set.

So, Yablo's possible worlds semantic account solves the problem of occurrence by the fine-grained models it provides in having a set for every possible interpretation of the statement.

#### 5.4.2 The problem of interest

As opposed to the problem of occurrence, where we are looking for an object of aboutness that is not denoted by any word in the relevant piece of text, the problem of interest is the problem of a difference in the quality of the relation between a statement and various objects that are so denoted (in most cases, at least). Here, we will look at two versions, theme/rheme, and semantic prominence, and a third, related issue, ambiguity.

##### 5.4.2.1 Theme / rheme

The Prague School introduced the distinction between theme and rheme (see 2.2); our example was "Father wrote the letter", where depending on the stress, leads from context, or other factors external to the wording, father could be the theme, the letter the rheme, or vice versa.

This is a hyperintensional distinction that Lewis's possible-worlds semantics cannot deal with, and hyperintensional distinctions were precisely what Yablo's similarity cells were designed to cater for. In 5.4.1 we saw, how this works in practice: Yablo creates sets of true- and false-ways and then gives us tools to pick out some of these sets. These tools include subtraction, division and intersection. That is how we picked out the young-man true-ways for (9). But what the problem of interest asks for is a qualitative distinction between my cousin and the young man *within* those cells: which of the two terms in the sentence is the link to a previous or superordinate subject matter and which is informative?

Yablo does not explicitly deal with this problem.<sup>147</sup> He does, however, deal with problems whose solution can be of use here.

One is his answer to the sceptic concerning inferential knowledge in closure puzzles discussed in 5.1.2. Thus in Dretske's zebra case, the original question might have been whether the animal with the black-and-white stripes was, say, a donkey or a zebra. The new intimation that the stripes may have been painted on rather than grown naturally is a different matter. Yablo calls an inference involving cleverly disguised mules 'ampliative'

---

<sup>147</sup> I disagree with Rothschild (forthcoming) who seems to think that Yablo's subject matters come close to 'focus' (rheme), because a rheme is an object (father, the letter, my cousin in our examples, Lucinda in Rothschild's), while Yablo's subject matters are propositional in structure.

– it goes beyond the original topic, and this is shown in the fact that we are dealing with a different set of falsemakers.

The situation is similar concerning theme/rheme shifts. If father is our theme, he will be in all truth- and falsemaking cells, i.e. father will not be made false, whereas the rheme, letter writing, will not appear in the falsemaking cells. If, instead, authorship of the letter is the theme and father the rheme, the statement will be made false by other people writing it, but the letter will be written in all cells, truthmaking and falsemaking cells alike.

It may not always be so easy to determine which elements need to be present in all cells and which will vary. But Yablo has a chapter dedicated to subtraction as a tool for teasing out content parts. Surely, the way we can extract what crimson adds to red or what my arm going up adds to my raising my arm can also be used to extract a rheme from a proposition.

#### 5.4.2.2 Semantic prominence

Another issue to do with the quality of aboutness is the priority given to one object over another. In 2.2.2 we had these three examples:

(10) Mary didn't say a word – neither did John, of course.

(11) The President came personally, together with a member of staff.

(12) The weather was awful all year round, particularly in the summer.

The trouble in all three cases is that the statement is about two objects, in fact, it predicates the same thing of them, but for one of these objects, this is important information, while for the other it isn't. Possible worlds propositions will simply divide logical space into the worlds where both Mary and John kept quiet and those where they didn't in the case of (10), for instance. Yablo's subject matter account, by contrast, can distinguish between the two objects with the help of falsemakers, just as before, but the difference in importance cannot be modelled for simple assertions.

There is an example in Yablo's book where prominence plays a role that can be handled by choosing recursive over reductive truthmakers. We have seen it in 5.3.1:

(13) If you two are ready, that makes three of us.

Yablo's choice of "me" as the sole truthmaker required on the reductive account makes "you two" disappear from the picture, so it would make "me" the truthmaker that counts. This is probably why my intuitions made me opt for the recursive account – to me, it rather seems that "you two" are more important.<sup>148</sup> This would be different in the following statement:

(14) I am ready, so that makes three of us.

In this case, I would think "I" is more important than "you two". Note, however, that the choice between recursive and reductive truthmaking only arises for complex sentences. It

---

<sup>148</sup> Another possible reason is that I can't bring myself to sense any hidden ordinality in cardinal numbers. Three, in my intuition, is a threesome and not a third with two predecessors.

is no help with irreducible propositions, and even for complex ones, it does not represent a satisfactory solution.

#### 5.4.2.3 Ambiguity

Yablo is the first to bring up another issue in the aboutness debate (albeit in a different context) that is, however, related to very short pieces of text only: puns and double entendres. Here, semantically, we are simply dealing with two objects the sentence is about, but these two objects are referred to by the same word. In order to highlight the difference between the truthmaker and the subject matter, he quotes Oscar Wilde. Having offered to make a pun on any subject, Wilde answers a suggestion saying:

(15) “The Queen is not a subject.”

This ambiguity of meaning is importantly different from that discussed in 5.4.1.1. Cases of metaphor, insinuation, etc. need clarification – we want to pick out one among several possible meanings. Here, however, the interest in Wilde’s statement consists in the very fact that “subject” has more than one meaning. Instead of picking out one (which would ruin the whole point of making the statement), we need to model the ambiguity. Wilde’s offer was about subject matters. In his reply he now uses the same word, however in its meaning of “Someone or something under a person’s rule or control.”<sup>149</sup> This means that (i) we have a partition of logical space into those worlds where the Queen is or is not a subject matter, with the corresponding set of true-ways and false-ways; (ii) we have an implicature to the effect that Wilde refuses to make a pun about the Queen in those worlds where she is not a subject matter; so, we want to pick out that subset of true-ways and false-ways from (i); and (iii) we have the partition of worlds according to whether the Queen is or is not a subject in the political sense, with the set of true-ways where she is a sovereign, a citizen, or whatever other ways there are of not being under a person’s rule or control, and the corresponding false-ways. Note that (iii) cancels out the implicature; ideally, we would like to model that, too, in a way that makes this visible.

The trouble here is that we do not want to restrict the meaning, but rather expand it to show that the sentence is ambiguous. But this cannot be done by extrapolation, as Yablo proposes for other expansions of subject matter, because here, we are not making one subject matter more inclusive, instead we have to match two in a meaningful way. Usually, for puns playing on the polysemy of a word, this should be doable. For instance “Without geometry, life is pointless” could be modelled by pairing true-ways of life without geometry that has no points in it and those of life without geometry that has no purpose, and likewise for false-ways (although I am not sure what a true-way for “life” with or without anything would look like).

The Wilde quote is more difficult, not only because of the implicature, but because of the inherent paradox: on the Yablovian account, the Queen is never a subject matter – that would be the Queen (the set of true-/false-ways, rather than the person and her

---

<sup>149</sup> Oxford English Dictionary, online edition, “subject, n.” I: <http://www.oed.com/view/Entry/192686?rskey=w2Y8eR&result=1&isAdvanced=false#eid>, last retrieved on 30 November 2016



counterparts). In fact, I don't know how the subject matter **subject matter** can be represented in Yablo's account.

The account is also unable to model puns playing on homophony. "Atheism is a non-prophet organization" is funny because "prophet" sounds like "profit", but since the word "profit" does not occur in the sentence (we only think of it because the term "non-profit organization" is so familiar to us), we can't really bring it into the subject matter.

However, this issue is one possible worlds semantics shares with all other formal semantic accounts, not to mention translation.

So, all in all, the account's record concerning the problem of interest is better than that of all others. Once more, this is due to its true-ways and false-ways.

#### 5.4.3 The problem of degree

Like Lewis, Yablo does not explicitly offer a solution to the problem of degree, but he does provide for partial aboutness. So we don't have a measure in how far a statement is about a subject matter, but we do get parthood – in fact, partial aboutness is at the very centre of Yablo's concern and used to introduce aboutness into an array of philosophical problems which it is shown to help solve. Unlike the design Lewis ultimately worked with, Yablo's parthood goes both ways, providing accounts both for statements where a subject matter is only part of the proposition, and for statements whose proposition covers only part of a subject matter.

Examples of the first kind are hyperbolic statements and statements with contextual scope restrictions. Here the content of the statement goes beyond the subject matter. Our example of a hyperbole in 5.1.1 was "This is the greatest mess in history" where the intended subject matter is made up of true-ways with a big mess, but not of those with no greater mess in history. Time-tried examples of implicit scope restrictions are "There is no more beer" (to be restricted to a specific household) and "Everyone was at the party" (to be restricted to a specific group of people). Yablo caters for this with subtraction, a way to pick out a certain range of true-ways.

Examples of the second kind are presuppositions, implicatures and enthymemes. The presupposition in (9), viz. that nothing more drastic than passage of time has occurred to turn my cousin into something other than a boy, is part of the subject matter, but not part of the proposition. Likewise for the classical Gricean implicatures. A well-known example is a letter of reference in which the student's command of English is praised, thereby telling the reader that the student's academic performance is best not commented on.<sup>150</sup> Here, the student's academic performance is an important part of the subject matter, viz. a general appraisal of the student's abilities, but not of the reference. Enthymemes, of which we had an example in 5.1.2. with Mark Twain's verdict concerning the legality of Wagner's music, are among the logical forms implicatures can take.

Yablo's approach to parthood therefore deserves detailed discussion.

---

<sup>150</sup> Grice (1989) p. 33

#### 5.4.3.1 Parts

Lewis was interested in one statement being about several subject matters, and, in particular, being about parts of subject matters. We saw that for him, a statement could be *entirely* about several stacked subject matters – the statement’s least subject matter (which corresponds roughly to Yablo’s “exact” subject matter) and any larger subject matter containing it. Thus a statement entirely about the 1680s was also entirely about the 17<sup>th</sup> century, but not about any subject matter smaller than the 1680s. For such smaller subject matters, e.g. the year 1689, Lewis provided partial aboutness. The idea was that the statement could also be partly about a subject matter *M* by being entirely about a subject matter *M+* of which *M* is a part. With Lewisian subject matters being chunks of worlds, parts of those subject matters would then be parts of those chunks.

For Yablo the story is very different. His interest is not in one statement being about several subject matters – this is something he rules out from the start; he explicitly sets out to let a statement have no more than one subject matter<sup>151</sup> – instead, his interest is in several statements sharing a subject matter, wholly or partly. Yablo subscribes to “partly about a subject matter” being defined as “wholly about a part of the subject matter”. But now the question is how to obtain parts of subject matters.

Looking at the formal account first, the question would seem to have an obvious answer. A Yablovian subject matter is a set of true-ways, i.e. a set of sets of worlds. A part could then be a subset of that set – only some of the true-ways – but that would simply yield a different proposition. Alternatively, it could also be a set of subsets of the original sets of worlds, i.e. a set of parts of the true-ways. It would thereby make the true-ways more fine-grained. Due to the inverse proportionality of set size and subject matter size, that would spell out as an additional specification and thereby a larger subject matter. Intuitively, this is the opposite of what Yablo wants.

His thoughts on the matter are laid out in greater detail in a recent paper<sup>152</sup> where he reiterates the justification of considering subject matter inclusion the factor that makes logical consequence relevant and deals with the question of how to define parthood. An essential criterion seems to be that any change made to a part entails a like change in the whole, but not – or not necessarily – vice-versa. The part is necessary to the identity of the whole, but the whole is not necessary to the identity of the part. The trouble is that this cannot be transposed one-to-one into the possible worlds model because Yablovian subject matters are not objects but propositional in structure. As pointed out, that makes them properties of worlds, and for properties Yablo tells us that what percolates up from the part to the whole is their manner of possession:

*G* is how *F* is possessed by *a* in *w* iff *a* is *F* in *w* by being *G* there.<sup>153</sup>

So, if Tom is scarlet, that is Tom’s way of being red. But it would seem that this makes red a part of being scarlet, when intuitively, we would think that scarlet ought to be considered a part of what it is to be red, as L.A. Paul pointed out.<sup>154</sup> Yablo’s compromise is that red extensively contains scarlet (the scarlet things are a subset of all red things), but

---

<sup>151</sup> Yablo (2014) p. 24, (2016) p. 147

<sup>152</sup> Yablo (2016)

<sup>153</sup> Yablo (2016) p.149 fn 20

<sup>154</sup> *ibid.* p. 151f

that red is an intensive part of scarlet. So, the first intuition, which is easy to share with Paul, is that the property of redness can be regarded as a determinable and thereby as the disjunction of all the shades that count as shades of red: {crimson  $\vee$  scarlet  $\vee$  spitfire  $\vee$  ... }.

The second intuition is the one Yablo needs, and it regards the property of being scarlet as being not just red, but red with a particular hue. So scarlet comes out as red plus that particular hue and red thereby as a part of what it is to be scarlet. This is the version Yablo defends; it allows him to salvage inclusion and with it, analytic implication. The reasoning seems to rely on two things. First, there is the analogy with other pairs of more and less specific properties, for instance “red” and “red and ripe”. Clearly, the former is part of the intension of the latter. Since the extension of “red and ripe” is a subset of the extension of “red”, just as the extension of “scarlet” is a subset of the extension of “red”, it may seem justified to regard red as part of scarlet, too. Second, there is no way to be scarlet without thereby being red, so logically, being scarlet implies being red. The fact that the truthmakers of Tom being scarlet are contained in the truthmakers of Tom being red is exactly like other cases of analytic entailment modelled by inclusion of truthmakers. So, this is another justification for regarding “red” as part of “scarlet”.

There is a big advantage in Yablo’s explication of partial aboutness over Lewis’s. Remember that Lewis had to specify that the part should be large enough to be suitable because he had no technical way of preventing aboutness pointing towards parts that were too small to be relevant (cf. 4.6.3). The reason was that there was no lower size limit on the partitioning of his chunks of worlds. Yablo’s design, by contrast, will not go smaller than highly specified propositions, and the statement we started with will make for the part it is about. Thus, we can pick a subset from our subject matter “the excitement of the 1680s”, which will yield a highly specified statement such as “In the 1680s there was a RHP-g and a MR and the signing of the BoR with a flea biting the Queen’s maid exactly 3 inches above her ankle and the King’s valet squeaking at 954 Hertz for a duration of 1.732 seconds.” Part of this statement is that the 1680s were exciting times. No matter how much detail we add to the description (by making the relevant subset smaller and smaller), it will always describe a way for the 1680s to be exciting.

But the question that arises is whether this is the most obvious way towards partial aboutness with subject matters that are propositional in structure. Of course, once we’ve bought into the model, subsets seem the obvious choice, but let us not forget that the model should suit what it models, not the other way around. Given that a proposition always consists of an object and a property (or action, event, etc.), the most natural way of picking out a part would seem to be picking out either the object or the property from the proposition. Thus, we might think that “The 1680s were exciting times.” is partly about the 1680s and partly about exciting times. “Tom is crimson.” is partly about Tom and partly about crimson. Yablo gives a detailed, carefully argued account in propositional calculus of how complex propositions can be split up into their atomic parts, and what does and what doesn’t make an atomic proposition a part of a complex one, such that, for instance,  $p$  is part of  $p \wedge q$ , but not part of  $p \vee q$ .<sup>155</sup> But that doesn’t help if we want to look into  $p$  and  $q$ , as it were, finding they are  $F(a)$  and  $G(a)$ , for instance, or  $F(a)$  and  $F(b)$ , and might therefore be taken to share  $a$  and  $F$  respectively as part of their subject matters.

---

<sup>155</sup> Yablo (2014) p. 151ff, “Appendix” p. 7ff, Yablo (2016) p. 147f.

Here, we need to match up truthmakers with falsemakers, for instance  $F(a)$  with  $\neg F(a)$ . Yablo states the condition but the technical details still need to be worked out. Just how important this is, will become clear in the next section.

As for the problem of degree, Yablo's work with partial aboutness yields impressive results, even without a measure in terms of degrees of aboutness.

Evidently, Yablo's record concerning the old problems discussed in 2.1 – 2.3 is remarkable. However, it comes at a very high price: we have changed subject matter about subject matter.

#### 5.4.4 Subject matter

The charge I am about to press is not easy to explain, because in spite of their importance for the present disquisition, the differences between other authors' conceptions of subject matter and Yablo's is subtle. However, the following distinctions and definitions may help.

##### 5.4.4.1. Object vs. content

In 1.1.3, I pointed to the old form – object dichotomy<sup>156</sup> which is importantly different from the form – content dichotomy we find in current philosophy of language. It seems to me that the difference between object and content is analogous to what distinguishes Yablo's account from its precursors (form does not concern us here). Let's try to pin it down.

The *object* of a representation, no matter of what kind, is the thing or event that is represented; in a picture, therefore, it is what is shown – Mona Lisa, sunflowers, or a sea battle, for instance. Conversely, the *content* of a representation is what that object is shown to be like – Mona Lisa smiling mysteriously, sunflowers turned towards the sun, or hanging down under the weight of their seeds and casting a shadow on their vase, ships firing cannons or going up in flames, etc.

With respect to language, we might consider the object to be *what is spoken of* and the content *what is said*. Grammatically, the object is likely to be designated by a noun or noun phrase, the content expressed by a proposition.

In order to see how this distinction relates to subject matter, it is best to draw support from an authoritative source, the Oxford English Dictionary, begging the reader's indulgence for a rather lengthy extrapolation.

##### 5.4.4.2 Subject matter defined

The OED in its current online edition distinguishes between two branches of definitions for “subject matter”:

---

<sup>156</sup> I rely on Nuchelmans's (1983) and Ayers's (2002) explanations for the details.

**I. The matter or material of which a (physical) thing is formed;**

and

**II. The substance or principal content with which a mental artefact is concerned.**<sup>157</sup>

Branch II, the one we are interested in, has the following sections (it will suffice to include only the 21<sup>st</sup> century quotation for each of them):

**3. The substance of a book, treatise, speech, etc., as distinguished from the form or style; = [matter n.<sup>1</sup> 9a](#). Now rare.**

2002 R. Whitlow [Sacrifice](#) 174 Students..began working on an assignment that involved reading excerpts from a technical journal and answering detailed questions about the subject matter of the article.

**4.**

**a. That with which thought, deliberation, or discussion, or a contract, undertaking, project, etc., is concerned; that which is treated of or dealt with.**

2001 J. T. Roberts in D. McCann & B. S. Strauss [War & Democracy](#) iv. xii. 238 The subject matter before us.., the Peloponnesian and Korean wars, affords a rich opportunity to explore how two societies dealt with the paradoxes that inhere in democratic leadership.

**b. That with which a science, law, etc., deals; the body of facts or ideas with which a study is concerned; = [matter n.<sup>1</sup> 12](#).**

2001 R. W. Cahn [Coming of Materials Sci.](#) ii. 26 Servos gives a beautifully clear explanation of the subject-matter of physical chemistry, as Ostwald pursued it.

**c. Law. The matter in dispute.**

2008 S. Davis [Corwin & Peltason's Understanding Constit.](#) ii. vi. 220 Either the subject-matter of a suit or the nature of the parties involved can give the federal courts jurisdiction.

**5. The subject or theme of a written or spoken composition; a topic; = [matter n.<sup>1</sup> 8](#). Now chiefly merged in sense [4a](#).**

2007 J. Wintle [Perfect Hostage](#) iv. xxiii. 377 Whether her subject matter is rain, babies, children, visiting friends, festivals or the price of an egg, [etc.].

**6. Material for discourse or expression in language; facts or ideas as constituting material for speech or written composition, or for artistic representation; = [matter n.<sup>1</sup> 10a](#).**

2002 R. J. Richards [Romantic Conception Life](#) ii. 110 Greek poetry..grew out of and took as subject matter ancient mythology.<sup>158</sup>

---

<sup>157</sup> "subject matter, n.". OED Online. March 2017. Oxford University Press.

<http://www.oed.com/view/Entry/192713?redirectedFrom=subject+matter> (accessed March 26, 2017).

<sup>158</sup> Ibid.

The definitions in II.5 and II.4.a. which make reference to “topic” and “that which is treated of” both define subject matter as an object, very much in the sense described above.

Conversely, mention of “substance” in II.3, and of “facts” in II.4.b and II.6 gives a sense of subject matter that is far more substantive. In particular II.3 and II.4.b certainly point to what is said about a topic, rather than making mere reference to it *qua* topic. While the subject matters covered by these definitions are not themselves propositions, they are not just pointed to as mere objects in the above sense, but referred to with their content in mind.

The question now is, which of these definitions aboutness theory has been or should be working with.

#### 5.4.4.3 Subject matter in aboutness theory

Aboutness theory does not always call the relatum of aboutness opposite the piece of text “subject matter”, but it is fair to think that all the authors have had something like it in mind and those who avoided the term only did so because they rejected abstract objects for philosophical reasons.

On a very quick review of their theories, we find that Ryle in all four versions of “about” picked out objects like those in the examples to II.4.a and II.5. Mathesius’ theme and rheme pick out noun phrases, so they, too, are objects. Putnam picks out a class of objects (a class being itself an object, of course), about which a state description gives us a certain percentage of information. (Tichý regards this class of Putnam’s as the covert reification of a property – another object.) Goodman’s account, building on selection, expressly singles out objects just like those in II.4.a and II.5, where they exist. For fictitious objects, he creates a predicate schema with the predicate containing that object’s name, for instance “Pickwick-about”. So here, too, there can be no doubt that Goodman’s understanding of subject matter is objective.

But it is not just those early accounts that regard subject matter as an object. Perry in his 2003 paper on the Subject Matter Fallacy, for instance, defines it as “the object [a] statement or belief is about”,<sup>159</sup> and lists the following examples: “Hillary Clinton, the state of New York, and the relation of being a resident of”. These are all objects, not content.

But the most important account with which to compare Yablo’s is the one it is intended to improve, that by David Lewis. As we have seen, Lewis, in fact, offers accounts both of content and of subject matter, regarding content as “given by the class of possible worlds that the statement excludes” (cf. 4.5.2) and subject matter as “given by an equivalence

---

<sup>159</sup> Perry (2003) p.93

relation on worlds”<sup>160</sup> (cf. 4.5.3). So, content is given by the falsemaking worlds, duly labelled as falsemakers. It may not say much, but it does assert something.

Lewis’s subject matter, by contrast, is not different for sentences and their negations, but cuts across the  $S / \neg S$  divide. It is the cells of worlds exactly alike with respect to a specific part that a statement speaks of, and on Lewis’s reductive account it collapses into the equivalence relation that holds between each two members of those cells. As this relation is recoverable from the partition of logical space it brings about, and vice versa, subject matter can also be regarded as just that partition. A Lewisian subject matter therefore shows us the whole variety of what a specific chunk of worlds can be like, so it is much richer than the objects in the other accounts above. Nevertheless, this is just the standard modal way of defining objects: Mont Blanc in possible worlds semantics just is the set of all Monts Blancs across all possible worlds. Mont Blanc is, of course, a part of the worlds that have a Mont Blanc – and it is also a perfectly respectable subject matter. Likewise, any other subject matter just is the set of all relevant counterparts across all possible worlds. But they are still objects, so they are best regarded as just sitting there, as it were, in spite of the wealth of their modal variability. They might *show* a lot, but they don’t *assert* anything. It seems to me that they are more in line with II.4.a than II.5, but not with II.3, which seems to require information in the sense of assertions, or II.6 which also involves facts, and thereby propositions.

When Yablo gives us the similarity relation that divides logical space into m-cells as subject matter, the idea seems quite similar to Lewis’s. But there are two essential differences: first, division cells are not mutually exclusive; and second, *qua* truthmakers, they are matched up with the relevant falsemaking cells. Because in divisions worlds can belong to more than one cell, cells don’t give us parts but properties of worlds; but objects and their properties are the elements that make up a proposition in any account. This is quite as intended – after all, Yablo wants to have the reasons why a statement is true, and reasons have to be propositional in structure. The cells of worlds matched up with their falsemaking cells then constitute propositions in possible worlds semantics. Since Yablovian subject matter is the set of those cells and intended to be reducible to the similarity relation which is in turn intended to be recoverable from the division and vice versa, this subject matter is still an object, like Lewis’s. Unlike Lewis’s, however, it is made up of propositions, and thereby of assertions, so it is certainly a “body of facts” as per II.4.b. But this means that unlike the II.5 sorts of subject matter, which are, metaphorically speaking, like keywords or search terms, division-based subject matter is more like the cover of a book – it comes with all the information there is on the subject. Nevertheless, reducing subject matter to that similarity relation or its corresponding division, we still have an object, although it is an object that arises from content.

This is different for the proposed alternative solution of covers. Covers are collections of sets of worlds; duly matched up with their falsemaking sets of worlds, these sets are propositions. So covers are collections of proposition. Lacking a structure to which they can be reduced, they just are all the content there is on a subject matter, but subject matter

---

<sup>160</sup> Lewis (1988b) p. 144

itself is lost. They are all the pages of the book, continuing the metaphor from above, but without a title, and, in fact, without binding. This is therefore yet another reason to press for something more specific than salience to justify which sets are to make up a subcover – we need it as the “binding of the book”, and if we can reduce our explanation to it as subject matter, it will also give us the “title”.

There are very few accounts of subject matter that follow Yablo in his understanding of subject matter as comprising all of what is said. Schipper<sup>161</sup> supplements it with an account of partial aboutness for objects, and strict aboutness for members of classes that make up the object of the statement.<sup>162</sup> Fine’s account,<sup>163</sup> as we will see below, is even more radical in defining subject matter as the fusion of all the statement’s truth- and falseness. But the result in Fine’s case is probably again an object. Nevertheless, all three accounts therefore come at the price of not being able to offer an account of “topic”, which we need as a tool for all not merely sentential uses. We will return to this problem in 6.2.

#### 5.4.4.4 Meaning?

In summary, there are two aspects that distinguish the similarity account of subject matter from earlier accounts used in aboutness theory. One is that unlike all previous accounts, it ties subject matter to a specific sentence because it builds subject matter from the truth- and falseness of that sentence. They are not labelled as such (something Fine<sup>164</sup> considers a disadvantage), so they are shared by the sentence and its negation, but they are not *only* or not *fully* shared (depending which way parthood goes) by any other sentence. Subject matter is thereby no longer an independent element but tied to a specific sentence.

Moreover, a division-based subject matter is a set of propositions. Each proposition in the set is a way for the sentence to be true, or false. So jointly, these propositions give us all the possible interpretations of the sentence, except for the information which of them are true and which false. This is the information added in what Yablo calls “directed propositions”. But these, then, represent the meaning of the sentence, and we have no account of subject matter in the sense of ‘topic’, as defined in II.4a and II.5 above.

It might be said: Who cares? Unfortunately, many people do. As it currently stands, Yablo’s account cannot be used in applications that need subject matter to be an object like “observation”, or “philosophy of mathematics”, or “Jane Doe”. As pointed out in chapter 2, aboutness is of immediate relevance to a number of disciplines outside philosophy. For them, the fact that Yablo’s account can only be used for sentences and not for longer pieces of text, means that it does not give us the tools to sort pieces of text.

---

<sup>161</sup> Schipper (2017)

<sup>162</sup> Schipper refers to Crane (2013), but both there and in Crane (2012), aboutness is of objects, expressly not of propositions (propositional thought or talk for Crane is “content”).

<sup>163</sup> Fine (forthcoming)

<sup>164</sup> Fine (forthcoming)



That said, once we have details on how false-ways are to be matched to true-ways, we will have the best account of sentence meaning in possible worlds semantics so far, as well as an excellent foundation for modelling relevant logical inferences.

Yablo's substantive rather than objective take on subject matter is shared by Kit Fine. Reference has been made to his response to Yablo's book several times above, so a more detailed discussion of his own account is due.

## 5.5 Fine's fusions

Not much time has passed since the publication of Yablo's book. The wealth of material it contains and the originality of the arguments can be expected to prompt responses and inspire new work in many areas of philosophy. On the subject of aboutness proper, I am aware of an important paper in the pipeline, Kit Fine's forthcoming review.<sup>165</sup> It contains not only some critical comments, but also a counterproposal. With the author's kind permission, we can give it some space here.

Fine's theory shares a number of aspects with Yablo's. First of all, it, too, makes aboutness fall out of a theory of subject matter – in fact, the title of his draft paper is “Yablo on Subject Matter”, not aboutness – which, in turn falls out of a theory of truthmaking. Secondly, for Fine, too, subject matter is not just an object. He points out that he and Yablo “are both interested in a notion of subject matter that has to do not only with the objects that a sentence is about but also with what it says about those objects.”<sup>166</sup> While some qualification is due on the latter point, it is true that Fine's subject matters are as much tied to specific sentences as Yablo's. That said, like Yablo, he is interested in how subject matters can relate to each other and, in particular, include each other, thereby modelling what he calls “analytic entailment”. However, unlike Yablo, but like Lewis, he gives a mereological account of both content and subject matter. But his account differs from Lewis's (and Yablo's) in that he uses states as his truthmakers rather than possible worlds. Nevertheless, Fine concurs with Yablo that those truthmaking states, which we are to imagine as something like facts and which he also calls “exact verifiers”, do not just logically imply the respective sentence, but are responsible for its truth. As opposed to both Lewis and Yablo, Fine gives impossible states a prominent role in his account of content and subject matter allowing them to be as fine-grained and plentiful as possible states. This is just as well, considering that he countenances fusions of states; since two (or more) states making the same proposition true will usually be incompatible, their fusion will be an impossible state in most cases.

Fine's formal account is set up as follows: The set of a sentence's exact verifiers constitutes the “positive content” of that sentence, the set of its exact falsifiers the “negative content”, and both taken together are the “bilateral content”. This ordered pair of sets corresponds to the proposition in possible worlds semantics, i.e. the two sets of all

---

<sup>165</sup> Fine (forthcoming)

<sup>166</sup> Fine (forthcoming) p. 2

worlds making the statement true or false respectively. There is a function such that of the sentence's content yields the sentence's subject matter, of which there is again a positive, a negative and a bilateral version. So is in fact aboutness in Fine's account; unfortunately (for our purposes), we hear no more about it. Instead, the sentence is swapped for the proposition for the rest of Fine's theory of subject matter.

The account of subject matter itself is at first purely structural. Fine's answer to what a proposition  $P$ 's subject matter is begins by turning the question into when two propositions have the same subject matter. This is the case when one contains the other. Of all propositions containing  $P$ , there is a greatest, their closure, and the smallest closure just is the proposition. The closure is defined by the conditions of when a state bears upon the proposition. And this is the question Fine finally sets out to answer. He offers three versions, a minimal, an intermediate and a maximal account.

On the minimal account, which Fine considers to be Yablo's version, the closure of  $P$  is the set of all its verifiers, i.e. the proposition itself. On the intermediate account, the closure consists not only of  $P$ 's verifiers but also of all their parts. Two propositions are then subject matter equivalent iff the parts of their verifiers are the same. On the maximal account, the closure consists of  $P$ 's verifiers, their parts, the fusions of their parts, the parts of their fusions, etc.

The minimal account, Fine thinks, cannot look into the parts of verifiers (Yablo disputes this<sup>167</sup> pointing out that Fine ignores falsifiers in his analysis of Yablo's account).<sup>168</sup> The intermediate account tells us what makes  $P$  partially true, but not what makes it wholly true. So Fine favours the maximal account. On this account, the subject matter of  $P$  will itself be a state rather than another proposition;<sup>169</sup> the maximal account thereby becomes extensional.<sup>170</sup> The reason the maximal account's subject matter is a state whereas the others aren't is that the intermediate and minimal account closures lack the mereological structure Fine requires states to possess.<sup>171</sup>

In order to obtain the "overall subject matter" he wants to work with, Fine then creates the fusion of the positive and the negative subject matters. This is to be understood as the fusion of the verifiers and falsifiers "with no longer even a line between them" and "without discrimination between them".<sup>172</sup> They are a new whole.

Both Fine and Yablo place special emphasis on complex propositions, and Fine, therefore, discusses all possibilities there are of Boolean operators linking two atomic propositions.

---

<sup>167</sup> Yablo (forthcoming)

<sup>168</sup> See 5.3.1 for an argument in favour of Yablo's account of truthmaking in this connection.

<sup>169</sup> Fine (forthcoming) p. 14

<sup>170</sup> Fine (2017c) stresses this aspect.

<sup>171</sup> Fine (2017a) p.5. Fine writes: "It is also important in applying the semantics to appreciate that the term 'state' is a mere term of art and need not be a state in any intuitive sense of the term. Thus facts or events or even ordinary individuals could, in principle, be taken to be states, as long as they are capable of being endowed with the relevant mereological structure and can be properly regarded as verifiers."

<sup>172</sup> Fine (forthcoming) p. 18

As he, too, wants sentences and their negations to have the same subject matter,  $p$  and  $q$ , no matter how they are connected, always have the same overall subject matter, viz. the fusion of all  $p$ ,  $\neg p$ ,  $q$ , and  $\neg q$  states, their parts, the fusion of their parts, etc.

Since Fine is not generous with examples, let us use the 1680s once more to see what that gives us. States are always objects-cum-properties, so just as for Yablo, we need our proposition again: “The 1680s were exciting times.” So the overall subject matter will be the fusion of exciting 1680s and boring 1680s, of their parts, e.g. the RHP and the Queen’s maid’s niece’s baby’s sweet dreams, of parts of their fusion, e.g. the baby rocked by a conspirator, and so on. But that means that we get all the ways the 1680 can be exciting plus all the ways they can be unexciting and all their parts, short: all the ways the 1680s can be, fused into one large impossible state. All that remains discernible is the 1680, the excitement is lost.

This result will be the same, whether the proposition is atomic (as in our case) or complex – we cannot get anything other than an impossible state of something. Where Yablo had a set of true-ways displaying one way each for the statement to be true, Fine packs all those possibilities and their parts into one thick state. This state is supposed not to be structured, but since it consists of an infinity of internal contradictions, it seems to me that these contradictions would create points of conflict that might, in fact, be regarded as structuring elements (for whatever they may serve).

A philosophical question that arises is why the idea that states are responsible for the truth of the sentences they make true is emphasised as much, if that ends up playing no role. In his Reply to Fine, Yablo stresses this point (“dog bites man” comes out as about the same subject matter as “man bites dog”)<sup>173</sup> and a related second point: the impossible maximal state will also end up being shared by statements one of which might cover a set of truthmakers while the other picks them out individually; or one of which picks them out jointly and the other disjunctively and perhaps even mutually exclusively. For instance:

(16) “You can have an apple or a pear or a banana.”

will have the same subject matter state as

(17) “You can have an apple, but not a pear nor a banana.”

and

(18) “You can have all the fruits we’ve got – the apple, the pear *and* the banana.”

and, of course, its negation:

(19) “You can’t have any of the fruits, neither the apple, nor the pear, nor the banana.”

---

<sup>173</sup> Yablo (forthcoming) p. 9f.

In Yablo's account, the truthmakers of each of these statements come separately, while Fine's fusion merges them into one indiscriminable whole. Considering that the advantage fusions are designed to give us over worlds is that they allow for greater hyperintensionality, the result that the same fusion should be the subject matter of many different statements seems undesirable.

The similarity of Fine's account with Lewis's likewise mereological account raises the question whether it shares Lewis's problems. In (2017c) it is evident that the zigzagging problem does not arise because Fine defines partial aboutness as the overlap of a sentence's exact subject matter *p* with another subject matter *s*. A statement about the French MEPs can therefore not come out as partly about the Lithuanian MEPs because there is no such overlap.

What is not clear, however, is whether subject matter size may be a problem. What the part of the fusion of the parts is designed to provide for is shown in an example reminiscent of Lewis:

(20) "The Absolute is walking in the rain or lounging in the sun"

surely has "lounging in the sun" among its subject matter parts. Allowing the fusion to contain also parts of the fusion of parts enables Fine to pick out "the sun" and "the rain" and the statement thereby comes out as partly about the weather. What is not stated is whether parts need to appear in the statement in this way or not. Fine expressly wants his account to guarantee relevance,<sup>174</sup> but in how far this is achieved depends on the definition of "part" in relation to state. If our favourite pebble in a street in Buda is admitted as a part of a state involving Budapest by virtue of its being a physical part of Budapest, we run into the same problem, viz. that it is not clear in what sense a statement like "Budapest is the capital of Hungary" should even be partly about the pebble.

Comparing these three accounts of subject matter, Lewis gave us a non-propositional subject matter, that came in equivalence cells, each cell representing one way for the subject to be. Yablo gives us a set of sets of worlds, each representing one way for the statement to be true or false. And Fine gives us the subject in an exhaustive, impossible state. What this means for their accounts of aboutness as the relation between a piece of text and what it is of will be discussed in the next chapter.

---

<sup>174</sup> Fine (2017c) end of section 1

## 6. Conclusion

After the technical discussion of the different takes on aboutness, it is time to return to the big picture and take stock. Aboutness theory has come a long way, but as I have indicated and must now argue out, it has taken a turn away from its initial goal. As a result, the recent developments, helpful though they are in taking us towards a theory of meaning, do not provide what is needed for aboutness in its original sense as what takes us from a piece of text to its topic.

But before we discuss this aspect in the second section of this conclusion, let us sum up where we stand regarding the old problems of aboutness outlined in chapter 2.

### 6.1 The old problems of aboutness

We shall begin with the problem of interest, which has had by far the worst record, and then discuss the problem of occurrence and the problem of degree, for which the solutions are closely related.

#### 6.1.1 The problem of interest

The problem of interest consists in one piece of text bearing *qualitatively* different aboutness relations to two or more objects. In 2.2 we considered two such variations of aboutness, theme vs. rheme, where one object was taken up from elsewhere (e.g. context) and the other was a new contribution; and differences in semantic prominence, i.e. in how important the text's contribution was regarding its different objects.

This problem was not considered in any of the accounts discussed here. It is a problem that cannot be catered for in accounts that are based only on truthmaking or truth-value equivalence, because there is not necessarily a difference with respect to the text's truth about the two (or more) objects, and if there is, it is not related to the quality of aboutness. So, Putnam, Lewis and Fine simply do not possess a tool that would enable them to make such qualitative aboutness distinctions.

Yablo's account allows for a much greater degree of hyperintensionality because his account of truthmaking can be fine-tuned with the help of falsemakers. Nevertheless, even this fine-tuning remains quantitative in nature. The account therefore has no grip on differences in semantic prominence, but we have seen that if we treat a statement's theme in a way similar to presuppositions, it can model the theme / rheme distinction. Fine's account cannot offer this because it can only pick out a single object (*qua* part of the subject matter fusion) at a time from its subject matter fusion.

As it stands, Goodman's core account, which builds on logical consequence, does not contain a tool for these distinctions either. For the theme / rheme distinction there may be a

solution: insofar as a theme points to something that has been talked about elsewhere, it may be possible to create a deliberate logical overkill, as it were, and let a statement follow differentially with respect to the theme in both the absolute sense *and* relative to a previous statement. But there is another option that is logically not redundant, but still less than ideal because it would only serve descriptive, not epistemic purposes (cf. the discussion in 4.6.1 about this problem). As pointed out in 3.4.3, Goodman offers a distinct form of aboutness for fictitious objects, the one-place predicate schema “x-about” that subsumes the object of aboutness into the predicate. We could create analogously thick predicates for each of the different properties interested aboutness would represent, for instance, “thematically-about”, “rhematically-about”, “primarily-about”, and “secondarily-about”. These would still be two-place rather than one-place properties. However, there is no logical way to determine which object is picked out by which of these properties, so they are also of no help in computer-assisted applications.

Deliberate ambiguities, finally, cannot be catered for by any of the accounts so far, because they would require some link between what would currently simply be two separate aboutness properties or relations had by one sentence. The situation is worse for accounts linking aboutness to propositions rather than sentences because there, each of the meanings contained in the ambiguity creates a separate proposition and there is no common element between them once the sentence disappears from sight. Such ambiguities, however, are only of interest for very short pieces of text, so they are of limited importance in the present plea for providing an account of the aboutness of longer texts.

Overall, the problem of interest therefore remains high up on aboutness theory’s “to do”-list.

### 6.1.2 The problem of occurrence

The problem of occurrence was that the occurrence of a word is neither necessary nor sufficient for a piece of text to be about an object. This means that it can (i) be about an object although there is no word denoting the object in the text, and it can (ii) contain words that do not denote anything it is about.

The accounts discussed here have two ways of dealing with these issues. The semantic accounts of Lewis, Yablo and Fine as well as Putnam’s abstract account simply eschew the problem by taking sentences to be fully interpreted and dealing with aboutness on the semantic level. They do, however, cater for (i) insofar as a statement is about a subject matter not denoted in it but of which its least, or exact, subject matter is a part. We will get to this in connection with the problem of degree.

The problem is therefore properly solved only by Goodman’s account. For (i) he provides relative aboutness, such that a statement comes out as about an object relative to another statement where this object is indeed denoted; and for (ii) he provides the tool of differential consequence, whereby a statement can only count as being about something when the same thing cannot be said as well about anything else.

However, we must remember that Goodman's solution only works for individual indicative sentences. We still need a way of dealing with this problem for longer pieces of text.

### 6.1.3 The problem of degree

The problem of degree was due to the intuition that a piece of text can be more or less about something. This is a problem dealt with by all accounts except Ryle's, but in different ways.

Putnam offers a version explicitly of degrees (measured in percentages) to which a state description is about a class of objects. While this account offers a precise measure of degree of aboutness, its disadvantage is that it remains abstract. Nevertheless, some version of it must have made its way into software engineering.

Goodman offers three degrees of aboutness in a way closely related to the problem of occurrence. Immediate aboutness has a statement come out as about an object denoted by a word in it and of which it is informative. Absolute aboutness need not contain a denoting term, but the level of relevance is the same as for immediate aboutness. Relative aboutness, finally, is the loosest form of aboutness, pointing, as it does, to another, logically independent statement.

The youngest accounts, those of Lewis, Yablo, and Fine, don't offer quantitative variation by degrees but instead in the form of parts. Lewis's account allows parthood to come in in four places: part of the sentence can be about a subject matter; part of a propositional content (the class of worlds excluded by a statement) can be about a subject matter; a statement can be partly about a subject matter by also being about something else; and the aboutness relation itself can be "partial" in the sense that it supervenes only partly on the statement's truth about a subject matter.

Yablo, by contrast, straight-forwardly allows a statement to be about a part of a subject matter in the sense that the statement's Yablovian subject matter is a part of, or contained in, that of another statement.

Fine has three mereo-topological forms of parthood which are very similar to Yablo's: partial aboutness when a statement's subject matter overlaps another; entire aboutness, defined like Lewis's as the statement's subject matter being equal to or part of another; and aboutness of an entire subject matter defined as that subject matter being a part of that of the statement.

Parthood is a good start, but there are situations where we would like to know how large a part of a subject matter is covered by a piece of text, or how much of a piece of text deals with a specific subject matter.<sup>175</sup> So here, too, there are still things to do in aboutness theory.

---

<sup>175</sup> E.g. Moens et al. (2006)

But let us now turn to the main point of criticism which concerns the general development aboutness theory has taken, in particular with respect to the object of aboutness.

## 6.2 The issue with subject matter

Comparing the accounts regarding the three elements we are concerned with, viz. a piece of text on the one hand, a subject matter on the other, and aboutness linking them, it is striking that they have all taken the sentence as their starting point. Of course, the sentence is the smallest unit of text, so it would seem to be a good place to begin tackling most issues to do with texts – but perhaps just not in the case of aboutness.

Let us reflect for a moment, when aboutness is typically an issue. We ask what a play or movie a friend saw was about; we ask what people were talking about over dinner; we look for a book about the birthday child's latest obsession; we wonder what the interviewee will be asked about; we search the web for information about something; we ask what information is kept about us in a database; etc. But *pace* Putnam,<sup>176</sup> I cannot recall ever having asked or been asked what a sentence was about. This is not to say that it would be logically impossible to raise that question – it is not, of course – it is just a highly unlikely question to be raised.<sup>177</sup> Instead, I certainly *have* asked myself, and others, often enough what a sentence was supposed to *mean or say*. This, however, is then a question about what information that sentence provides about a topic, not what its topic is (which, incidentally, is also the question addressed in the papers Putnam refers to). So while there is every justification to treat sentences as building blocks of most of the types of text we are interested in (databases may be an exception), we would expect them to be treated as such in a theory of aboutness. In other words, we would expect to be given at least some indication as to how the account offered for an individual statement is to be expanded to cover not just any other sort of sentence, but first and foremost, a longer piece of text. Astonishingly, not one of the accounts discussed here offers that.<sup>178</sup>

This is particularly astonishing, as the issue did arise in almost all accounts. Ryle refers to a “conversation or discourse” in his account of ‘about-conversational’;<sup>179</sup> Goodman refers to the filing of documents and information retrieval<sup>180</sup> and, moreover, creates his schema of one-place predicates for application in fiction, so he clearly also had literary works in mind; Lewis thinks about the repercussions of his stance concerning logical truths on

---

<sup>176</sup> Putnam (1958) begins his paper on aboutness claiming: “The question, what a given statement is “about,” often occurs in philosophic discussion.” (p. 125) and cites a symposium in the *Journal of Philosophy* on Logical Truth. Unsurprisingly, however, the three papers there don’t discuss what a statement *is* about, but whether a statement *tells us something about* a topic (their concern is with tautologies and logical truths).

<sup>177</sup> It reminds me of an example Dorothy Edgington gave in a different context: The statement “I’m on the bus.” is unlikely to have been made often before the invention of mobile phones. It would have been too obvious for the people who heard it to need stating.

<sup>178</sup> I am excluding Putnam’s highly abstracted account. He does consider expanding it to entire disciplines and classification of statements into them, but goes on to assess, quite rightly, it seems to me, “that any classification based on “universes of discourse” is highly idealized.” (1958) p. 129

<sup>179</sup> Ryle (1933) p. 11

<sup>180</sup> Goodman (1961) p. 22



classifying books in the mathematics library;<sup>181</sup> Yablo's second sentence is "Books are on topics";<sup>182</sup> only in Fine's papers I am not aware of any mention or thought concerning larger pieces of text (he does, however, work intensively on accounts for sentences other than assertions or conditionals). We must therefore, in the following, keep this problem at the back of our minds and consider briefly whether there is an easy and obvious way of applying the accounts to conversations, discourse, documents, information retrieval, or books.

Aboutness in these accounts comes out variously as a grammatical feature for Ryle, as a part of logical consequence for Goodman, as a relation supervening on truth-value between a statement and a subject matter for Lewis, as the similarity between determinates of a statement's determinable property of meaning for Yablo, and as a function for Fine. This wide variation is, of course, in good part due to the authors' different methodological approaches, but the element that is at its root is subject matter.

Remember that for Ryle the subject matter is what a sentence refers to, either by some occurrent word – the sentence's grammatical subject in 'about-nominative', any other noun in 'about-substantial' – or more or less implicitly, when the sentence is 'about-conversational' a central topic. The ontological fine-tuning takes place with 'about-referential' picking out only objects that exist in space-time. These objects in Ryle's brief paper are mostly individuals singled out by proper names or definite descriptions. Putnam adds an account for classes of individuals, which are also objects. These accounts extend trivially to any larger piece of text, and Ryle's aboutnesses can also be applied directly to sentences other than assertions.

Goodman again has several sorts of aboutness, but each of them yields an object  $k$  with respect to which a statement follows 'differentially': from itself (the single-premise case) when the statement is 'immediately about'  $k$ ; or it is 'absolutely about'  $k$  when another statement follows from it differentially with respect to  $k$ ; and 'about relative' to another statement if a third statement follows differentially with respect to  $k$  from both of them jointly. And where Ryle offered one ontologically "clean" sort of aboutness, Goodman has three, and only one kind of aboutness for all sorts of ontologically untoward objects, the one-place predicate schema, for instance "Pickwick-about"; but even this makes a sentence come out 'rhetorically about' an object. As has been pointed out, Goodman's account can only be applied to sentences from which a  $k$  can follow, but among those, any number can be about the same  $k$  and his account therefore extends to any larger piece of text made up of such sentences.

And then, there was what we may call "the semantic turn" in aboutness theory. This may seem a strange thing to say of any theory of aboutness, given that aboutness is surely the semantic notion *par excellence*. But what is new since this turn is that rather than treating aboutness as a second-order element of a piece of text's meaningfulness, and subject matter

---

<sup>181</sup> Lewis (1988c) p. 123

<sup>182</sup> Yablo (2014) p. 1

as an element to which the piece of text is subservient, as it were, the account of aboutness now becomes a part of the greater semantic account itself and subject matter is explicated on the same level as a statement's meaning.

The first of these accounts is Lewis's. Like all the accounts before, it, too, singles out objects as subject matters. In possible worlds semantics, where worlds are maximal compossibilities, objects are parts of worlds and singled out in sets of worlds that possess them, or even cells of worlds that are, moreover, completely alike with respect to these parts – we carve out objects from the likeness of worlds with respect to them. Alikeness is an equivalence relation between worlds, which effectively partitions logical space into those cells, and can stand in for the object thus singled out – as can the partition itself. The partition is thereby the closest thing to reference to an object that possible worlds semantics can give us. It is what possible worlds semantics uses to say “that thing”, as it were, where the “thing” can be a physical object, a class of objects, physical stuff, or also an abstract object manifest in physical objects or events (e.g. democracy). This object can be shared by any number of sentences and in possible worlds accounts of questions and commands, by them too. How a possible worlds account might be extended to larger pieces of text is, to the best of my knowledge, an open question.

However, there are two differences in this account vis-à-vis the earlier ones. One is that when we turn from the partition back to the cells, and thereby from the structuralist to the modal account, these cells jointly show us every way the object can be. So, this is much more information about the subject matter than the earlier accounts gave us. The other point is that the partition can also stand for a question, like ‘How many stars there are’, in particular on those views that explicate a question as the set of all possible answers to it. We will see how this is done in a moment.

Nevertheless, it is important to remember that one and the same partition into cells can still be shared as a subject matter by several sentences. In Lewis's account, as has been pointed out repeatedly, a particular statement is entirely about a subject matter when it is not about anything else. This means that the statement has a smallest subject matter, but is likewise entirely about any larger subject matter of which this smallest one is a part. This smallest or least subject matter is the object that corresponds to Goodman's *k* and Ryle's referents and can usually be part of a statement's proposition, which can therefore be built from its semantic account. It is useful for the next two accounts to see how this is done.

We have four options for constructing individual propositions at the semantic end. First, we can pick out the cells in which something that is predicated of the object is true of it and *unite* them into a large set, and likewise unite those cells where it is not true into another large set. We thereby get two large sets of worlds, the classical possible worlds account of a proposition, i.e. the semantic equivalent of the propositional calculus  $p/\neg p$  in a partition of logical space, but note that we thereby give up its component parts. Thus, if our subject matter is Tom, the tomato, and the predicate is “red”, we would unite all the Tom-cells, of which we have one for each way for Tom to be (big, small, round, oblong, heart-shaped,

ripe, not ripe, etc. plus one with no Tom), into two large sets, one containing all the worlds where Tom exists and is red, and the other containing all other worlds.

As a second option, we can make the cells the *members* of two large supersets, thus maintaining them intact, and thereby obtain the semantics for predicate calculus  $F(a) / \neg F(a)$ . We would have every way for object  $a$  to be (or not to be), partitioned into whether that way of being makes it  $F$  or not. This is the greatest fineness of grain concerning  $a$ , but none concerning  $F$ . Here, we would have the big-round-ripe-red Tom cell, and the small-round-ripe-red Tom cell, and the big-oblong-ripe-red Tom cell, and the ... etc., all be members of the red-Tom set; all others, e.g. the big-round-ripe-yellow Tom cell, and the small-round-ripe-yellow Tom cell, and the big-round-not ripe-green Tom cell, and the ... etc., members of the not-red-Tom set.

The third option is to *unite* the cells into larger cells by how they are  $F$ , such that we have one cell for each way of  $a$ 's being  $F$ . These  $F$ -cells are effectively Yablo's true-ways. This option yields the greatest fineness of grain concerning  $F(a)$ , i.e.  $p$ , but we give up  $a$  again. So here we would have one set with all crimson-Tom worlds and another with all ruby-Tom worlds and another with all scarlet-Tom worlds, etc. But on the  $\neg F(a)$  side, we would only get two large sets: the  $\neg F$  set and the  $\neg a$  set, i.e. the set of worlds where Tom is not red and the set of worlds where there is no Tom.

The fourth option is to make our  $a$ -cells *members* of  $F$ -sets, grouping ways for  $a$  to be into sets according to how  $a$  is  $F$  in them. On the  $\neg F(a)$  side, we would still have all the  $a$ -cells, just that  $a$  would not be  $F$  in any of them. This is then the greatest fineness of grain concerning  $a$  as well as  $F$ . So we would have the big-round-ripe-crimson Tom cell, and the small-round-ripe-crimson Tom cell, and the big-oblong-ripe-crimson Tom cell, etc. all members of the crimson-Tom set; the big-round-ripe-ruby Tom cell, and the small-round-ripe-ruby Tom cell, and the big-oblong-ripe-ruby Tom cell, etc. all members of the ruby-Tom set; and so on.

It seems to me that on options one and three we lose sight of our original subject matter because the sets are unions of our  $a$ -cells and we therefore lose the cell structure and are back to individual worlds as the sets' members. This may not be anything to worry about, if our curiosity ends at  $p$  – i.e.  $F(a)$  – but for other purposes, it may be a disadvantage. In particular, when several propositions share a subject matter, that would no longer be evident.

For subject matter explications as questions, option two would give us an answer to the question of which way  $a$  has to be in order for it to be  $F$ ; option three would tell us which ways there are for  $a$  to be  $F$ ; and option four would tell us what  $a$  can be like and which ways there are for it to be  $F$ , if and when it is  $F$ .

What is important for the present argument is that subject matter  $a$  explicated in the Lewisian way can be made a component in any number of propositions. So although Lewis

does not offer an account for larger pieces of text, to the extent that a subject matter appears in the sentences belonging to that text, or that their least subject matters are parts of a larger subject matter shared by such sentences, his account can still serve our needs.

Unfortunately, the next account turned the tables on subject matter. Instead of having several subject matters per sentence, each of which can be shared with many other sentences, Yablo's sentences have a subject matter that is (almost) unique to them. They never share it as a whole with another whole sentence (except with their negation), but only in so far as it stands in mereological relation with other sentences' subject matters. The reason, originally (I surmise), was that in order to keep sentences from being entirely about all subject matters of which their least subject matter is a part, Yablo wanted to allow only this least subject matter to count as the sentence's subject matter. This might have been achieved by simply defining "exactly about" accordingly. But having switched perspective from the subject matter to the statement,  $a$  alone would not have been a reasonable restriction, because clearly the statement is about  $F$  as well, so that had to be catered for. Technically, bounding  $a$  with the help of  $F$  meant that the partition could be prevented from becoming finer, as it does for a larger subject matter  $a^+$  of which  $a$  is a part. Instead, as we have seen above, the  $a$ -cells are united into all the different  $F$ -sets and  $\neg F$ -sets. But now the subject matter of a sentence  $F(a)$  consists of  $F$ -sets of  $a$ -worlds plus the  $\neg F$ -sets and  $\neg a$ -world sets. As has been discussed at great length, this is a fine-grained modal account of the sentence's content, except that the truth-value is not specified. But an additional worry is that we have a very detailed account of what  $F(a)$  can be like, but no incentive to make equally fine-grained specifications of the falsemakers. It seems that as a falsemaker for "Tom is red", all we need to know is that Tom's colour is something other than red; we don't need a specification of Tom's precise shade of green. If this is right, the falsemakers for "Tom is red" will only be two sets: the set of all worlds where Tom is anything other than red, and the set of all worlds where there is no Tom. But then, the subject matter of  $F(a)$  will presumably be different from that of  $\neg F(a)$ .

Be that as it may, the fact that the subject matter is now limited to exactly one sentence means that the account cannot be expanded to any larger piece of text. Now, it might be said, that instead it can be subdivided into many other propositions that sum to a larger piece of text. After all, on this account, a subject matter is a collection of countless ways of making the sentence true, each way being itself a proposition. Thus the subject matter of "Tom is red" consists of the propositions expressible as "Tom is crimson", "Tom is scarlet", "Tom is ruby", etc. Jointly they tell us all the possible ways Tom may be red. This is, of course, true, but it is not what subject matters typically do. All these propositions don't add up to one big picture about the redness of Tom; instead, in being mutually incompatible, they don't add up to any one thing at all. They cannot become a detailed account of one topic because for that they would have to be mutually complementary, addressing different aspects and telling us different things about that topic. What they do yield is a collection of every possible way "Tom is red" can be true, hence every possible way it can be conceived, and hence every possible way the sentence can be understood. This is the best account of the meaning of assertions I have come across whose value can hardly be overestimated. But

it does not serve the purpose of subject matter (which is, incidentally, what we should now be able to use in order to pick out the right true-way from among them all) and of aboutness for conversations, discourse, documents, information retrieval, or books.

The last account discussed, Fine's fusion of states, would at first seem to exacerbate this problem. Where Yablo's account still splits into a collection of propositions, Fine makes a new whole of them. What exactly this whole is supposed to be is hard to grasp on pre-logical intuitions. There may be cases where fusions and union sets come to the same, but here, this is probably not the case because Fine wants his fusions to consist not only of states (which may still come very close to Lewis's and Yablo's cells) but also of parts of those states as well as parts of the fusion of those parts, etc. A union set does not allow us to pick out parts of its members. But it is this aspect of parts of parts and of parts of the fusion that takes us back to a topic. Monstrous though the formation is with its mutually incompatible states that are therefore immediately impossible when fused, it is nevertheless the common truthmaker for any number of statements dealing with parts or aspects of one "fact".

Facts, however, are the disadvantage the account has vis-à-vis Lewis's because facts still consist of an object and something that is predicated of it. So on this account, the subject matter of "Tom is red" will comprise any shade of red and any particle of Tom's skin, its seeds and perhaps its DNA, but what Tom tastes like will not come in. On Lewis's account, our subject matter might just have been Tom, but Fine can't have that because his subject matter is still tied to a proposition. On the other hand, the advantage compared to Lewis's account is that parthood in Fine's account is not inversely, but directly proportional to subject matter. So a part of the state-fusion is a part of the subject matter, not a larger subject matter, as it was in Lewis's account. We therefore avoid the problem Goodman pointed out that any statement can come out as about anything because its subject matter is part of the universe. We may, however, still run into the opposite problem, namely that we have no limit to how small a part is still relevant (cf. 5.5).

### 6.3 Why this is a problem

So we are facing two problems, one with each of the relata of aboutness. The first one is that the accounts all start from statements and none of them has an obvious expansion allowing us to tell what a larger piece of text is about. The second one is that, additionally, aboutness theory is moving away from the objective 'topic' understanding of subject matter towards a propositional understanding of subject matter as the whole content. But this sort of subject matter cannot be shared among many sentences and would therefore not even serve larger pieces of text.

Solving these issues is truly pressing. I have already pointed out in 1.2 that there are various areas outside philosophy, logic and linguistics in which aboutness is important. In most of them, what is needed is a concept of subject matter that is objective rather than propositional and concerns much more than a single statement.

For instance, in machine translation, even if Bar Hillel's verdict (cf. 1.2.1) is likely to remain true, progress over the 50 years that have elapsed since his paper has been remarkably slow compared to those areas of natural language processing where meaning is not an issue, and in spite of all the advances in computing power and software development, we are still far from a satisfactory technology for machine translation.<sup>183</sup> Even if machines may never fully be able to replace humans, there is room for improvement and aboutness could play a decisive role in it. A suitable tool for determining aboutness could enable the software to retrieve words from the right terminology collection and, in a more distant future, perhaps even adjust register.

In LIS, a formal tool determining the various subject matters addressed in a piece of text is even more urgently needed. In order to get listings right, we need software that recognises what books and articles are about. This is rarely a single topic, and in our searches for literature, we would often also like to be pointed to work that deals with a specific topic among others it may also address. The reason we need software to find it for us is that the definition of topics for a book or article is not just likely to be incomplete at the time of cataloguing, it is often not stable over time. So keywords, typically entered at the time of publication or cataloguing and rarely updated later, will not keep pace with later scientific developments or changing interests, for instance. They may also simply not contain reference to any topic that is not considered important by whoever picked the keywords. Take another example to do with translating, John Dryden's remarks on translating in the preface to his English translation of Ovid's *Epistles* from the 1680s.<sup>184</sup> It is doubtful that he would have stated "translation theory" as a keyword. But the relatively young discipline of Translation Studies (only established some 300 years later) has come to regard his thoughts on translating as a key text,<sup>185</sup> so we would like his *Epistles* to appear in a list of publications relevant to translation theory.

With a growing number and variety of electronic resources available to researchers, which we all increasingly rely on and which have the potential of expanding our horizon beyond the beaten path and the big academic hubs, provided they can link up literature about the same subject matter, a solution to the issue of aboutness for longer pieces of text is urgently needed.

To illustrate that this is of immediate importance to our research as philosophers, too, let me end this thesis as it began, with an example. Looking up Hannes Leitgeb's 2008 paper 'An Impossibility Result on Semantic Resemblance', Wiley's website of *Dialectica* suggests five other papers to readers of Leitgeb's paper under "Related content". Topping the list we find these two papers:

---

<sup>183</sup> The reviews of one of the most recent major efforts, Skype's translation tool, are telling. cf. Pavlus (2015) in the MIT Technology Review: "The limitations of Skype's translation software are also revealing, since they show how difficult it is for even the smartest machine to mimic the subtleties of effective human conversation. Determining which meaning of a word is appropriate in different contexts can be vexing."

<sup>184</sup> Dryden (1683), accessible here, for instance: <http://www.bartleby.com/204/207.html>

<sup>185</sup> Venuti (2012) quotes the text in full; others refer to it or quote passages: Bassnett (2013), Munday (2016), Snell-Hornby (1988) and (2006), to cite a few.

Role of M-line proteins in sarcomeric titin assembly during cardiac myofibrillogenesis  
Authors: Seu-Mei Wang, Miao-Chia Lo, Ching Shang, Shih-Chu Kao, Yung-Zu Tseng

Molecular basis of human glutamate dehydrogenase regulation under changing energy demands

Authors: Vasileios Mastorodemos, Ioannis Zaganas, Cleanthe Spanaki, Maria Bessa, Andreas Plaitakis<sup>186</sup>

and only the third paper listed is actually related to Leitgeb's:

#### PROPOSITIONS AND COMPOSITIONALITY

Authors: Juhani Yli-Vakkuri.<sup>187</sup>

The next two papers are again from biochemistry – a clear failure of aboutness. It is in our own best interest to provide an account of aboutness that serves these applications. Aboutness theory has still got work to do.

---

<sup>186</sup> Last retrieved from <http://onlinelibrary.wiley.com/doi/10.1111/j.1746-8361.2008.01142.x/abstract> on 12 May 2017.

<sup>187</sup> *ibid.*

## Bibliography

- Ayer, A. J. 1946. *Language, Truth and Logic*. Victor Gollancz, London, 107.
- Ayers, M.R. 2002. What is realism?. In *Proceedings of the Aristotelian Society (Hardback)* Vol. 102, No. 1, pp. 293-320. Blackwell Science Ltd.
- Bar-Hillel, Y., 1964. Some linguistic obstacles to machine translation. in: *Language and Information: Selected Essays on Their Theory and Application*. pp.75-87. Addison-Wesley.
- Bassnett, S., 2013. *Translation studies*. Routledge.
- De Beaugrande, R., & Dressler, W. U. 1981. *Introduction to text linguistics*, London, New York: Longman, 1981.
- Bennett, Karen. 2015. Lewis on Mereology. *B. Loewer and J. Schaffer (eds.), The Blackwell Companion to David Lewis*, Oxford: Blackwell
- Berto, Francesco. forthcoming. Aboutness in Imagination. *Philosophical Studies*
- Blumson, Ben. unpublished manuscript. Two Conceptions of Similarity. Retrieved from [https://www.academia.edu/14705697/Two\\_Conceptions\\_of\\_Similarity](https://www.academia.edu/14705697/Two_Conceptions_of_Similarity)
- Braido, Valentina. 2015. Stephen Yablo, Aboutness, Princeton University Press, 2014, pp. 240, \$ 45.00, ISBN 9780691144955. *Universa. Recensioni di filosofia – Anno 4, Vol. 1*
- Brenndorfer, Thomas. 2014. A Review of “FRSAD: Conceptual Modeling of Aboutness”, *Cataloging & Classification Quarterly* Vol. 52, Issue 3
- Burgess, John P. 2015. Lewis on Set Theory. *B. Loewer and J. Schaffer (eds.), The Blackwell Companion to David Lewis*, Oxford: Blackwell
- Carnap, Rudolf. 1934/1968. *Die logische Syntax der Sprache* Springer Verlag; English translation: 1937. *The Logical Syntax of Language* (Vol. 4) Psychology Press
- 1933. *Der logische Aufbau der Welt*, Berlin 1928. English translation: Carnap, R. and George, R.A., 1969. *The logical structure of the world: and, pseudoproblems in philosophy*. Open Court Publishing.
- Bar-Hillel, Y. and Carnap, R., 1953. Semantic information. *The British Journal for the Philosophy of Science*, 4(14), pp.147-157.
- Cowles, H.W., Walenski, M. and Kluender, R., 2007. Linguistic and cognitive prominence in anaphor resolution: Topic, contrastive focus and pronouns. *Topoi*, 26(1), pp.3-18.
- Crane, Tim. 2012. What is the Problem of Non-Existence? *Philosophia*, Vol 40 (3), pp 417–434
- 2013. *The Object of Thought*. OUP
- Demolombe, Robert, & Fariñas del Cerro, Luis. 2000. Towards a Logical Characterisation of Sentences of the Kind “Sentence *P* is About Object *C*”. Hölldobler, Steffen (ed.) *Intellectics and Computational Logic, Papers in Honor of Wolfgang Bibel*, Series: Applied Logic Series, Vol. 19
- Demolombe, R., & Fariñas del Cerro, L. 2010. Information about a given entity: From semantics towards automated deduction. *Journal of Logic and Computation*, 20(6), pp.1231-1250.



- Demolombe, R., & Jones, A. J. 1999. On sentences of the kind “sentence ‘p’ is about topic t”. In *Logic, Language and Reasoning*, pp. 115-133. Springer Netherlands.
- Duží, M. & P. Materna. 2005. ‘Parmenides principle’ (The analysis of aboutness). *Philosophia* 32: 155–80.
- Elgin, C.Z., 1998. Goodman, Nelson. *Routledge Encyclopedia of Philosophy*, 4, pp.135-140.
- Fine, K. 2011. An abstract characterization of the determinate/determinable distinction. *Philosophical Perspectives*, 25(1), pp.161-187.
- 2017a. Truthmaker semantics. *A Companion to the Philosophy of Language*, 2<sup>nd</sup> edition, Bob Hale, Crispin Wright, Alexander Miller (eds.), Wiley-Blackwell
  - 2017b. A Theory of Truthmaker Content I: Conjunction, Disjunction and Negation. *Journal of Philosophical Logic* pp 1–50
  - 2017c. A Theory of Truthmaker Content II: Subject-matter, Common Content, Remainder and Ground. *Journal of Philosophical Logic* pp 1–50
  - (forthcoming). Review of Steve Yablo’s Aboutness. *Philosophical Studies*. Page numbers refer to the version on Academia.edu:  
[https://www.academia.edu/15555407/Review\\_of\\_Steve\\_Yablos\\_Aboutness](https://www.academia.edu/15555407/Review_of_Steve_Yablos_Aboutness)
- Frege, G. 1956. The thought: A logical inquiry. *Mind*, LXV(259), pp.289-311.
- 1969. *Nachgelassene Schriften*, eds. H. Hermes, F. Kambartel, F. Kaulbach, Hamburg: F. Meiner
- Gärdenfors, P. 2004a. *Conceptual spaces: The geometry of thought*. MIT press.
- 2004b. Conceptual spaces as a framework for knowledge representation. *Mind and Matter*, 2(2), 9-27.
- Gemes, Ken 1994. A new theory of content I: Basic content. *Journal of Philosophical Logic* 23 (6), pp.595 - 620.
- 1997. A new theory of content II: Model theory and some alternatives. *Journal of Philosophical Logic*, 26(4), pp.449-476.
- Gendler Szabó, Z. (2017) Finding the question. *Philosophical Studies* 174: 779
- Goodman, N. 1961. About. *Mind* LXX(277), pp.1-24
- 1965. “About” mistaken. *Mind*, 74(294), pp.248-248.
  - 1972. *Problems and projects*. Indianapolis: Bobbs-Merrill
  - 1966. *The structure of appearance*. Vrin.
- Grice, Paul. 1975. Logic and conversation, in P. Cole & J. Morgan (ed.), *Syntax and Semantics, 3: Speech Acts*, pp. 41–58, New York: Academic Press. Reprinted in H. P. Grice (ed.), *Studies in the Way of Words*, pp. 22–40, Cambridge, MA: Harvard University Press (1989)
- Hazen, A.P. and Humberstone, L., 2004. Similarity relations and the preservation of solidity. *Journal of Logic, Language and Information*, 13(1), pp.25-46.
- Hodges, M. 1971. On ‘Being About’, *Mind*, Vol. 80, No. 317, pp. 1-16
- Jago, Mark. forthcoming. Propositions as truthmaker conditions. *Argumenta*
- Kelly, John L. 1955. *General Topology*. American Book Company

Kemeny, J.G., 1953. A logical measure function. *The Journal of Symbolic Logic*, 18(4), pp.289-308.

Ketland, J. 2014. There's Glory for You!. *Philosophy*, 89(01), pp.3-29.

Ku erová, Helena. What Do we Analyze during Subject Analysis of Documents? The Concept of Aboutness in Knowledge Organization. *Knihovna [online]*. 2014, Vol. 25, Supplementum, p. 38-57 [cit. 2016-06-15]. Available from WWW:  
<[http://knihovna.nkp.cz/knihovna141\\_suppl/1401038.htm](http://knihovna.nkp.cz/knihovna141_suppl/1401038.htm)>. ISSN 1801-3252.

Leech, G. and Short, M. 2007. *Style in Fiction* (2nd ed.) Pearson Education Ltd.

Leitgeb, H., 2002. What is a self-referential sentence? Critical remarks on the alleged (non-)circularity of Yablo's paradox. *Logique & Analyse*, 177-178:3.14.

- 2005. What truth depends on. *Journal of Philosophical Logic*, 34(2), pp.155-192.
- 2007. A New Analysis of Quasianalysis. *Journal of Philosophical Logic* 36(2), pp.181-226.
- 2008. An impossibility result on semantic resemblance. *dialectica*, 62(3), pp.293-306.
- 2011. New life for Carnap's *Aufbau*? *Synthese*, Vol. 180 (2), pp 265–299

Lewis, David 1969. Policing the Aufbau. *Philosophical Studies* 20, pp.13-17

- 1983. New work for a theory of universals. *Australasian Journal of Philosophy*, 61(4), pp.343-377.
- 1986. *On the plurality of worlds* (Vol. 322). Oxford.
- 1988a. Ayer's First Empiricist Criterion of Meaning: Why Does It Fail? *Analysis* 48, 1-3; all references made to reprint in 1998. *Papers in Philosophical Logic*, Cambridge: CUP
- 1988b. Statements Partly About Observation. *Philosophical Papers* 17; all references made to reprint in 1998. *Papers in Philosophical Logic*, Cambridge: CUP
- 1988c. Relevant Implication. *Theoria* 54; all references made to reprint in 1998. *Papers in Philosophical Logic*, Cambridge: CUP
- 1991. *Parts of Classes*, Oxford: Basil Blackwell
- 1993. Mathematics is Megethology. *Philosophia Mathematica* 3, reprinted in 1998. *Papers in Philosophical Logic*, Cambridge: CUP
- 1996. Elusive knowledge. *Australasian journal of Philosophy*, 74(4), pp. 549-567

Locke, J., 1975. 1690. *An Essay Concerning Humane Understanding*, ed. Peter H. Nidditch, Oxford: Clarendon.

Mathesius, Vilém J. 1975. *A Functional Analysis of Present Day English on a General Linguistic Basis*, ed. Vachek, Josef, transl. Duscová, Libuse, Paris: Mouton & Prague: Academia

Moens, M.F., 2002. Automatic Indexing: The Selection of Natural Language Index Terms. *Automatic Indexing and Abstracting of Document Texts*, pp.77-102.

Moens, M.F., Jeuniaux, P., Angheluta, R. and Mitra, R., 2006, June. Measuring Aboutness of an Entity in a Text. In *Proceedings of the First Workshop on Graph Based Methods for Natural Language Processing* (pp. 25-28). Association for Computational Linguistics.

Moltmann, F. 2017. Partial content and expressions of part and whole. *Philosophical Studies* 174: 797

Munday, J., 2016. *Introducing translation studies: Theories and applications*. Routledge.

Niebergall, K.G., 2009. On “About”: Definitions and Principles. *From Logic to Art: Themes from Nelson Goodman*, 7, p.137.

Nuchelmans, G. 1983. *Judgment and proposition. From Descartes to Kant*. Amsterdam.

Oliver, A., 1996. The metaphysics of properties. *Mind*, 105(417), pp.1-80.

Osorio-Kupferblum, N., 2016. Aboutness. *Analysis*, 76 (4), pp.528-546.

Paseau, A. 2012. Resemblance theories of properties. *Philosophical studies*, 157(3), pp.361-382.

- 2015. 6 Six Similarity Theories of Properties. *Nominalism about Properties: New Essays*, 95.

Patton, Thomas E. 1965a. ‘Some Comments on “About”’ in *The Journal of Philosophy* Vol. LXII No. 12

- 1965b. A reply to Rescher on Goodman’s ‘about’. *Mind* 1965; LXXIV (296): 592-593

Pavlus, John. 2015. Something Lost in Skype Translation. *MIT Technology Review*, January 15, 2015, last retrieved on 29 May 2017 from <https://www.technologyreview.com/s/534101/something-lost-in-skype-translation/>

Perry, J. 2003. The Subject Matter Fallacy. *Journal of Applied Logic*, Vol. 1 (1–2), pp. 93–105

Putnam, H. 1958. Formalization of the Concept “About”. *Philosophy of Science* 25, pp.125-130.

- 1973. Meaning and Reference. *Journal of Philosophy* 70, pp. 699–711.

Putnam, Hilary & Ullian J.S. 1965. ‘More about ‘about’’ *The Journal of Philosophy*, Vol. LXII 12

Raclavský, J. 2014. Constructional vs. Denotational Conception of Aboutness. *Organon F. medzinárodný časopis pre analytickú filozofiu*, 2(21), pp.219-236.

Ramharter, E. 2006. Making Sense of Questions in logic and Mathematics: Mill vs. Carnap. *Prolegomena: časopis za filozofiju*, 5(2), pp.209-218.

Rawlins, Kyle. (manuscript) A case of compositional scopemarking in English.

Rescher, N., 1963. A note on 'about'. *Mind*, 72(286), pp.268-270.

Rodriguez-Pereyra, G. 2002. *Resemblance nominalism: A solution to the problem of universals*. Oxford: Clarendon Press.

- 2006. Truthmaking, entailment, and the conjunction thesis. *Mind*, 115(460), pp.957-982.

Rondeau, S. 2014. The Life and Times of Aboutness: A Review of the Library and Information Science Literature. *Evidence Based Library and Information Practice*, 9(1), pp.14-35.

Rothschild, D., 2017. Yablo’s semantic machinery. *Philosophical Studies*, pp.1-10.

Ryle, Gilbert 1933. About. *Analysis*

Salmon, N. 2007. About Aboutness. *European Journal of Analytic Philosophy*

Schipper, A. 2017. Aboutness and negative truths: a modest strategy for truthmaker theorists. *Synthese*

KSmrq, CC BY-SA 3.0, <https://commons.wikimedia.org/w/index.php?curid=2118211>, last retrieved on 25 June 2016

Snell-Hornby, M., 1988. *Translation studies: An integrated approach*. John Benjamins Publishing.  
- 2006. *The Turns of Translation Studies: New paradigms or shifting viewpoints?* (Vol. 66). John Benjamins Publishing.

Stanley, J. 2000. Context and logical form. *Linguistics and philosophy*, 23(4), pp.391-434.

Thalheimer, Ross 1936. More about "About". *Analysis* 1936

Turing, A. M. 1950. Computing machinery and intelligence. *Mind*, LIX (236), pp.433-460.

Ullian, J. and Goodman, N. 1977. Truth about Jones. *The Journal of Philosophy*, pp.317-338.

Ullian, J.S. 1962. 'Corollary to Goodman's Explication of 'about'' in *Mind* No. 284

Urbaniak, R. 2009. Leitgeb, "about", Yablo. *Logique & Analyse*, 207, pp.239-254.

Venuti, L., 2012. *The translation studies reader*. Routledge.

Vranas, P.B., 2017. Informative Aboutness. *Australasian Journal of Philosophy*, 95(2), pp.354-364.

Weisstein, Eric W. "Cover." From MathWorld--A Wolfram Web Resource.  
<http://mathworld.wolfram.com/Cover.html>, last retrieved on 25 June 2016

Weisstein, Eric W. "Minimal Cover." From MathWorld--A Wolfram Web Resource.  
<http://mathworld.wolfram.com/MinimalCover.html>, last retrieved on 25 June 2016

Williamson, T., 1988. First-order logics for comparative similarity. *Notre Dame Journal of Formal Logic*, 29(4), pp.457-481.

Wilson, Jessica. 2009. Determination, Realization and Mental Causation. *Philosophical Studies: An International Journal for Philosophy in the Analytic Tradition*, 145(1), 149-169  
- 2017. Determinables and Determinates. *The Stanford Encyclopedia of Philosophy* (Spring 2017 Edition), Edward N. Zalta (ed.), forthcoming URL =  
<<https://plato.stanford.edu/archives/spr2017/entries/determinate-determinables/>>.

Yablo, S., 1987. Identity, essence, and indiscernibility. *The Journal of Philosophy*, 84(6), pp. 293-314.

- 1992. Mental causation. *The Philosophical Review*, 101(2), pp.245-280.
- 1993. Paradox without Self-Reference. *Analysis*; 53 (4), pp. 251-252.
- 2014. *Aboutness*. Princeton University Press.
- 2016a. Parts and differences. *Philosophical Studies*, 173(1), pp.141-157.
- 2016b. Ifs, Ands, and Buts: An Incremental Truthmaker Semantics for Indicative Conditionals. *Analytic Philosophy*, 57(3), pp.175-213.
- 2017a. Precis of aboutness, *Philosophical Studies* 174: 771.
- 2017b. Replies to commentators. *Philosophical Studies*, pp.1-12
- (forthcoming) Reply to Fine on Aboutness. *Philosophical Studies*

Yalcin, S., 2016. Belief as Question-Sensitive. *Philosophy and Phenomenological Research*.

## Abstract

This thesis is about aboutness in logic and language, i.e. what it is for a piece of text to be about something (a topic, subject matter, object). Aboutness is of immediate importance to disciplines outside philosophy, like Library and Information Sciences (LIS) and Software Engineering, whose work is, in turn, of immediate practical importance to academic research and thereby also to the work of philosophers. The thesis argues that aboutness theory has taken a turn that is unfavourable concerning this interdisciplinary aspect. It begins by outlining three problems - the problem of occurrence, the problem of interest and the problem of degree - that are taken partly from very early philosophical work on aboutness (by Ryle and Putnam), partly from LIS, and partly from linguistics (Mathesius). In a next step, the accounts of Nelson Goodman (1961), David Lewis (1988) and Stephen Yablo (2014) are introduced, analysed with respect to their own merits and concerning the three problems. In this connection, ontological worries are dispelled, partial aboutness is considered, and similarity is discussed with reference to work by Leitgeb (2007) and Paseau (2012, 2015). Work underway by Fine (2017, forthcoming) is also addressed with a view to these problems. It is argued that application of all accounts to areas like LIS, machine translation, natural language processing, etc. is made difficult because they are all developed for individual indicative sentences rather than longer pieces of text. Moreover, the conception of subject matter has increasingly moved away from the idea of a topic towards that of the whole content of a sentence. So in spite of the enormous progress and great usefulness of the recent accounts in other areas (prominently the theory of meaning), there remains important work to be done.

Die vorliegende Dissertation behandelt "Aboutness" in Logik und Sprache, also was es für einen Text bedeutet von etwas (einem Thema, Sujet, „subject matter“) zu handeln. Aboutness ist von unmittelbarer Bedeutung für Forschungsbereiche außerhalb der Philosophie, z.B. Bibliotheks- und Informationswissenschaften (LIS) oder Informatik, deren Arbeit wiederum von unmittelbarer praktischer Bedeutung für Wissenschaft und Forschung, und somit auch für die Arbeit von Philosophen ist. Es wird argumentiert, dass die Aboutnesstheorie in Hinblick auf diesen interdisziplinären Aspekt eine ungünstige Entwicklung genommen hat. Die Dissertation beginnt mit der Darlegung dreier Probleme: des Problems des Vorkommens, des Problems des Interesses und des Problems des Ausmaßes. Diese ergeben sich teilweise aus sehr frühen philosophischen Arbeiten zum Thema Aboutness (von Ryle und Putnam), teilweise aus LIS und teilweise aus der Linguistik (Mathesius). In einem nächsten Schritt werden die Arbeiten von Nelson Goodman (1961), David Lewis (1988) und Stephen Yablo (2014) vorgestellt, und in Bezug auf ihre eigenen Vorzüge sowie im Hinblick auf die drei genannten Probleme analysiert. In diesem Zusammenhang werden ontologische Fragen zurückgewiesen, Teil-Aboutness besprochen, und Ähnlichkeit, gestützt auf Arbeiten von Leitgeb (2007) und Paseau (2012, 2015), diskutiert. Derzeit laufende Arbeiten von Fine (2017, in Publikation) werden ebenfalls bezüglich dieser Probleme angesprochen. Es wird dargelegt, dass die Verwendung aller vorliegenden Konzeptualisierungen von Aboutness in Bereichen wie LIS, maschineller Übersetzung, elektronischer Sprachverarbeitung, u.s.w. dadurch erschwert wird, dass durchwegs von einzelnen Aussagesätzen anstelle längerer Texte ausgegangen wird. Außerdem hat sich der Begriff der „subject matter“ von jenem eines Thema weg, und immer stärker zu jenem eines Gesamtinhalts hin entwickelt. Trotz der ungeheuren Fortschritte und des großen Nutzens der jüngsten Arbeiten in anderen Bereichen (insbesondere der Bedeutungstheorie), gibt es daher noch wichtige, ungelöste Aufgaben in der Aboutnesstheorie.

