Synthesis, Judgment and the Categories of Quantity

MSc Thesis *(Afstudeerscriptie)*

written by

Sylvia Pauw
(born August 14th, 1986 in Amsterdam, The Netherlands)

under the supervision of **Prof. Dr. Michiel van Lambalgen**, and submitted to the Board of Examiners in partial fulfillment of the requirements for the degree of

MSc in Logic

at the *Universiteit van Amsterdam.*

Date of the public defense:
October 2nd, 2013

Members of the Thesis Committee:
Dr. Elsbeth Brouwer
Dr. Maria Aloni
Riccardo Pinosio, M.Sc.
Prof. Dr. Michiel van Lambalgen

Institute for Logic, Language and Computation

Abstract

An interpretative question Kant's *Critique of Pure Reason* raises, is how we should understand the relationship between the *categories* and the so-called 'logical forms of judgment' Kant deduces them from. In her *Kant and the Capacity to Judge*, Béatrice Longuenesse provides an answer to this question. In this thesis, I evaluate Longuenesse's account by considering its application to a specific group of categories: the categories of Quantity. I argue that for these categories, Longuenesse's account is problematic. The same, however, holds for a possible alternative analysis of the categories of Quantity: Manley Thompson's (1989) analysis. I show that Longuenesse and Thompson have both built their analyses on an untenable conception of the role of the categories of Quantity. The relationship between the categories and the logical forms of Quantity seems to be more arbitrary than Longuenesse, Thompson and others have argued.

Acknowledgments

Writing this thesis has not been easy, and if it weren't for the support of some important people, it probably wouldn't have been written.

First of all, I am very grateful to my supervisor Michiel van Lambalgen. I am glad that I have attended his and Dora Achourioti's inspiring course 'Kant, Logic and Cognition'. I want to thank both him and Dora for showing me how extremely interesting Kant is. Moreover, I would like to thank Michiel for his patience, trust, and ever interesting insights. This has not only enabled me to write a better thesis than I thought I would be able to, but it has also helped me greatly to improve my capacity to do reseach.

Additionally my gratitude goes to my committee members Elsbeth Brouwer, Riccardo Pinosio and Maria Aloni. I would like to thank them for reading my thesis and for the interesting comments and questions they have raised at my defence. I hope some of our discussions will be continued at a later moment.

Sara Murawski, Jens van 't Klooster and Matthijs Westera have spent a lot of time and effort on reading and commenting on important parts of this thesis. I want to thank them all for doing this. I am also indebted to Colin King for his useful comments to the paper I wrote for his course 'Kategorienlehren', which dealt with a subject related to my thesis.

Finally, I am grateful to many, many people for the wonderful moral support they have provided in various ways. I will not mention you all, but without your wise insights, coffee, lunch and distraction, I would not even have started writing. So: thank you all. Last but not least I want to thank my parents for their great support and for the fact that they have always encouraged me to do what I really found interesting.

Contents

Introduction

In the part of the *Critique of Pure Reason* that is usually called the 'Metaphysical Deduction' of the categories, Kant introduces his 'Table of Categories'. The categories are twelve concepts Kant calls 'pure concepts of the understanding' (*reine Verstandesbegriffe*) (A80/B106).

1. Of Quantity
Unity
Plurality
Totality

2. Of Quality
Reality
Negation
Limitation

3. Of Relation
Of Inherence and Subistence
substantia et accidens
Of Causality and Dependence
(cause and effect)
Of Community (reciprocity
between agent and patient)

4. Modality
Possibility
Existence
Necessity

The categories have a special status. They differ from *empirical* concepts: concepts like 'red', 'round' or 'tree' that we derive from experience. Kant thinks that if we have encountered a certain amount of red objects, we will at some point abstract the concept 'red' from these objects. For the categories this is different. A concept like 'cause' we cannot form on the basis of experience alone. Experience can teach us that if rolling billiard ball 1 hits billiard ball 2, billiard ball 2 will roll away, but it cannot – in itself – teach us that billiard ball 1 hitting billiard ball 2 *caused* billiard ball's 2 rolling away. Saying 'event A caused event B' means that event B *necessarily* follows event A. This, experience *alone* cannot teach us. Experience can teach us that event A follows event B, but not that this is necessary. The categories, therefore, are not abstracted from experience, but have their source in human understanding itself.

Why we are justified to apply empirical concepts like 'red' to objects given in experience is relatively easy to understand: a concept like 'red' applies to precisely those kinds of objects we have abstracted this concept from. For the categories, this is more complicated. Because a concept like 'cause' is not abstracted from experience, it is unclear why we are justified to apply it to experience. There is not, as is the case for a concept like 'red', a specific group of objects that has led me to form this concept. Still, Kant thinks that under certain conditions we are justified to apply the concept 'cause' to objects given in experience and to judge that 'A causes B'. The question is: why?

The reason the categories can be applied to experience is that the categories are "*a priori* conditions of the possibility of experiences" (A94/B126).[1] The categories are not derived from experience, but – in some way – they *make* experience *possible*. Why this is the case, Kant explains in the 'Transcendental Analytic' in the *Critique of Pure Reason*. His explanation, however, is rather obscure and open to multiple interpretations. How exactly Kant sees this is therefore still an open question.

A part of the Transcendental Analytic Kant-scholars tend to spend relatively little attention to, is the so called 'Table of Judgments'.[2] In the Metaphysical Deduction, where Kant introduces his Table of Categories, he claims to derive this table from this Table of Judgments. The Table of Judgments seems to provide a list of 'logical forms' a judgment can 'contain':

[1] In this thesis I use double quotes to cite Kant. For other purposes I use single quotes.

[2] As Wolff (1995) points out, Kant himself does not use this name in the *Critique* (See Wolff, 1995: 19). As we will see in chapter 1, this is quite important. For lack of a better name, however, I refer to this table as the 'Table of Judgments' nevertheless.

	1. Quantity of Judgments	
	Universal	
	Particular	
	Singular	
2. Quality		**3. Relation**
Affirmative		Categorical
Negative		Hypothetical
Infinite		Disjunctive
	4. Modality	
	Problematic	
	Assertoric	
	Apodictic	

A judgment like ‘All mammals are mortal’, for instance, ‘contains’ the universal, the affirmative, the categoric and the assertoric judgment forms.[3] A judgment like ‘If it rains, the streets become wet’, on the other hand, contains different logical forms, like the hypothetical form.

The Table of Judgments has an important function in the *Critique*. Kant claims that his Table of Judgments is *complete*: the table lists all possible logical forms a judgment can contain. There exists a certain relationship between the logical forms and the categories that enables us to derive the categories from the forms of judgment. The completeness of the Table of Judgments therefore guarantees the completeness of the Table of Categories. Within Kant’s larger project, this is highly important. Kant does not only want to prove that the categories can be applied to experience. He also wants to show that the application of certain other concepts is *not* justified. However: even though the Table of Judgments is of great importance to Kant’s larger project, it does not seem that relevant to the question why the categories are a priori conditions for experience. Why this is the case, it seems, Kant explains only *after* the Metaphysical Deduction, in the so called ‘Transcendental Deduction’ and the ‘System of Principles’. For this reason,

[3] Universal: ‘*All* mammals are mortal’ (as opposed to ‘*Some* mammals are mortal’ or ‘*This* mammal is mortal’). Affirmative: ‘All mammals *are* mortal’ (as opposed to ‘All mammals *are not* mortal’ or ‘All mammals are *not-mortal*’, categorical: ‘All mammals are mortal’ (as opposed to ‘If an animal is a mammal, it is mortal’ or ‘An animal is mortal or non-mortal’). Assertoric: we take this judgment to be true. It is not a mere hypothesis, but it is not a necessary truth either.

it is understandable that many authors that investigate this question do not pay much attention to the Table of Judgments.

An author who sees this differently, is Béatrice Longuenesse. Longuenesse thinks that we can only understand why the categories are a priori conditions of experience, if we consider Kant's Table of Judgments.[4] We need to understand why Kant thinks the categories can be derived from this table. In her book *Kant and the Capacity to Judge*, Longuenesse attempts to show this.

Even though Longuenesse's *Kant and the Capacity to Judge* is very well received, her interpretation has been criticized as well. One critic of her interpretation is Michael Friedman. Friedman (2000) argues that Longuenesse's interpretation contains some important problems, and claims these problems result from her focus on the logical forms of judgment. Longuenesse's focus on the logical forms of judgment leads her to adopt a too empiricist reading of Kant. Such a reading is bound to lead to certain problems. A more rationalistic interpretation of Kant avoids these problems.[5]

In this thesis, I look at a specific aspect of the debate between Longuenesse and Friedman. One of the problems in Longuenesse's interpretation Friedman points to concerns her ideas about the relationship between the judgment forms and categories of *Quantity*. The relationship between this group of logical forms and categories is puzzling. Kant presents the logical forms and categories of Quantity in the following orders:

1. Quantity of Judgments	**1. Of Quantity**
Universal	Unity
Particular	Plurality
Singular	Totality

The way Kant presents the categories and logical forms of Quantity suggests he links the category 'unity' to *universal* logical form, the category 'plurality' to the *particular* logical form and 'totality' to the *singular* logical form. In as far as we see there is a relationship between the categories and the forms of judgment, we would expect the category 'totality' to be linked to *universal*

[4]See *KCJ*: 5.

[5]In which sense Longuenesse's reading of Kant can be considered 'empiricist', and what makes Friedman's reading more 'rationalist' will become clearer in chapter 1.

judgments, and the category 'unity' to singular judgments. The categories of Quantity have therefore led to much discussion.

In her explanation of the relationship between the categories and the logical forms of Quantity, Longuenesse makes use of an argument Michael Frede and Lorenz Krüger have provided in their article 'Über die Zuordnung der Quantitäten des Urteils und der Kategorien der Größe bei Kant' (1970). In this article, Frede and Krüger argue that Kant does not – as his judgment and category table suggest – link the category *unity* to universal judgments and the category *totality* to singular judgments, but that – in fact – he links *unity* to singular judgments and *totality* to universal judgments. Longuenesse uses this idea to explain the relationship between the logical forms and categories of Quantity. One of the problems Friedman points to in his criticism of Longuenesse is that Manley Thompson (1989) seems to have refuted Frede and Krüger's argument. Thompson shows that Kant sees the correspondence between the categories and logical forms of Quantity precisely as his tables in the *Critique* suggest. Friedman argues that Longuenesse's empiricist Kant-interpretation cannot do justice to the role Kant ascribes to the categories of Quantity. That Longuenesse's interpretation partly relies on a refuted argument confirms this claim.

In this thesis, I reconstruct the debate around the categories and logical forms of Quantity, and investigate the implications of this debate for Longuenesse's Kant-interpretation. In chapter 1, I discuss Longuenesse's general interpretation of Kant's Transcendental Analytic. Longuenesse regards the categories as concepts that express marks of objects that are generated by an activity of our human understanding: *figurative synthesis*. Figurative synthesis is an activity that helps generating the empirical objects we encounter in our day to day lives. These are the objects we can form judgments about. Figurative synthesis is an activity of the understanding that aims at forming such judgments. In chapter 1, I clarify these ideas, and explain why Friedman thinks Longuenesse's interpretation is rather empiricist.

In chapter 2, I discuss how Longuenesse applies her general idea to the categories of Quantity. The activity of figurative synthesis, Longuenesse thinks, contains various 'aspects'. The various aspects of this activity generate the various marks of objects the categories express. They aim, moreover, at making possible the various forms of judgment. 'Relational' synthesis, for instance, aims at making possible the logical forms of 'Relation'. It thereby generates those marks of objects that enable us to apply concepts like 'cause' and 'substance' to objects. In chapter 2, I explain in what sense figurative synthesis directed at making possible the logical forms of Quantity enables us to apply the categories *unity*, *plurality* and *totality* to empirical objects. I also discuss which role Frede and Krüger's argument plays in Longuenesse's theory.

In chapter 3, I discuss Friedman's criticism of Longuenesse's interpretation of the relationship between the logical forms and categories of Quantity. Longuenesse's ideas, Friedman argues, lead her to regard *discrete* magnitudes as prior to *continuous* magnitudes. To understand the role of the categories of Quantity, however, we must see continuous magnitudes as prior. Thompson's refutation of Frede and Krüger's argument forms a second problem for Longuenesse's analysis. We will see what Thompson's argument consists in.

In chapter 4, I evaluate the various arguments that play a role in the debate concerning the categories of Quantity. I argue, first, that Friedman's criticism of Longuenesse is not completely justified. I show, moreover, that Thompson's theory about the categories of Quantity is problematic. It is, therefore, possible to defend Longuenesse's theory against these lines of criticism. Her theory, however, does lead to a serious problem. Longuenesse's analysis of the categories of Quantity cannot be reconciled with Kant's idea that judgments are *rules*.

Chapter 4 shows that Longuenesse's and Thompson's account of the categories are both problematic. In chapter 5, I argue that this is not a coincidence. Longuenesse and Thompson both assume that the categories of Quantity make possible the quantitative logical forms. This idea is untenable. The relationship between the categories and logical forms of Quantity seems to be more arbitrary than Longuenesse and Thompson suggest.

Chapter 1

The Categories and the Logical Forms

The reason we are justified to apply the categories to experience, we saw in the introduction, is that the categories are "*a priori* conditions of the possibility of experiences" (A94/B126). According to Béatrice Longuenesse we can only understand why the categories make experience possible by looking at their relation to the logical forms of judgment. In this chapter, I will explain how Longuenesse interprets Kant's claim that the categories make experience possible, and clarify how she sees the relation between the categories and the logical forms of judgment. At the end of this chapter, I will discuss Michael Friedman's claim that Longuenesse's ideas lead to a too empiricist reading of the *Critique*.

1.1 The *Inaugural Dissertation*

To understand Longuenesse's interpretation of the *Critique of Pure Reason*, it is useful to take a look at Kant's *Inaugural Dissertation*: a book he wrote eleven years before the *Critique*. Having a look at this work will also help us understanding, at the end of this chapter, Friedman's criticism of Longuenesse's interpretation.

In the *Inaugural Dissertation*, Kant attempts to unite two important thought systems of his time: the metaphysical systems of Leibniz and Wolff on the one hand, and Newtonian physics on the other.[1] In the *Dissertation*, Kant presents some of the ideas that later became crucial to the *Critique of*

[1]See, for instance, Friedman (1992): Introduction (esp. p. 25-34)

Pure Reason. For instance, he introduces the idea that we should distinguish between a *sensible* and an *intellectual* cognitive faculty, and the idea that space and time are *forms* of the sensible faculty.

By means of the *sensible* cognitive faculty, Kant states, objects can be *given* to us. This, however, only provides us with representations of objects "*as they appear*" (*Dissertation*, §4, Ak.: 2:392). It does not provide us with representations of "things as they are" (*ibid*): of *noumena*. Objects are only given to us "as they appear" precisely because they are given by means of our sensible faculty. How an object is given by a being's sensible faculty depends on the nature of that being's sensible faculty. Different beings can have different kinds of sensible faculties, and thus sensibility only provides us with objects as they appear to us.

Specific to our sensible cognitive faculty, is that it has a certain *form*. Space and time are the forms of our sensible cognitive faculty. Everything we experience we must order into spatial and temporal relations. Therefore, the objects that are given to us necessarily stand in space and time. Because space and time are the forms of our sensible cognitive faculty, they are 'transcendentally ideal', not *real*. Space and time do not exist independently from us. Although objects must be given to us in space and time, for beings with sensible faculties different from ours, this might be different. This is what makes space and time transcendentally ideal.

Kant calls the *intellectual* cognitive faculty *understanding*. In the *Dissertation*, Kant distinguishes between two possible 'uses' of the understanding: the *real* use (*usus realis*) and the *logical* use (*usus logicus*). The logical use of the understanding consists in the acts of *judging* and of *reasoning*. By means of these acts, Kant says, a "cognition"[2] that "has been given, no matter how, [...] is regarded either as contained under or as opposed to a characteristic mark common to several cognitions" (§5, 2: 393). By means of the logical use of the understanding, we can, for instance, regard a sensible representation of a strawberry as "contained under" the characteristic mark 'red', or as "opposed to" the characteristic mark 'blue'. The concept 'red', we can again order under higher concepts like 'colour'. In the logical use of the understanding, we perform acts of these kinds.

The logical use of the understanding can be applied to different kinds of "cognitions": to sensible representations and to concepts. If we apply it to sensible representations: cognitions provided by the sensible faculty, we bring those representations under concepts. In sensibility, objects are

[2]Kant does not specify the notion "cognition" (*cognitio*). At least in this context, I think this notion can be regarded as synonymous with 'representation'.

given to us as mere “appearances”. By comparing multiple appearances and reflecting them under empirical concepts we generate *experience*. Objects we have brought under concepts are “objects of experience” or *phenomena* (§5, 394). In the *Dissertation*, Kant does not say much about the relation between *appearances* and *phenomena*. The distinction between these two kinds of objects, however, returns in the *Critique* and is of great importance to Longuenesse’s interpretation. We will return to this distinction in the next section. For now, it is important to see that by means of the logical use of the understanding, we progress from sensibly given *appearances* to *experience*: sensible cognition that is brought under concepts.

Although the intellectual faculty (understanding) is necessary to generate experience of phenomena, our cognition of phenomena, Kant says, must be seen as *sensitive*, not as *intellectual* (*ibid.*). The reason for this is that the *source* of these cognitions is sensibility. Actually, this does not only hold for our empirical cognitions. Geometry provides us with sensitive cognitions too. It gives us “the principles of sensitive form” (393). Because the cognitions geometry and our experience of phenomena provide us with are sensible, they do not provide us with cognitions of things as they are in themselves, of *noumena*. Because we rely on sensibility for these cognitions, they are partly determined by the specific nature of our sensible faculty. They cannot, therefore, be cognitions of things in themselves.

This brings us to the *real* use of the understanding. By means of the real use of the understanding concepts are not merely subordinated to each other, but – instead – “*given*” (*ibid*). By means of its real use, the understanding generates concepts whose source is not sensibility, but understanding itself: “concepts of the understanding” (§9, 395). Examples of such concepts are *possibility*, *existence*, *necessity*, *substance*, *cause* (§8, 2:395) and also *number* (§12, 397). These concepts are not innate. Their source is the understanding itself, but they are “abstracted from the laws inherent in the mind” (§8, 395). It is in this sense that the understanding is the source of these concepts.

By means of the concepts of the understanding, pure intellectual cognition is possible. Pure intellectual cognition, contrary to the sensitive cognition of empirical science and geometry, can provide us with cognition of *noumena*, or “things *as they are*” (§4, 392). The goal of metaphysics is to acquire knowledge by means of precisely these concepts (§9, 395-6). Metaphysics acquires knowledge by analyzing these concepts (*KCJ*: 27).

A question one may raise is the following: *How* does the real use of the understanding provide us with knowledge of “things *as they are*”? As Longuenesse points out, Kant himself thought the *Dissertation* left this question unanswered. He admits in a letter to Marcus Herz (1772, Ak. 10: 129-

35) that it is unclear how the concepts of the understanding or *categories* can have a relation to an object (*KCJ*: 27). It is this question the *Critique* tries to answer (26).

1.2 Objects and the Categories

Although many ideas of the *Inaugural Dissertation* return in the *Critique of Pure Reason*, there is one crucial idea that Kant revises: he abandons the idea that the concepts of the understanding, the categories, apply to "things *as they are*" (*noumena*). *If* the categories have a relation to objects at all, they have a relation to *phenomena*. However, Longuenesse points out, how the categories can have a relation to phenomena does not become clear from the *Dissertation* either: why would concepts that are "abstracted from the laws inherent in the mind" relate to empirical objects *outside* the mind? (*ibid*)

Kant's answer to this question, Longuenesse argues, is closely related to another question: what enables representations in general to relate to objects? In the *Critique*, Kant distinguishes two kinds of 'objective' representations: *intuitions* and *concepts*.[3] These two representations are closely connected to the two kinds of objects we saw in the previous section: *appearances* and *phenomena*. The objectivity of intuitions and concepts results from a complex interaction between these two kinds of representations. Without intuitions, concepts do not relate to objects, but without concepts, intuitions do not have a real relation to an object either.[4] The objectivity of both concepts and intuitions is again generated by certain acts of the understanding: precisely those acts the understanding performs in its logical use. The "laws inherent in the mind" from which the categories are abstracted are the laws that govern these acts (*ibid*). In this section, we will see what the interaction between intuitions, concepts and categories consists in.[5]

In the *Critique* Kant thinks (as he did in the *Dissertation*) that objects outside our cognition 'affect' our sensible cognitive faculty. These 'objects'

[3] See A320/B376-7

[4] We could see this idea as Longuenesse's interpretation of Kant's famous dictum "Thoughts without content are empty, intuitions without concepts are blind" (A51/B75)

[5] Answering this question requires, among other things, that we look at Kant's Transcendental Deduction. Kant has written two versions of the Transcendental Deduction. In the A-edition of the *Critique*, Kant provides one version of the argument. In the B-edition he presents a very different argument. Something Longuenesse argues is that the A- and the B-Deduction clarify each other. The B-Deduction presupposes the A-Deduction and completes it (*KCJ*: 59). In explaining Longuenesse's general idea, I combine her analyses of both Deductions.

are probably the 'things in themselves' or noumena (300). Kant's point in the *Critique* is that being affected by such objects is not, in itself, enough to *represent* an object. When an object affects us, this generates so called *sensations*. *Sensations* are representations, but they do not – in themselves – represent an object.[6] They are – as Longuenesse puts it – mere 'state[s] of the subject' (219). An object can, for instance, generate the sensation of warmth in me, but my sensation of warmth is not, in itself, a representation of an object. To represent an object on the basis of such a sensation, we need to fulfil certain extra conditions.

The first condition that needs to be fulfilled to represent an object Kant discusses in the part of the *Critique* that is called the 'Transcendental Aesthetic' (23). The main idea from the Transcendental Aesthetic we already encountered in the *Dissertation*: our sensible faculty necessarily represents objects in *space* and in *time*. The first condition that needs to be fulfilled to represent an object is therefore that the sensations the affecting object generates are ordered into space and time. Ordering sensations into space and time generates *intuitions*, or *empirical intuitions*, to be precise (219-20). Space and time themselves – the forms of the sensible faculty – are *pure* intuitions (A20/B34-5). Placing sensations into space and time is necessary to represent objects, but it is not sufficient. If we would only order sensations into space and time, we would represent objects, but we would only represent *appearances*, not *phenomena* (*KCJ*: 24). The relation between appearances en phenomena becomes clearest if we look at an example. Imagine the situation in which I have never seen a house in my entire life, and now see one for the first time. In this situation, I will see the house, but I will not see the house *as* house. I will see a collection of shapes and colours, but this is something different than seeing the house *as* house. Empirical intuitions *alone* would only provide us with such representations of shapes and colours, not with a representation of a house 'as house'.[7] For this reason, intuitions in themselves do not have a real connection to an object. Intuitions represent an object, but they do not represent it '"as" object' (24).

What is it that provides intuitions with a connection to an object 'as object'? This is what a *concept* does. Let us return to the house-example. Most of us will, when we see a house, see the house *as* house. The reason for this is that most of us have formed the *concept* 'house'. Because we have formed the concept 'house', houses are given to us as *phenomena*. An

[6] See again A320/B376-7.

[7] Longuenesse discusses this particular example at *KCJ*, p. 117-8 and a similar example at *ibid*, p. 25.

empirical concept like 'house', Kant thinks, expresses a so called empirical *schema*. A schema that belongs to an empirical concept is a kind of 'rule' that tells me which features an object that can be thought under this concept has. Here, one should not think of some explicit, discursive rule, but something that we could call a 'sensitive rule of thumb'. Kant himself gives the example of the schema of the concept 'dog':

> The concept of a dog signifies a rule in accordance with which my imagination can specify the shape of a four-footed animal in general, without being restricted to any particular shape that experience offers me or any possible image that I can exhibit *in concreto*. (A141/B180)

If I am given the intuition of a house, the schema of 'house' will lead me to expect the house to have certain features, because – as a rule of thumb – houses have these features. It will make me concentrate on certain marks of the house, and will make me ignore others (*KCJ*: 118). I will expect the house to have a backside, a roof and an entrance, and I will expect it to be impossible to walk through its walls. This is what it means to represent a house *as* house. When I see a house *as* house, the shapes and colours given to me in intuition become part of the house *as* object. The concept 'house', or – rather – the schema this concept expresses, thus provides the intuition with a relation to an object *as* object.[8] It relates the intuition to a phenomenon (24-5). This what Kant means when he says:

> But there are two conditions under which alone the cognition of an object is possible: first, **intuition**, through which it is given but only as appearance; second, **concept**, through which an object is thought that corresponds to this intuition. (A92/B125)[9]

[8]Another example that might be helpful to understand the working of empirical schemata is the duck-rabbit picture Wittgenstein famously uses in his *Philosophical Investigations*. If we would neither have the concept of 'rabbit', nor the concept of 'duck', all we would see in this picture would be a collection of lines. Because we have developed the concepts of 'rabbit' and 'duck', however, we are capable of seeing both a duck and a rabbit in this picture. If we bring the sensibly given lines under the concept of 'rabbit' this makes us see certain lines in the picture as the long ears we expect the rabbit to have. If we bring the intuition under the concept 'duck', on the other hand, we take those same lines to be the beak we expect ducks to have. This example shows that what we perceive is underdetermined by what is sensibly given, and that our perception is partly determined by concepts.

[9]See *KCJ*: 20-6.

We now understand in which sense concepts are necessary to relate intuitions to objects. The question we are trying to answer in this section is why the *categories* relate to objects. To understand this, we need to consider under which conditions *forming* empirical concepts and the empirical schemata these empirical concepts express is possible (*KCJ*: 51n.).[10] The schema that belongs to the concept 'house', we saw, makes me expect certain things about objects I recognize as houses. However: to have such expectations, I must have seen a considerate amount of houses before (117-8). Now the problem is that if all that would be given to me were intuitions of a house, no representation of a house *as* house would be given to me. I would, therefore, not be able to have any repeated observations of houses *as* houses either, and thus I would not be able to form the schema of a house (44-7). As I do have formed empirical schemata, the question is what has enabled me to acquire those schemata.

I will start with a brief answer to this question. What is necessary to form empirical schemata, Longuenesse thinks, is an activity Kant calls *figurative synthesis* or *synthesis speciosa*. This activity consists in an "effect" the understanding has on sensibility (B125). In section 2.5, I will say more about figurative synthesis. For now, we are interested in the *result* of this synthesis. Due to the activity of figurative synthesis, we do not represent objects as mere appearances before we have formed empirical concepts. Before we have formed empirical concepts, we already represent some sort of phenomena. If I have not yet formed the concept 'house', then still some sort of house will be given to me by figurative synthesis. My representation of the house might not be as clear as that of a person who does possess the concept 'house', but at least I represent some *object*.[11] We could call this object

[10] Here, I present Longuenesse's theory slightly differently that she herself does. Longuenesse suggests that Kant provides a theory about how concepts are formed (see, for instance, *KCJ*: 51n.; 111-22). I do not think this is the case, or at least I do not think Longuenesse provides a successful reconstruction of such a theory. A theory that explains how concepts are formed should provide us with necessary and sufficient conditions for concept formation. This is not what Kant, according to Longuenesse's reading, provides us with. What Kant presents are certain *necessary* conditions for concept formation. For Longuenesse's reconstruction of Kant's arguments, this suffices. As we will see, she aims to show that the categories are necessary conditions for concept formation.

[11] Longuenesse does not explicitly explain these points in this way. That this is how she sees this we can infer, in particular, from her analysis of the A-Deduction (esp. *KCJ*: 38-52) in combination with her interpretation of Kant's ideas about concept-formation (esp. *ibid*: 115-22). Kant does not use the notion 'figurative synthesis' in the A-Deduction. Longuenesse thinks, nevertheless, that the synthesis Kant describes in the A-Deduction is figurative synthesis (this follows from her ideas on the relation between the A- and the B-Deduction, see esp. *KCJ*: 59-63. She explicitly equates Kant's description of synthesis

a 'proto-phenomenon'.[12] Representing houses as proto-phenomena enables us to encounter a great number of these objects, to compare them, and to abstract certain common features that will eventually form the schema of 'house'. These ideas help understand one of Kant's puzzling remarks in the Metaphysical Deduction:[13]

> Prior to all analysis of our representations these must first be given, and no concepts can arise analytically as far as **the content is concerned.** The synthesis of a manifold, however, (whether it be given empirically or a priori) first brings forth a cognition, which to be sure may initially still be raw and confused, and thus in need of analysis; yet the synthesis alone is that which properly collects the elements for cognitions and unifies them into a certain content [...] (A77-8/B103)

Figurative synthesis provides us with cognitions that may "still be raw and confused". These representations I have called the 'proto-phenomena'. Analysis is the process by means of which we compare these proto-phenomena and form an empirical schema on the basis of them. This enables us to bring these proto-phenomena under an empirical concept.

We now see why intuitions only acquire a real relation to an object by means of a concept. Moreover, we see that empirical concepts themselves are made possible by the act of figurative synthesis. To understand what provides the *categories* with a relation to an object, we have to look at another dependency relation: *concepts* themselves need *intuitions* to relate to objects.

To be a concept, Kant thinks, a representation needs to fulfil one demand: the representation needs to be *general*. This means that it needs to express a mark that multiple representations can have in common. This mark must be 'contained in' these representations, like 'red' is contained in the representation of a tomato.[14] For a concept to be a concept, it suffices that it represents a mark several other *concepts* have in common. For a concept to be related to an *object*, however, the concept must *also* express a mark that multiple *intuitions* can have in common.[15] The reason for this

in A-Deduction with 'figurative synthesis' at *ibid*: 35-6).

[12] My terminology.

[13] See also Longuenesse, 1998b: 150-2

[14] This example I derive from Wolff (1995): 65-6. Longuenesse uses a similar example in Longuenesse, 1998b: p. 136.

[15] Here I combine an explanation provided by Schulthess (1981: 112-7) with an explanation Longuenesse provides at *KCJ*: 88 footnote 16.

is that objects can only be given to us by means of an intuition. If a concept relates to an object, it relates – by definition – to an object *given in intuition*.

So: to relate to an object, a concept must express a common mark of various objects given in intuition. Such a common mark must be 'contained in' the intuition. Now Wolff (1995) points out that intuitions can have different kinds of 'contents' (Longuenesse sees this similarly: see Longuenesse, 1998b: 136-7, but she does not provide such a systematic overview). For this reason, different kinds of 'objective' concepts are possible. First, concepts like 'red' are objective. Objects given in intuition contain *matter*, which is given to us by means of sensations. A concept like 'red' is objective, because it expresses the matter that is contained in certain objects given in intuition. Second, geometrical concepts like 'round' are objective. The fact that objects are given in the pure forms of space and time provides these objects with a kind of content too: it provides them with certain spatial and temporal marks. This provides concepts like 'round' with a relation to an object. The categories form the third kind of objective concepts. Objects can have a third kind of content: "transcendental content" (A79/B105). This content is generated because the objects that are given to us are partly generated by figurative synthesis. This too provides these objects with certain marks.[16] The reason the categories have a relation to an object, is that they express those aspects of objects that are generated by figurative synthesis: As Kant says: "**pure synthesis, generally represented,** yields the pure concepts of the understanding." (A79/B104) (Wolff, 1995: 67-9)

We now see what the complex interaction between intuitions, concepts and categories consists in. Intuitions only relate to *phenomena* because of *concepts*. Concept formation is again made possible because the activity of figurative synthesis provides us with what I have called 'proto-phenomena'. Figurative synthesis provides these proto-phenomena and the phenomena we form on the basis of them with certain marks. Concepts relate to objects because they express a mark that various objects can have in common. This enables us to answer our main question: The categories relate to objects because they express those marks that are generated by figurative synthesis (see Figure 1).

[16] What these marks are will become clearer later on.

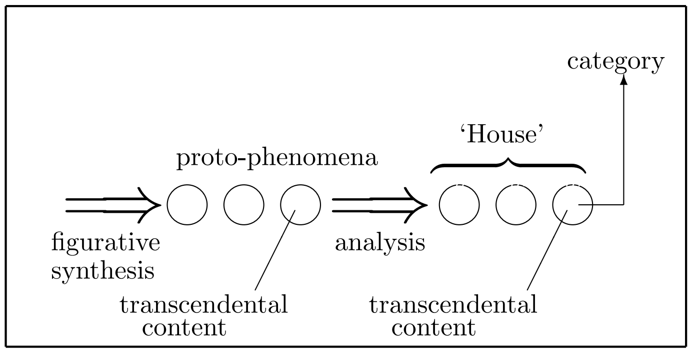

Figure 1

1.3 Forms and Functions of Judgment

We now understand what provides the concepts of the understanding, the categories, with a relation to an object: The categories express those marks of objects that result from the act of figurative synthesis by means of which the understanding helps generating these objects. We do not yet grasp, however, what the relation between the logical forms of judgment and the categories consists in. To understand this, we need to have a closer look at these logical forms.

The reason Kant derives the categories from the logical forms of judgment, is that, for some reason, these logical forms can tell him which categories there are. Why would this be the case? The categories, we saw, express the result of the act of figurative synthesis. According to Longuenesse, Kant reasons as follows: If we want to know which categories there are, it is important to know how this act of figurative synthesis functions. If we know more about this act, it might become possible to say which concepts express the results of this act. Now Kant believes, for some reason, that the table of logical judgment forms provides us with information about the act of figurative synthesis. In this section and the following, we will see why this would be the case.

The act of transcendental synthesis, we saw in section 1.2, is an act that is exercised by the *understanding*. According to Kant, the understanding can only exercise particular types of acts. Kant's idea seems to be that if we can get a systematic overview of the types of acts the understanding can perform, this will provide us with an overview of possible acts of figurative synthesis. The Table of Judgments, Longuenesse thinks, provides us with a systematic overview of the acts the understanding can exercises. How exactly she sees this, however, she does not make very clear. Some ideas that, I think, underlie Longuenesse's theory are explained very clearly by Wolff (1995).[17] In this section, I will explain these ideas. This will help us understanding Longuenesse's interpretation.

How does Kant provide us with a systematic overview of types of acts the understanding can perform? According to Kant the only act the understanding can perform is *judging*. Kant says: "[T]he cognition of every, at least human, understanding is a cognition through concepts" (A68/B93). The understanding, however, "can make no other use of these concepts than that of judging by means of them" (A68/B93) (Wolff, 1995: 105). The act of judging is the act we perform in what Kant – in the *Dissertation*, but also in the *Critique* – calls the "logical" use of the understanding. The understanding can only judge, but we can judge in different ways.[18] *Within* the act of judging, moreover, we can perform certain other acts. Actions in general often 'contain' other acts. The act of cycling, for instance, 'contains' the acts of steering and moving one's legs (22).[19] The act of judging, like the act of cycling, is a complex act that contains certain other, elementary acts (27). Kant wants to give a systematic overview of the *elementary* acts the understanding can exercise within the act of judging.

Kant partly acquires this systematic overview by looking at the *result* of the act of judging. The result of the act of judging is a *judgment*: a certain linguistic object. Judgments as linguistic objects have a certain *logical form*. The logical form of a judgment is what we get if we abstract from the content of the concepts contained in it (121). A judgment like 'All mammals are mortal' has the same logical form as the judgment 'All humans are rational'. The form of both judgments, however, differs from the form of the judgment 'If an animal gets no food, it dies'. We can distinguish between *complex* and *elementary* forms of judgment. What we get if we abstract from the content of the concepts contained in a certain judgment, is the *complex* logical form of that judgment. The complex logical form of a judgment contains different 'moments'. The judgment 'All mammals are mortal' has the complex logical form of a universal, affirmative, categorical, assertoric judgment.[20] The 'moments' contained in this form are the universal logical form, the affirmative logical form, the categorical logical form and

[17] Wolff's (1995) main project is to provide a reconstruction of Kant's completeness proof for the table of judgments. I will not, here, evaluate Wolff's project. The reason I discuss Wolff is that, in the course of his project, he provides a very clear analysis of certain aspects of Kant's thought.

[18] What these ways are will become clearer later on.

[19] Wolff's example.

[20] For an explanation, see Introduction, footnote 3.

the assertoric logical form. These logical forms are *elementary* logical forms. Kant's Table of Judgments lists the twelve possible *elementary* logical forms of judgments (12). The table divides these twelve forms into four groups: the quantitative, the qualitative, the relational and the modal logical forms.

Kant's table of twelve elementary judgment forms provides him with what he is looking for: a systematic overview of the possible elementary *action*-types performed in judgments. The table of judgment forms can fulfil this function, because it is supposed to be complete. Wolff believes that the Metaphysical Deduction provides a completeness proof for this table. Here, I will not discuss Wolff's reconstruction of Kant's proof. What is of interest to us is the following: assuming that the table of judgment forms is complete, why would it provide us with a systematic overview of possible action-types the understanding can perform?

This, Wolff explains as follows. The act of judging is a complex action that 'contains' certain elementary actions. The elementary action-types that can be exercised within the act of judgment Kant calls *functions of the understanding*. The action of judging itself, Kant calls a *function* too. The action of judging we can regard as a *complex* function that contains certain elementary functions (26-27). Within one judgment-act, we can exercise different elementary functions. Now the idea is that the elementary functions we can exercise in the act of judging stand in a one to one correspondence to the elementary logical *forms* a judgment as linguistic object can contain. Just like there are twelve elementary forms of judgment, there are twelve elementary functions of the understanding we can exercise in judgment. The idea is that the elementary functions we exercise in a judgment determine the logical form of the resulting judgment. If the complex logical form of a judgment contains a certain elementary logical form, this means that in forming this judgment, we exercise the corresponding function (20). So, in forming the judgment 'All mammals are mortal', we exercise the universal function, the affirmative function, the categorical function, and the assertoric function.

Like the elementary judgment forms, the elementary functions are divided into four groups: the quantitative, the qualitative, the relational and the modal functions. We can make the idea of 'functions we exercise within the act of judgment' slightly more concrete by having a closer look at Wolff's analysis of the functions this thesis is concerned with: the *quantitative* functions. The different acts we exercise within the act of judging consist in different *uses* we make of *concepts* in judgments (105-6). In the judgment 'All humans are mortal', for instance, the concept 'humans' is used differently than the concept 'mortal' is. The concept 'mortal' is *predicated* of the concept 'humans'. This already provides us with two different ways in which a concept can be used: the concept 'rational' is used 'predicatively, the concept 'humans' is used 'non-predicatively' (80-1). Now the idea is that we can use concepts in a 'quantitative', a 'qualitative', a 'relational' and a 'modal' way. The *quantitative* functions of the understanding all consist in *predicative* uses of concepts in judgments. In the predicative use of concepts, we order the non-predicatively used concept under the predicatively used one. This act can again be exercised in three different ways: We can order '*this* human', '*some* humans' or '*all* humans' under the concept 'mortal'. This provides us with three different 'elementary' ways of using concepts in judgments (77). These uses are what the quantitative functions consist in. The qualitative, relational and modal functions can also be understood as specific uses we make of concepts in judgments.

The role of Kant's Table of Judgments is now getting slightly clearer. The table provides us, first, with the twelve possible elementary results of the act of judging: the twelve elementary logical *forms* a judgment can have. More importantly, however, it provides us with the twelve elementary acts that can be exercised in judging: the elementary *functions* of the understanding. As the understanding can only judge, this provides us with a systematic overview of acts the understanding can perform. Kant, we saw, needs such a systematic overview to get insight in the act of figurative synthesis. Because figurative synthesis is an activity the understanding exercises, and the understanding can only perform actions that are contained in the act of judging, figurative synthesis and judgment must somehow be closely related. In the next sections, we will see what their relationship consists in.

1.4 Judgment and Objectivity

To get insight into the relationship between the activity of judging and figurative synthesis, we need to look at a specific aspect of the act of judging. This aspect of judging is its *objectifying role*. In the Transcendental Deduction (B-edition), Kant defines judgments as follows: "a judgment is nothing other than the way to bring given cognitions to the **objective** unity of apperception." (B141)[21] This definition, Longuenesse thinks, expresses the objectifying role Kant assigns to judgments.

[21] As I said before, Longuenesse assumes the A- and B-Deduction complete each other (see footnote 5). According to Longuenesse, the A-Deduction explains why synthesis is necessary to represent empirical objects, whereas the B-Deduction links this idea to judgment and the logical forms in a more explicit way. The fact that, in the A-Deduction,

To understand what the 'objectifying' role of judgment consists in, we must first note that not everything that we might call a judgment confirms to Kant's definition of judgment. Only if concepts are combined according to certain (complex) logical forms they "bring given cognitions to the objective unity of apperception". The table of judgments only lists the elementary logical forms that such judgments can contain.

We can see what distinguishes Kant's judgments from other sentences by looking at an example. First, consider the sentence 'I hold this stone and I feel warmth'. A sentence like this expresses a combination of two representations (the representation of the stone and the representation of warmth), but it expresses a *subjective* combination. It expresses that the representations 'stone' and 'warmth' are combined in *my* consciousness (consciousness is an aspect of apperception). Now compare this judgment with a Kantian judgment like "Bodies are heavy" (Kant's example in B142). This judgment, contrary to the previous one, expresses that the representations 'body' and 'heavy' are connected in an *object* (*KCJ*: 88-9). It expresses, therefore, that the representations 'body' and 'heavy' are combined independently from me. It states that this combination holds not just for *my* consciousness, but for *any* consciousness. Not just for me, but for anyone (88). This is typical for what Kant calls judgments: Judgments express an *objective* unity of representations, not a mere subjective one.

Now what is important to note, is that the objectivity of a judgment relies on its *form*. We need to distinguish, therefore, between the objective form of a judgment, and the 'matter' of that judgment. A judgment that has an objective form may not be true. If I have only encountered white swans, I might form the judgment 'All swans are white'. This judgment is false, but it is an objective judgment as to its form. The material 'filling' of the form of a judgment depends on accidental empirical circumstances, in this case: the circumstance that I have never encountered a black swan. Still, the judgment 'All swans are white' expresses that the concepts 'swan' and 'white' are related this way not just for me, but for everyone. In this sense, the judgment still is 'objective' (82-3).

We can now see what the 'objectifying' role of the activity of judging consists in: The activity of judging generates judgments with the logical forms which link concepts to objects.

---

the connection between synthesis and the logical forms of judgment remained unclear is the main reason Kant rewrote the argument (33-4).

1.5 Sensible Forms of Objectivity

We now see that there is a relationship between logical form and objectivity. The objectivity of judgments is due to their *form*. Now Longuenesse thinks that the sensibly given 'proto-phenomena' are made possible by certain *forms* too. Recall the house example, and again imagine we see the house for the first time in our lives. The house will be given to us by means of an intuition. This intuition will only provide us with a certain aspect of the house: its front, for instance. Other aspects of the house can be given to us as well. If, for instance, we walk around the house, this will provide us with intuitions of the other sides of the house. The problem is, however, that merely perceiving the aspects of the house does not – in itself – make us represent the house as an object (as a 'proto-phenomenon'[22]). If we only perceive those various aspects, we represent those aspects, but we do not represent them as the various aspects of *one* object. This, however, is what is required to represent the house as object. Kant makes this point when stating:

> Without consciousness that that which we think is the very same as what we thought a moment before, all reproduction in the series of representations would be in vain. For it would be a new representation in our current state, which would not belong at all to the act through which it had been gradually generated, and its manifold would never constitute a whole [...] (A103)[23]

Now how can a "series of representations" ever "constitute a whole"? How can we represent the various aspects of an object as the aspects of one object? We will only represent the various aspects of an object as forming a "whole", if we take a combination of those representations to be in some sense *necessary*, not arbitrary. We must take our representations to belong together according to a *rule*.[24] This idea has to do with Kant's ideas about the relationship between objects and concepts. In section 1.2, we saw that we only really represent an object 'as object' (as phenomenon) if we have developed an empirical concept and the empirical schema belonging to that concept. The schema of an empirical concept, we saw, is a kind of 'rule'

[22]Remember that the term 'proto-phenomenon' is mine, not Kant's or Longuenesse's.

[23]*KCJ*: 44-7

[24]Again, Longuenesse does not explicitly explain this in the way I do. That this is how she sees this can be derived from her discussion of the A-Deduction (esp. *KCJ*: p. 38-56), her discussion of Kant's various notions of object (*ibid*: 109-11) and her discussion of Kant's ideas about concept formation (*ibid*: 115-22).

that tells us which characteristics we should expect from an object thought under this concept. Now if I represent an object as proto-phenomenon, this actually means that I take it to be possible to form an empirical schema on the basis of this object. This means that I take certain representations (my representations of the various aspects of the house) to belong together according to a rule.[25]

If I represent certain representations according to a rule, this does not yet provide me with an empirical schema. To acquire an empirical schema, I must first observe various proto-phenomena of a specific kind. Regarding certain representations as belonging together according to a rule, however, is necessary to represent these proto-phenomena. We could say that these proto-phenomena contain *potential* schemata or 'proto-schemata'. If we have encountered a considerate amount of proto-phenomena of a certain kind, we 'actualize' the schema they contain and acquire the corresponding concept (118-20).

So, if I take a combination of sensible representations to form an object, then I take the combination of these representations to be *necessary.* However: What makes me take a combination of sensible representations to be necessary? This, Kant seems to say, I do by taking them to be representations of an *object*:

> We find, however, that our thought of the relation of all cognition to its object carries something of necessity with it, since namely the latter is regarded as that which is opposed to our cognitions being determined at pleasure or arbitrarily rather than being determined *a priori*, since insofar as they are to relate to an object our cognitions must also necessarily agree with each other in relation to it, i.e., they must have that unity that constitutes the concept of an object. (A104-5)

But this would mean that we represent objects because we link our representations to an object. This sounds circular. This explanation can become non-circular if we distinguish the various kinds of objects we have seen from a new kind of object: the *transcendental object.*[26]

[25] This I infer from *KCJ*: 44-7, although Longuenesse explains these points differently.

[26] Again, Longuenesse presents these points differently. That this is how she sees this, I derive from her discussion of the Analogies of Experience (in particular *KCJ*, p. 361-8), her discussion of the A-Deduction (esp. *ibid.* p. 38-52) and her discussion of Kant's various notions of 'object' (*ibid*: 109-11). In her discussion of the Analogies, Longuenesse explains why a seemingly circular argument in Kant's Second Analogy is not in fact

What I have called 'proto-phenomena' are, in essence combinations of sensible representations: of *appearances* (109). We want to explain how these proto-phenomena are generated. Now consider sensible representations A, B, C and D. Although a proto-phenomenon is a combination of sensible representations, not every combination of sensible representations is a proto-phenomenon. The idea is that representations A, B, C and D can only form a proto-phenomenon if I take the combination of these representations to be in some sense 'necessary'. What Kant seems to say in the above passage, is that what can bestow necessity upon a certain combination of representations is the "thought of the relation" of these representations to their "object". This object is a different kind of object: the *transcendental* object. Although proto-phenomena cannot be entirely given to us at once (we always see, for instance, only one side of the house), they are still given to us in the sense that the different representations they are built up from are given to us. The *transcendental* object, on the other hand, is not given to us at all. It is "an object corresponding to and therefore also distinct from the cognition" (A104). Kant says:

> It is easy to see that this object must be thought of only as something in general = X, since outside our cognition we have nothing that we could set over this cognition as corresponding to it.' (A104)

So, unlike the proto-phenomena, this "something in general = X" is not given to us at all. Now in what sense can representations A, B, C and D be said to have a relation to a transcendental object "X", if this object is not itself given to us? That what provides representations A, B, C and D with a relation to a transcendental object can only be some 'cognitive act':[27]

> It is clear, however, that since we have to do only with the manifold of our representations, and that X which corresponds to them (the object), because it should be something distinct from all of our representations, is nothing for us, the unity that the object makes necessary can be nothing other than the formal

circular by considering Kant's use of the notion 'object'. Here she does not explicitly link this explanation to Kant's notion of a *transcendental* object. In her discussion of the A-Deduction, however, she states that the 'necessity' that plays a role in the A-Deduction is clarified in the Analogies (see *ibid*: 49n.).

[27]The term 'cognitive act' I take from Longuenesse's discussion of the Second Analogy (see *KCJ*: 361). As I said in footnote 26, here I combine points Longuenesse explains at various points in her book.

> unity of the consciousness in the synthesis of the manifold of the representations. Hence we say that we cognize the object if we have effected synthetic unity in the manifold of intuition. (A105)

What makes a combination of representations A, B, C and D a *necessary* combination, is that I *take* each of the representations A, B, C and D to be representations of an object "X" not itself given to us. Taking A, B, C and D to be representations of an object "X", however, consists in a cognitive act. By means of this act, I effect "synthetic unity" in the manifold of the representations A, B, C and D. This is what combines these representations into a proto-phenomenon.

The cognitive act by means of which I link representations to an object $= X$ is, of course, the act of figurative synthesis. The act of figurative synthesis is similar to the act of *judging*. The act of judging, we saw in the previous section, consists in combining concepts in a way that links them to an object. The act of judgment links concepts to an object by combining these concepts according to the (complex) *logical* forms of judgment. In the act of transcendental synthesis, we do something similar. In transcendental synthesis, we combine sensible representations according to certain forms. We do not combine them according to the discursive logical forms of judgment but according to certain *sensible* forms (*KCJ*: 184-5). If we combine sensible representations according to these sensible forms, this links these representations to a transcendental object "X". This provides us with the objects I have called 'proto-phenomena'. It generates combinations of representations that contain 'potential' schemata. In judgment, we could say, we combine concepts according to *discursive* forms of objectivity. In figurative synthesis, we combine sensible representations according to *sensible* forms of objectivity.

1.6 Judgment and Time

We are now in the position to explain how Longuenesse thinks the relationship between the logical forms of judgment and the categories should be understood. In 2.1, we saw that the categories are 'objective' because they express specific marks various objects can have in common: they express those marks of objects that are generated by figurative synthesis. Figurative synthesis, we saw in 2.2, is an activity the understanding exercises. In section 2.3, we saw that the understanding can only exercise one type of act: judging. Judging, we saw in 2.4, is an *objectifying* activity: in judging we combine concepts according to the 'objective' logical forms of judgment.

In 2.5, we saw that figurative synthesis, like judgment, must consist in an objectifying activity. Because figurative synthesis is exercised by the understanding, and the understanding can only judge, judgment and synthesis must be closely related. The question is: what does their relation consist in?

In the Metaphysical Deduction, Kant states:

> The same function that gives unity to the various representations **in a judgment** also gives unity to the mere synthesis of different representations **in an intuition,** which, expressed generally, is called the pure concept of understanding. The same understanding, therefore, indeed by means of the very same actions through which it brings the logical form of a judgment into concepts by means of the analytical unity, also brings a transcendental content into its representations by means of the synthetic unity of the manifold of intuition in general, on account of which they are called pure concepts of the understanding that pertain to objects *a priori* [...] (A79/B104-5)

We now understand this passage to a certain extent. We know that the understanding "introduces a transcendental content into its representations by means of the synthetic unity of the manifold in intuition": in figurative synthesis, the understanding generates those marks of objects the categories express. This is transcendental content. So, in figurative synthesis, the understanding "gives unity to the mere synthesis of various representations *in an intuition*, and this unity, universally represented, we entitle the pure concept of the understanding": The categories express the "synthetic unity" the understanding generates.[28] The question is: what does it mean that "[t]he same function which gives unity to the various representations *in a judgment* also gives unity to the mere synthesis of various representations *in an intuition*"?

The first question we need to answer, is what Kant means when he says that "the same function" generates two kinds of "unity". The "function" Kant mentions in this passage is the complex function we exercise in the act of judging. The question is in what sense "the same" complex function that combines concepts into a discursive unity, can combine sensible representations into a certain unity.

It seems we can interpret this passage in at least two ways. One way we could interpret this passage is to say that in *actions* of synthesizing a

[28]See section 1.2.

sensible manifold, we exercise the same *kind* of action that we exercise in acts of judging. This would mean that Kant means by "the same function" that we exercise one type of action (function) *twice*: we exercise it in two distinct actions. (see Figure 2) Another possibility is that the act of judging begins 'earlier' than we might think. This would mean that synthesizing a sensible manifold and forming a discursive judgment consists – somehow – in *one* action, in which we perform one type of action (function) and exercise it *once* (see Figure 3).

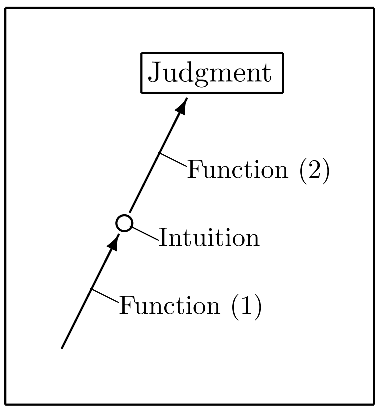

Figure 2

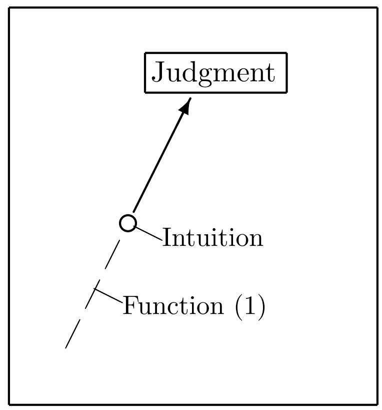

Figure 3

Longuenesse chooses the latter interpretation: 'Only insofar as we strive to form judgments (combinations of concepts) do we generate in the sensible given of intuition the forms of unity providing their content to the categories.' (*KCJ*: 201) What this means exactly will become clearer later on.

A second, related, question we need to ask, is what exactly the sensible objective forms i.e. the forms according to which we combine sensible representation in figurative synthesis, *are*. How can the understanding generate other forms besides the discursive forms of judgment? This question, Longuenesse thinks, Kant answers in §24 and §26 of the B-Deduction (185-6). The functions of the understanding *alone* would not be able to generate sensible objective forms. The understanding alone, Kant says, would only be able to perform a synthesis that is "purely intellectual" (B150). Such an intellectual synthesis (*synthesis intellectualis*) is the synthesis of concepts that takes place in judgment. However:

> [...] since in us a certain form of sensible intuition *a priori* is fundamental, which rests on the receptivity of the capacity for representation (sensibility), the understanding, as spontaneity,

> can determine the manifold of given representations in accord with the synthetic unity of apperception, and thus think *a priori* synthetic unity of apperception of the manifold of **sensible intuition** [...] (B150)

The understanding does not generate the sensible forms of objectivity on its own, but it generates these forms in cooperation with the sensible faculty, with the "form of sensible intuition *a priori*". The understanding has an "effect" on sensibility (B152). The understanding generates the sensible forms of objectivity by affecting the *a priori* forms of sensibility.[29]

The sensible forms figurative synthesis generates are forms by means of which we take sensible representations to be standing in *one objective time*, and – by means of that – in one objective *space*.[30] To understand this, we must first note that there is a difference between 'objective' and 'subjective' time. Kant calls time the form of "inner sense". This means, basically, that for us to become conscious of a representation, it must be placed in time.[31] So, for me to become conscious of the various sides of a house, I must successively represent each of these sides. This process necessarily takes place in time: I must represent each side at a different moment. Now time as form of inner sense should be distinguished from 'objective' time. That the various sides of a house are successively given to me, does not imply that these sides 'objectively' succeed each other. Objectively, these various sides all exist at the same time. For this reason, we should distinguish between *objective* and *subjective* temporal relations among our sensible representations.[32]

Now Kant's idea is that without figurative synthesis, I would not represent objective temporal relations. There would be no distinction between the situation in which I successively perceive the various aspects of a house, and the situation in which I perceive, for instance, the successive states of a

[29] These points I infer from Longuenesse's analysis in *KCJ*, chapter 8 (in particular: p. 216-8 and p. 241n.)

[30] Longuenesse does not say this very clearly. That this is how she sees this, I infer from *KCJ*, chapter 8, in particular p. 241n., from *ibid*: p. 184-5 and from *ibid*: p. 324. How exactly Longuenesse sees the relationship between time and space remains slightly unclear.

[31] See Hannah (2005) p. 260-1 for an enlightening discussion of this point.

[32] "The apprehension of the manifold of appearance is always successive. The representations of the parts succeed one another. Whether they also succeed in the object is a second point for reflection, which is not contained in the first." (A189/B234) Kant discusses the example of the house in the Second Analogy, see A190-1/B235-6. See *KCJ*, p. 240-1, p. 302-1 and chapter 11 (esp. p. 358-63 and 387-8) for Longuenesse's explanation of these points.

moving ship. The objective sensible forms according to which we combine sensible representations in figurative synthesis consist in *objective* temporal relations like *succession* and *simultaneity*.[33] Combining sensible representations in sensible synthesis consists in taking these representations to be standing in such objective temporal relations. Transcendental synthesis makes me take the different sides of a house to exist *simultaneously*, whereas I take the different representations of a sailing ship to be *successive* states of that ship.[34]

An interesting result of this is that transcendental synthesis can also provide us with *deceptive* perceptions. In judgments, we saw, we had to distinguish between the objective form of that judgment and its subjective 'filling'. For the sensible forms, we need to make the same distinction. We have to distinguish between the objective *form* that temporal relations have, and the subjective filling of these forms. According to Longuenesse, even deceptive experiences are a result of 'filling' *objective* sensible forms. That I first see lightning, and then hear thunder, for instance, is the result of the fact that I have 'filled' the objective temporal form 'a succeeds b' with my representations of lightning and thunder (184-5). Even though our representation of objective temporal relations may in some cases lead to deceptive experiences, representing such objective temporal relations is a condition for the acquisition of more reliable experience. If we would not represent objective temporal relations, we would not have experience at all.

So: the sensible objective forms consist in objective temporal relations. Now what exactly is the relationship between these temporal relations and the categories? In section 2.2, I stated that the categories express the 'result' of figurative synthesis. According to Longuenesse, the result of figurative synthesis has different aspects.[35] The *transcendental schemata*, or "transcendental time-determinations" (A139/B197) that Kant introduces in the Schematism-chapter form the various aspects of the result of figurative synthesis (245). The different categories express these different aspects of the result of figurative synthesis. In the next chapter, we will have a closer look

[33]This I infer from *KCJ*: 185. Kant discusses the ship-example at A192-3/B237-8.

[34]Some readers may ask whether this is not only the task of one specific group of categories: the categories of Relation. This is correct. However, as figurative synthesis *in general* always *contains* an act of synthesis according to the categories of Relation (among other acts of synthesis), objective temporal relations form the *general* result of figurative synthesis. I will say more about this point in the next chapter.

[35] Longuenesse does not explicitly say this, but it follows from the fact that she says that the act of figurative synthesis has various aspects (*KCJ*: 241; 245) and that the transcencental schemata are 'specific results' of figurative synthesis (*ibid*: 245). It also becomes clear from her analysis of the various acts of synthesis (see *ibid*: chapter 9-11).

at this idea.

1.7 The Categories and the Logical Forms

We are now, finally, in the position to see how Longuenesse understands the relationship between Kant's two tables: his 'Table of Judgments', and his category table. The Table of Judgments, we saw in section 2.3, not only lists the twelve elementary logical forms of judgments, but also the twelve logical *functions* of the understanding. The logical functions of the understanding are the twelve elementary types of actions the understanding can perform. The understanding applies these functions when it combines concepts according to the logical forms of judgment. Before the understanding applies its functions in combining concepts, however, these functions affect sensibility in figurative synthesis. This figurative synthesis generates the very objects about which we can form judgments.

According to Wolff, we saw in section 2.3, Kant sees the act of judgment as a complex act that 'contains' various elementary actions. In judgment we exercise a complex function that consists of various elementary functions. Although Longuenesse does not explicitly say this, her idea seems to be that the act of figurative synthesis should be seen as a *complex* act too. This complex act of synthesis, 'contains' various elementary acts of synthesis. These elementary acts generate the different transcendental schemata: the different aspects of the result of transcendental synthesis. Kant's categories express these transcendental schemata. In the next chapter, we will have a closer look at the various elementary acts of synthesis. First, however, we will consider why Longuenesse's general interpretation has raised criticism.

1.8 Friedman's Criticism

We now understand how Longuenesse sees the relationship between the logical forms of judgment and the categories. Also, we understand how she interprets the idea that the categories are "*a priori* conditions of the possibility of experiences" (A94/B126). Longuenesse's ideas about the relationship between the categories and the logical forms lead her to adopt a quite specific interpretation of the first *Critique*. She understands Kant's claim that the categories are "*a priori* conditions of the possibility of experiences" in a quite specific way.

To understand the relationship between the logical forms of judgment and the categories, Longuenesse uses a quite specific interpretation of the notion 'category'. What makes experience possible are the *functions of the understanding*. These functions affect sensibility, and this enables us to represent objects. In as far as the categories make experience possible, therefore, they are *not* the categories Kant lists in his Table of Categories: concepts like 'cause', 'substance' or 'unity'. They are not the categories as 'full-fledged concepts', as Longuenesse calls them (*KCJ*: 12). The categories as full-fledged concepts only express the result of synthesis: that what is generated when the functions of the understanding affect sensibility (244-4).

Friedman (2000) points out that Longuenesse does not only interpret the notion 'category' in a special way. She also uses a quite specific interpretation of Kant's conception of *experience*. Longuenesse assumes that in the *Critique*, Kant still uses the same notion of experience as he does in the *Dissertation*. Experience arises, simply, when we bring the objects given to us under concepts (213[36]). The categories make experience possible because they warrant that objects are given to us in such a way that they can be brought under concepts.

Friedman criticizes Longuenesse's interpretation. According to Friedman, Longuenesse's interpretation leads her to adopt a too empiricist reading of Kant (204). This becomes clear, among other things, from her interpretation of Kant's notion of experience. Friedman denies that Kant's notion of experience in the *Critique* can be equated with his conception in the *Dissertation* (213). In the *Critique*, Kant uses a much stronger conception of experience. Experience is *scientific knowledge*. The categories make experience possible because they make scientific knowledge possible.

In which sense do the categories make scientific knowledge possible? The categories provide us with so-called *a priori principles*. These are the principles Kant presents in his System of Principles, such as "All alterations occur in accordance with the law of the connection of cause and effect" (B232) and "All substances, insofar as they can be perceived in space as simultaneous, are in thoroughgoing interaction" (B256).[37] Experience arises when we link our empirically formed judgments to these principles in a systematic way (Friedman, 2000: 213-4). When we do this, we form judgments that are not merely empirical, but *genuinely* scientific (213).

Linking our empirical judgments to the a priori principles we must do

[36]See *KCJ*: 26.

[37]A-edition: "Everything that happens (begins to be) presupposes something which it follows in accordance with a rule" (A188) and "All substances, insofar as they are **simultaneous,** stand in thoroughgoing community (i.e., interaction with one another" (A210).

in a specific way. Friedman (1992a) provides a detailed discussion of this procedure. By combining the a priori principles with empirical concepts, we can generate judgments with a so-called 'mixed' character (174). Such judgments are empirical in one sense, but necessary and a priori in another (*ibid*). This provides these judgments with a very special status. The purely a priori principles of the understanding we can regard as a collection of highly abstract rules (185). These rules are abstract in the sense that they apply to a large collection of objects[38], namely to all 'interacting spatial substances' (186). By combining these a priori principles with empirical concepts we can generate judgments that hold for a smaller collection of objects, but that are still necessary for that collection of objects. Examples of judgments that can be formed in this way are Newton's laws of motion (185-6). These laws can be formed by combining the a priori principles with the empirical concepts 'matter', 'impenetrability' and 'weight' (185). Newton's laws are just as necessary as the a priori principles, but they apply to a more restricted domain. They only apply to 'non-living, purely material substances' (186). Other empirical laws can acquire a status similar to the Newtonian laws of motion if we find a similar way of linking them to the a priori principles (*ibid*).[39]

Friedman's theory makes clear we can interpret Kant's statement that the categories are "*a priori* conditions of the possibility of experiences" in a different way than Longuenesse does. What, however, is it that makes Longuenesse's interpretation 'empiricist'? The empiricist character of Longuenesse's interpretation becomes clearest if we compare her ideas about how scientific knowledge arises to those of Friedman.[40]

Longuenesse does not deny that, in some parts of his work, Kant discusses the possibility of what we might call experience 'in the strong sense': scientific knowledge. This Kant does, for instance, in the *Prolegomena*.[41] In the *Prolegomena*, Kant distinguishes between what he calls "judgments of experience" and "judgments of perception". Judgments of perception are of "subjective validity only" (*Prolegomena*, §20, Ak. 4: 300). Judgments of experience have "objective validity" (298). Kant's clearest example of a

[38] Friedman says this in a slightly different way.

[39] These ideas Friedman infers from various passages in Kant. He considers, in particular, the *Prolegomena* and the *Metaphysical Foundations of Natural Science*.

[40] Here, I provide a more elaborate explanation of the point Friedman (2000) makes at p. 211.

[41] The *Prolegomena to any Future Metaphysics* is a work Kant published in 1783, between the two editions of the *Critique*. In this work, Kant attempts to provide a summary and clarification of the *Critique of Pure Reason*.

judgment of perception is the judgment "when the sun shines on the stone, it grows warm" (301n.). This judgment he contrasts to the judgment of experience "the sun warms the stone" (*ibid*). If we follow Longuenesse's interpretation, Kant's distinction seems puzzling. According to Kant, the judgment 'when the sun shines on the stone, it grows warm' is only subjectively valid, as it is a judgment of perception. This is strange. The judgment has an *objective* logical form. The judgment expresses that the representations 'sun', 'stone' and 'warm' are combined objects. As we saw in section 1.4, Longuenesse thinks such judgments are to be distinguished from a judgment like 'I hold this stone and I feel warmth'. According to Longuenesse's interpretation, therefore, the judgment 'when the sun shines on the stone, it grows warm' is *objective*. How is this possible?

Longuenesse explains the difference between the *Critique* and the *Prolegomena* by pointing out that in the two works, Kant considers judgments from different perspectives (*KCJ*: 170-88). I will not discuss what this difference consists in. What is important to us is that her analysis makes clear that she distinguishes between judgments that are 'objective' in a weak sense, and judgments that are 'objective' in a strong sense.[42] A judgment is objective in the weak sense when it has an 'objective' logical form. Both judgments of perception and judgments of experience are objective in this weak sense. Judgments of experience, however, also are objective in a stronger sense.[43] What does this strong sense of objectivity consist in?

The difference between judgments of experience and judgments of perception, Kant states, is that in judgments of experience we apply a category. What distinguishes the judgment "when the sun shines on the stone, it grows warm" from the judgment "the sun warms the stone" is that in the latter judgment we apply the category *cause* (*Prolegomena*, §20, Ak. 4: 301n.). The second judgment expresses that the sun *causes* the warming of the stone, the first judgment does not do this.

Kant's explanation suggests that the application of a category can change a subjective judgment into an objective one. This is strange: why would the mere application of a concept change the status of a judgment? (*KCJ*: 168) Longuenesse understands this in the following way. Under certain conditions we are *justified* to apply the categories as 'full-fledged concepts' in our judgments.[44] Because the categories – as functions of the understand-

[42]Longuenesse does not herself explain this distinction in terms of experience 'in the weak sense' and experience 'in the strong sense'.

[43]This becomes clear from *KCJ*: 183-6.

[44]That in the passages discussed, Longuenesse considers the application of the categories as full-fledged concepts becomes clear from *KCJ*: 166-8. See also *ibid*: 243-4.

ing – help generating empirical objects, we know a priori that those objects conform to certain principles: the a priori principles Kant lists in his System of Principles. We thus know, for instance, that "[a]ll alterations occur in accordance with the law of the connection of cause and effect". This a priori principle, however, does not tell us which causal connections there are. This, we can only find out empirically.[45] Now the idea is that if I observe for a few times that when the sun shines on a stone, that stone grows warm, I can judge 'when the sun shines on the stone, it grows warm'. This judgment is objective in the weak sense, but not in the strong sense. The judgment expresses that certain representations are combined in an object. However, it may very well be that every time *I* checked whether some stone grew warm when the sun was shining it did, even though there is no causal connection between the two events.[46] Only if I have formed the judgment 'when the sun shines on the stone, it grows warm' in a great many situations and have compared it to other judgments myself and others have formed, I am justified to conclude that there is a causal connection between the two events (177; 179). When I have compared my judgment to many others, I am justified to apply the category *cause* as a 'full-fledged' concept. My judgment of perception will then be transformed into a judgment of experience: 'the sun warms the stone' (179).

Longuenesse's analysis of the relationship between judgments of experience and judgments of perception shows that her interpretation is more empiricist than Friedman's. As Friedman points out, Longuenesse thinks that what enables us to transform our judgments of perception into judgments of experience are inductive methods (2000: 211). Friedman denies that induction can transform a judgment of perception into a judgment of experience. By means of induction only judgments of perception can arise (212-3). Judgments of experience can be *found* by means of inductive methods, but induction only does not provide them with the status of a judgment of experience. A judgment only acquires the status of a judgment of experience when it is systematically linked to the a priori principles. This we must do in the way described above (213-4). We must combine empirical concepts with the a priori principles. This method is *deductive* rather than *inductive* ('top-down' rather than 'down-top' (214)). Friedman emphasizes that Kant's ideas should be regarded as modifications of the metaphysical

[45] Longuenesse makes clear that the a priori principles make possible judgments of experience (*KCJ*: 182-3). Why this is the case, she explains later. This is what I take to be her explanation. This I infer, in particular, from *KCJ*: 368-70. See also Longuenesse, 2005: 41-3.

[46] This explanation I infer from *KCJ*: 184-6.

systems of his rationalist predecessors Leibniz and Wolff (1992b: Introduction (esp. p. 4)). Just like his rationalist predecessors Kant thinks scientific theories should be justified by a metaphysical system. Crontra these predecessors, however, he denies that scientific laws can be inferred a priori from such a metaphysical system. Scientific laws should be justified in the way described: by combining a priori metaphysical laws with empirical concepts.[47]

Friedman's criticism of Longuenesse's conception of the difference between judgments of perception and judgments of experience makes clear that Longuenesse's interpretation contains an empiricist element. We should wonder, however, whether calling Longuenesse's approach 'empiricist' and Friedman's approach 'rationalist' captures the main difference between their interpretations. I think the difference between the two interpretations is better captured by saying that Longuenesse reads Kant in a *cognitive* way, whereas Friedman reads him in an *epistemological* way. According to Longuenesse, Kant considers how our day to day experience of empirical objects is possible. According to Friedman, Kant wonders how scientific knowledge is possible. The question is whether these readings exclude each other. This I doubt. Longuenesse does not deny that Kant *also* wants to know how scientific knowledge is possible. To answer this question, however, we should consider how experience in the 'weak' sense is possible.[48] I think Friedman's criticism of Longuenesse's ideas about the way judgments of experience are generated is justified. I believe, however, it is possible to fit this part of Friedman's analysis into Longuenesse's theory.[49]

Although Friedman slightly exaggerates the differences between Longuenesse's interpretation and his own, his criticism of Longuenesse contains very interesting aspects. According to Longuenesse's cognitive reading, the categories as functions of the understanding enable us to bring objects under concepts. Friedman argues that this idea leads to various problems. It leads,

[47]That this is how Friedman sees this I infer from his claim that Kant thinks the a priori principles make experience possible in a 'top-down' manner (213) and from his analysis in Friedman, 1992b: Introduction, especially p. 15-24 and 34-47.

[48]See, in particular, *KCJ*: 183, footnote 31 and Longuenesse, 2005: 41-3.

[49]Longuenesse herself points out that Friedman considers a different aspect of Kant's ideas: 'in a way, my story ends where Friedman's begins' (Longuenesse, 2005: 52). As she says this in the context of Friedman's ideas about the categories of Quantity, I am not certain she would also say this about Friedman's ideas about judgments of experience and judgments of perception. I agree with Longuenesse that Friedman's story cannot be complete either. I agree with her that Friedman does not provide satisfactory account of what *justifies* the a priori principles (*KCJ*: 183, footnote 31. See also Longuenesse, 2005: 58).

among other things, to problems in Longuenesse's analysis of the categories of Quantity. Longuenesse applies her general theory to the various groups of categories. She explains how each category relates to the logical form it is derived from. This she does by showing that the aspect of figurative synthesis a certain category expresses makes possible the corresponding logical form. In the next chapter I will explain how Longuenesse applies this story to the categories of Quantity. In chapter three, we will see why Friedman finds this theory problematic.

1.9 Conclusion

In this chapter, I have explained Longuenesse's general theory. Contrary to most authors, Longuenesse thinks that, to understand why Kant's categories are "conditions of the possibility of experiences", we must consider the relationship of these categories to the logical forms Kant derives them from.

Experience arises when we think objects under concepts combined in judgments with an *objective* logical form. The logical forms Kant lists in his Table of Judgments are the elementary logical forms such an objective judgment can contain. Judgments are generated by the logical functions of the understanding. Each elementary function of the understanding generates one of the elementary logical forms. Therefore, the Table of Judgments contains two tables in one: a table of logical forms, and a table of *functions*.

To make experience possible, objects must be given to us in a way that enables us to bring them under concepts. This is warranted by *figurative synthesis*. In *figurative synthesis* the functions of the understanding affect sensibility. The understanding generates combinations of *sensible* representations, which provides us with proto-phenomena: empirical objects that can be brought under concepts. This also explains why the categories as 'full-fledged' concepts – the categories as Kant lists them in the category table – can be applied to empirical objects. In figurative synthesis, the functions of the understanding generate the transcendental schemata. These schemata form a special kind of marks of empirical objects. The categories as full-fledged concepts express those marks.

Longuenesse's interpretation of Kant, we saw, can be described as 'cognitive'. According to Longuenesse, Kant is mainly concerned with experience in a rather weak sense. Kant considers how our day to day experience of empirical objects is possible. Longuenesse's interpretation differs from Friedman's epistemological reading. According to Friedman, Kant only considers how scientific knowledge is possible.

In chapter 2, we will have a closer look at Longuenesse's theory. There, we will see how she applies her theory to the categories and logical forms of Quantity.

Chapter 2

Quantity

In the previous chapter I discussed Longuenesse's theory that we can only understand how the categories make experience possible by looking at the logical forms of judgment. In *Kant and the Capacity to Judge*, Longuenesse applies this general theory to three groups of categories: the categories of Quantity, the categories of Quality and the categories of Relation. In this chapter, we will see how she applies her theory to the categories of Quantity.

I will begin this chapter by explaining what Longuenesse means by 'quantitative synthesis'. Longuenesse distinguishes between 'quantitative', 'qualitative' and 'relational' synthesis. In section 2.1, I discuss the relationship of these different acts of synthesis to the act of figurative synthesis discussed in chapter 1. In 2.2, we will have a closer look at the different kinds of syntheses and see what 'quantitative' synthesis consists in. We will see that quantitative synthesis enables us to represent "manifolds" of representations. In 2.3 we will consider the logical forms of Quantity. As we will see, these forms are possible because quantitative synthesis enables us to represent collections of representations we think under the one concept. In 2.4, I discuss how the *schema* of Quantity is related to the act of quantitative synthesis and the logical forms of Quantity. I will show why we can regard this schema as being generated by the activity of quantitative synthesis that aims at making possible the logical forms of Quantity. In 2.5 we will consider how the categories of Quantity apply to different kinds of quantities, and consider the exact relationship between these categories and the logical forms of Quantity.

2.1 Elementary Syntheses

In chapter 1 we saw that, according to Wolff, the activity of *judgment* can be said to contain different 'aspects'. Within the act of judgment, we exercise a complex action which Kant calls a *function of the understanding.* This function of the understanding is a *complex* function. Within the complex act of judgment we exercise various elementary actions. These elementary actions are "functions" as well: *elementary* functions. There are, we saw, four kinds of elementary functions that can be exercised in judgment: *quantitative*, *qualitative*, *relational* and *modal* functions. Each of these functions can be exercised in three different ways.[1]

Longuenesse, we saw, thinks empirical objects (proto-phenomena and phenomena) are generated by *figurative synthesis.* Figurative synthesis, we saw, is an "effect of the understanding on sensibility". The complex logical function the understanding exercises begins 'earlier' than we might think. We do not start judging the moment we begin to form discursive judgments about empirical objects. The act of figurative synthesis that generates empirical objects should be seen as a part of the activity of judgment. The activity of figurative syntheses makes sure empirical objects are given to us in such a way that these objects can be brought under concepts combined in judgments.

In figurative synthesis the complex function of the understanding, with its four elementary functions, affects sensibility. Now within figurative synthesis, these elementary functions can be distinguished as well. Just like the activity of judgment, figurative synthesis is a complex act that 'contains' certain elementary actions. Both the complex act of figurative synthesis and the elementary actions it contains, Kant calls 'syntheses'. Following Wolff, we can call these acts 'elementary' syntheses. Just like there are four kinds of elementary logical functions, there are four kinds of elementary syntheses: quantitative, qualitative, relational and modal synthesis.[2]

The complex act of figurative synthesis warrants empirical objects are given to us in such a way that forming judgments about these objects becomes possible. The four kinds of figurative synthesis Longuenesse distinguishes: quantitative, qualitative, relational and (probably[3]) modal synthe-

[1]See section 1.3.

[2]As I said in chapter 1, footnote 35, Longuenesse does not explicitly explain these points in this way. From her analysis of the different acts of synthesis, however, we can derive that this is how she sees this. See *KCJ*, chapter 9-11. As Longuenesse only discusses the categories of Quanity, Quality and Relation, she does not discuss 'modal' synthesis.

[3]As I said, Longuenesse does not discuss this latter synthesis.

sis, all aim to make possible those forms of judgment that belong to them. Each of the syntheses warrants that empirical objects are given in such a way that these forms of judgment become possible. By doing this, these syntheses generate in these empirical objects the various *transcendental schemata*. The categories express these transcendental schemata (*KCJ*: 245-6). Relational synthesis, for instance, warrants that objects are given to us in such a way that the categorical, hypothetical and disjunctive forms of judgment become possible. Relational synthesis thus generates in these objects the transcendental schemata of Relation. These schemata justify the application of categories like 'cause' and 'substance' to these empirical objects. In the upcoming sections, we will see how Longuenesse applies this theory to the categories of *Quantity*.

2.2 Quantitative Synthesis

To understand Longuenesse's ideas about the categories of Quantity, we first need to understand what she means by 'quantitative synthesis'. This will become clear in this section. First, I will show that – within the act of figurative synthesis – we can distinguish a 'relational' act of synthesis from 'quantitative' and 'qualitative' acts of synthesis. Second, I will show how 'quantitative' acts of synthesis can be distinguished from 'qualitative' acts. Distinguishing between these three acts of synthesis will enable us to understand what 'quantitative synthesis' consists in.

2.2.1 Relational Synthesis and Apprehension

In the previous chapter, we saw that, according to Longuenesse, the complex act of figurative synthesis generates 'proto-phenomena'. Proto-phenomena are empirical objects we can represent without possessing a concept of that object. From proto-phenomena, we can abstract *schemata* and the empirical concepts that express these schemata. I have explained this idea by means of the example of a house: A person who has never seen a house will not have developed the schema belonging to the concept 'house', and will therefore not be able to see a house *as* house. Confronted with a house, this person will see something different than we: people who do have acquired the concept 'house', do. This person, however, will still see some kind of object: a proto-phenomenon. In figurative synthesis, he will combine his various representations of the house into such a proto-phenomenon. When this person has represented a few proto-phenomena of this kind, these proto-phenomena allow him to abstract the schema and the concept ‘house’.[4]

In essence, proto-phenomena are combinations of sensible representations. However: not every combination of representations, we saw, is a proto-phenomenon. To represent a proto-phenomenon we must combine our sensible representations according to so called ‘objective sensible forms’.[5] When we combine our representations according to these forms, we regard our representations as standing in the objective temporal relations of *succession* and *simultaneity*.[6] The sensible representations that form a proto-phenomenon on the basis of which I can form the schema belonging to the concept ‘house’, for instance, I regard as existing *simultaneously.*

Within the act of combining sensible representations according to objective sensible relations, Longuenesse thinks, we can distinguish different aspects. First, we can distinguish a *relational* aspect from a quantitative and qualitative aspect.

In order to be able to combine sensible representations according to objective sensible forms, I need to become *conscious* of these representations. To be able to regard the four sides of a house as existing in time simultaneously, I need to have had conscious representations of these sides. In chapter 1, we encountered Kant’s notion of *inner sense.* I become conscious of a representation when that representation is placed in inner sense. For us, human subjects, inner sense has a certain *form*: *time.* Because time is the form of inner sense, the only way in which we can become conscious of representations is by placing them in time.[7] Kant says:

> Wherever our representations may arise [...] as modifications of the mind they nevertheless belong to inner sense, and as such all of our cognitions are in the end subjected to the formal condition of inner sense, namely time, as that in which they must all be ordered, connected, and brought into relations. (A99)

At one moment in time, Kant says, we can become conscious of one representation only: “**as contained in one moment** no representation can ever by anything than absolute unity.” (*ibid*) This implies that to become conscious of a multiplicity of representations, we must have these representations at *successive* moments in time. The only way to become conscious

[4]See section 1.2.
[5]See section 1.5.
[6]See also section 1.6.
[7]See section 1.6

of the four sides of a house, therefore, is to place them in inner sense one by one.[8]

The activity of successively placing sensible representations in inner sense, Kant calls *apprehension*. When I place a sensible representation in inner sense, I *apprehend* that representation. Now Longuenesse's idea is that the activities of quantitative and qualitative synthesis are two aspects of the activity of apprehension of empirical representations (these two aspects we will distinguish later). The activity of apprehension as a whole makes possible the activity of *relational* synthesis.[9]

What role does relational synthesis play? This becomes clear in the Analogies of Experience. Relational synthesis makes me combine those representations I have successively apprehended according to the objective sensible forms. It makes me regard these sensible representations as standing in *objective* temporal relations. This generates a distinction between two kinds of temporalities. On the one hand: the *subjective* succession of representations in inner sense the activity of apprehension generates. On the other hand: the objective temporal relations between objects and states of objects.[10] This is necessary to represent empirical objects (proto-phenomena and phenomena). As Kant says:

> [B]y means of our perception no appearance would be distinguished from any other as far as the temporal relation is concerned, since the succession in the apprehending is always the same [...] (A194/B239)

Suppose I generate a house as proto-phenomenon.[11] To be able to represent this proto-phenomenon as an object that has four sides, I must represent these sides. This, we saw, I can only do by representing them at successive

[8]Again, Longuenesse does not explain these points in this way. That this is how she sees this, I derive from her analysis of the different kinds synthesis (see *KCJ*: chapter 8-11), her discussion of quantitative synthesis (see *ibid*: chapter 9, in particular p. 271-4 (here Longuenesse also discusses the example of a house)) and her analysis of the 'threefold synthesis' in the A-Deduction (see *ibid*: chapter 2).

[9]These points I derive from Longuenesse's analyses of quantitative and qualitative synthesis. See, in particular, *KCJ*: p. 271-4, 290 and 302-3.

[10]See, for example, *KCJ*: p. 302-3, 324. See also *ibid*: 240-1.

[11]As we saw in chapter 1, Kant himself uses the example of a house to explain the importance of the categories of Relation: "[T]he apprehension of the manifold in the appearance of a house that stands before me is successive. Now the question is whether the manifold of this house itself is also successive, which certainly no one will concede." (A190/B236)

moments in time. By apprehending the four sides of a house, I thus generate subjective temporal relations among my representations. I represent the sides of the house as succeeding each other, even though they do not objectively succeed each other. If I would *only* apprehend these representations, I would not be able to represent the house as object. Subjecting my successively apprehended representations of the house to a *relational* synthesis makes me regard these representations as simultaneously existing aspects of an object.[12] This enables me to represent the house as object. Relational synthesis also enables us to represent an object that *changes*. If I see a changing object, this means relational synthesis makes me regard my representations as objectively successive. If I see, for instance, a sailing ship[13], this means relational synthesis makes me regard my representations of the ship as successive states of that ship.[14]

Within relational synthesis, we can distinguish the roles of the three categories of Relation. When I regard two representations as *simultaneous*, this means I have synthesized them according to the category of *community*. If I regard them as 'objectively' succeeding each other, I have synthesized them according to the category of *cause*. In both cases, I will have synthesized my representations according to the category of *substance* as well: I regard the representations as, respectively, succeeding or simultaneous states *of an object*: of a substance.[15]

The role relational synthesis plays within the complex act of figurative synthesis should now be clear. If we would synthesize our representations 'quantitatively' and 'qualitatively' only, we would only *apprehend* these representations. All that would be given to us, would be a subjective succession of sensible representations. We would not regard any of these representations as *objectively* succeeding or as *objectively* simultaneous, and we would not regard them as states of *objects*. We would, therefore, not be able to represent empirical objects.

[12]See again *KCJ*, chapter 11, especially p. 387-8.

[13]Kant also uses the ship-example. See A192/B237.

[14]See, in particular *KCJ*: p. 361-3 and 387-8. As I explained in the previous chapter, the figurative synthesis of representations can also lead to *deceptive* experiences (see 1.6). Theoretically, relational synthesis could make us represent the sides of the house as successive.

[15]These points I derive, in particular, from *KCJ*, p. 388, p. 361-3 and p. 334-7. As I understand it, regarding my representations as related to an object is what generates the 'necessity' in a combination of representations necessary to represent proto-phenomena (see section 1.5).

2.2.2 Apprehension

Before we distinguish between quantitative and qualitative synthesis, let us first have a closer look at the activity of apprehension these syntheses form aspects of. Our description of relational synthesis made clear that apprehension is important. Apprehension is a condition for relational synthesis. Whether relational synthesis makes us regard representations A and B as objectively successive or as objectively simultaneous, in both cases A and B first need to be *given*. This requires we *apprehend* them. Combining representations in inner sense makes them available for relational synthesis.

Apprehending representations is necessary more often than we might think. In our house-example, it was clear that the four sides of the house could not all be given to us at one moment in time. It is clear, therefore, that in order for us to be able to generate a representation of a house with four sides, we need to apprehend these sides. Kant, however, seems to think that empirical objects (phenomena and proto-phenomena) also combine representations for which this is less clear. An empirical object does not only combine representations that cannot be represented at one moment in time. It also combines, Longuenesse points out, representations that *can* be represented at one moment. In the A-Deduction, in which Kant provides an extensive description of the act of figurative synthesis[16], he says:

> Every intuition contains a manifold in itself, which however would not be represented as such if the mind did not distinguish the time in the succession of impressions on one another; for **as contained in one moment** no representation can ever be anything than absolute unity. (A99)

Again, our house-example can shed light on this passage. When, for instance, the front of a house is given to me, a "manifold" of representations is given to me. My representation of the front of the house "contains" representations of windows, of a door, of a part of the roof, of bricks, etcetera. It is in this sense that my intuition of the house "contains a manifold" of representations. However, if I have an intuition of the front of the house *only*, I do not represent this "manifold" of representations "as such". I represent windows, a door and the roof of the house as parts of a larger representation of the house's front, but I do not represent these aspects of the house on

[16] Kant does not himself apply the term 'figurative synthesis' to the acts of synthesis he describes in the A-Deduction. The idea that the syntheses of the A-and B-Deduction can be equated is specific to Longuenesse's interpretation. See chapter 1, footnote 5.

their own.[17] At least for certain goals, Kant seems to find this insufficient.

Longuenesse's ideas about the function of figurative synthesis make this comprehensible. Figurative synthesis makes sure empirical objects are given to us in such a way that forming judgments about these objects becomes possible. If we see the front of a house at one glance, we will not be able to tell how many windows it contains, which colour the door has or how exactly the roof is shaped. In order for us to be able to form judgments about these matters, we must actively direct our attention to these details. We must *apprehend* them. When Kant says that to represent a manifold *as* manifold, we must "distinguish the time in the succession of impressions on one another", he seems to mean that to represent the details our representation of the house contains, we must represent them at distinguished moments. We must represent its door at one moment, its window at a second moment and its roof at a third moment. Doing so allows us to represent the details of our complex intuition *as* these details. The more time we have to study a certain object, the more details we will be able to form judgments about.[18]

Being able to represent *as* manifold the manifold contained in an intuition is also necessary for those judgments by means of which we generate concepts. In chapter 1, I mentioned the activity of *analysis*. Analysis is the act of generating concepts (*KCJ*: 11). In analysis, we compare various proto-phenomena and focus on their similarities while we abstract from their differences (115-6).[19] This enables us to form empirical schemata (115-20). Analysis is itself a kind of judgment (121-2).[20] I generate the schema belonging to the concept 'house' by comparing various proto-phenomena, and by taking those marks they have in common while abstracting from their differences. In order for me to be able to form the schema belonging to the concept 'house' on the basis of a few proto-phenomena, it is necessary that these proto-phenomena contain certain details. They must contain such details as doors, windows and a roof, otherwise they would not allow me to form a 'rule' that makes me represent a rectangular building with a roof, a door and a few windows. To be able to represent proto-phenomena

[17]This is what I take Longuenesse to be explaining at *KCJ*: p. 36-8 and 271-4 (at p. 271-4 she also uses the example of a house). Longuenesse does not explicitly distinguish between the situation in which we represent the four sides of a house, and the situation in which we represent the representations contained in one representation of the house.

[18]That this is how Longuenesse sees this, she suggests at *KCJ*: 270-4. Longuenesse does not explicitly explain this connection to judgments, but it follows naturally from her ideas.

[19]See also section 1.2.

[20]For an explanation of the idea that the act of analysis consists in an act judgment, see Longuenesse, 1998b: 139-41.

that contain these details, I must represent these details. The activity of apprehension enables me to do this.[21]

We now see why the activity of apprehension is important. Figurative synthesis generates proto-phenomena on the basis of which we can form empirical schemata and discursive judgments. Such proto-phenomena are combinations of sensible representations: on the one hand, sensible representations that cannot be given at one moment in time (like the four sides of a house), and, on the other hand, sensible representations that cannot, at one moment in time, be given "as such" (like the door, the windows and the bricks contained in the front of a house). In relational synthesis, we saw, we combine these representations according to objective forms, and this generates proto-phenomena. The activity of apprehension makes sure these representations become available for combination. It enables us to represent "manifolds" of representations by successively placing them in inner sense.

2.2.3 Quantitative vs. Qualitative Synthesis

We have now distinguished two aspects of figurative synthesis: *relational* synthesis, on the one hand, and *apprehension*, on the other. The activity of the apprehension of empirical representations, Longuenesse thinks, again contains two aspects. Apprehension is a combination of *quantitative* and *qualitative* synthesis. In the Schematism-chapter, Kant says the following:

> Now one sees from all this that the schema of each category contains and makes representable: in the case of magnitude, the generation (synthesis) of time itself, in the successive apprehension of an object; in the case of the schema of quality, the synthesis of sensation (perception) with the representation of time, or the filling of time; in the case of the schema of relation, the relation of the perceptions among themselves to all time (i.e, in accordance with a rule of time-determination); [...] (A145/B184)

In this passage, we recognize the role of relational synthesis: relational synthesis combines sensible representations according to objective temporal relations. It thus generates "the relation of the perception among themselves to all time". In this passage we also see a distinction between a 'quantitative' and a 'qualitative' aspect of synthesis. Kant distinguishes between

[21] Again, Longuenesse does not explicitly explain this in this way, but it follows naturally from the points she makes at *KJC*: 115-9 (especially footnote 29) and her analysis of the A-Deduction in *ibid*: chapter 2 (esp. p. 44-52).

“the generation (synthesis) of time itself” and “the synthesis of sensation (perception) with the representation of time”. We can link these two kinds of synthesis to our description of the activity of apprehension.

When we apprehend empirical representations, we distinguish certain representations and combine them in inner sense. This enables us to represent a manifold of such representations. Kant’s idea seems to be that we are able to distinguish and combine empirical representations because we distinguish and combine *pure* representations of a certain kind: moments in *time*. I distinguish and combine sensible representations in as far as I place them in distinguished, but combined moments of time.[22]

Quantitative synthesis consists precisely in this synthesis of moments in time. It is, therefore, “the generation (synthesis) of time itself”. This synthesis is necessary for the activity of apprehension. By synthesizing moments in time quantitative synthesis generates a *form* that enables us to represent manifolds of representations (*KCJ*: 38, 270).

This idea also clarifies the role of *qualitative* synthesis. Quantitative synthesis is necessary to represent manifolds of empirical representations, but not sufficient. We would not represent these manifolds if no empirical representations would be given. Qualitative synthesis provides us with these empirical representations.

How does this work? In the first chapter, we saw that ‘things in themselves’ affect sensibility and that this generates a particular kind of representations: *sensations*.[23] Kant’s idea seems to be that we only become *conscious* of these sensations when we place them in inner sense and thus in time. This placing sensations in time is what qualitative synthesis consists in: qualitative synthesis is “the synthesis of sensation (perception) with the representation of time”.[24] Combining quantitative and qualitative synthesis enables us to represent manifolds of sensations.

Considering the precise relationship between qualitative and relational synthesis sheds some light on a point we discussed in the previous chapter. Sensations, we saw, are subjective representations. They are only ‘objective’ in as far as they form the content of an empirical *intuition*. For a sensation to become ‘objective’, both qualitative and relational synthesis are required. Qualitative synthesis makes us conscious of sensations by placing these sensations in inner sense. Relational synthesis links these qualitatively synthesized representations to objects, which makes them *objective* (300-3).

[22] This I take Longuenesse to be explaining at *KCJ*: 36-8 and 270.
[23] See section 1.2.
[24] See *KCJ*: 302-3. Longuenesse does not use the above quote to make her point.

To summarize: Combining quantitative and qualitative synthesis enables us to represent the various aspects of an object. Quantitative synthesis enables us to *combine* the various aspects of the object by combining moments in time. Qualitative synthesis provides us with the aspects to be combined: colours, smells, sounds (270). This it does by synthesizing these aspects with time.

2.2.4 Other Applications of Quantitative Synthesis

We now see which role quantitative synthesis plays within the complex act of figurative synthesis. We have seen that, combined with qualitative synthesis, quantitative synthesis allows us to represent manifolds of empirical representations. This is necessary for us to be able to represent the various aspects of empirical objects.

What has not become clear yet is the relationship between this act of quantitative synthesis and the *schema*, the *categories* and the *logical forms* of Quantity. In order to understand this relationship, we need to note that sensations are not the only kinds of representations the activity of quantitative synthesis can be applied to. In 2.3.3, we saw that quantitative synthesis generates a form that enables us to represent a manifold of sensations. Longuenesse thinks this form can be 'filled' with sensations, but that it can be filled with other sensible representations too. Quantitative synthesis thus has different applications. To understand Longuenesse's ideas about the schema, the categories, and the logical forms of Quantity, we have to consider a few of these applications in more detail.

One other representation we can apply quantitative synthesis to, is the pure intuition of *space*. Quantitative synthesis enables us to represent *spatial* manifolds *as* manifolds. What is a spatial manifold? Consider, for instance, a line. A line is a pure spatial shape. Just like the empirical intuition of a house, this line contains a "manifold" of representations. It contains a "manifold" of smaller lines. This manifold can only be represented *as* manifold if we subject our representation of the line to quantitative synthesis (265-6). Quantitative synthesis enables us to distinguish and combine parts of the line. As we will see later, such a quantitative synthesis is necessary if we want to *measure* the line.

The quantitative synthesis of space has multiple applications. First, we should note that an empirical intuition like the intuition of a house is also a *spatial* intuition. The house has a certain spatial *shape*. When we apprehend a manifold of representations contained in the empirical intuition of a house, we can apprehend a manifold of *sensations*: colours, scents, sounds, etc., but also a manifold of *spatial forms*. When we apprehend the various windows of a house, for instance, we apprehend a manifold of spaces contained in the house's spatial form. We can also consider the manifold of lines of a certain length that are contained in an imaginary line that we can draw between the top of house and the ground. This, we will see, enables us to measure the house.[25] The quantitative synthesis of spatial representations has a second application. *Geometry also* consists in the application of quantitative synthesis on the pure intuition of space (283). How Longuenesse sees this, I will not explain here.

Besides sensations and the pure intuition of space, it seems, quantitative synthesis can synthesize a third kind of sensible representations. Quantitative synthesis can be applied to representations that themselves *result* from figurative synthesis.[26] This allows us, for instance, to synthesize collections of empirical objects. Once sensible representations are combined into an empirical object, this empirical object becomes a singular representation itself. By applying quantitative synthesis to empirical objects, we can represent manifolds of objects *as* manifolds. This enables us to represents collections of empirical objects *as* collections.

Why would this be necessary? Assume, for instance, I stand in front of a table on which are lying twenty apples. Seeing this table at one glance will make me represent the collection of apples, but I will not represent it *as* collection. I will, for instance, not be able to tell how many apples there are. To represent the collection of apples *as* collection, I have to apply quantitative synthesis to them. Just like the manifold of representations contained in an intuition of a house cannot, by that intuition, be given to me "as such", an intuition of a set of apples on a table cannot be given "as such" by one intuition either.

Longuenesse's ideas about quantitative synthesis can be summarized as follows: First, quantitative synthesis has a role to play within the complex act of figurative synthesis. Combined with qualitative synthesis, it enables us to represents manifolds of empirical representations, which makes these representations available for relational synthesis. Quantitative synthesis,

[25] See *KCJ*: 271-4. Longuenesse is not very clear about the exact role she assigns to the quantitative synthesis of space, and how it is related to the quantitative synthesis of sensations (to represent a manifold of empirical representations, both seem to be required). At some points, she suggests the synthesis of space makes the synthesis of empirical manifolds possible (see, for instance, *KCJ*: p. 38 and 270-2). How she sees this, however, does not become clear. As this question is not too important for the following, I will not attempt to clarify this.

[26] Longuenesse does not explicitly say this, but this follows from her ideas about the various roles quantitative synthesis plays. See *KCJ*: chapter 9.

however, also plays certain autonomous roles. Applied to space, quantitative synthesis enables us to represent *as* manifolds, manifolds of spatial shapes. Quantitative synthesis can also be applied to representations that *result* from figurative synthesis, like empirical objects. This allows us to represent *as* manifolds, manifolds of such representations. These autonomous roles of quantitative synthesis, we will see, are important if we want to understand the relationship between quantitative synthesis and the schema, the categories and the logical forms of Quantity.

2.3 The Logical Forms of Quantity

The relationship between the categories and logical forms of Quantity, Longuenesse thinks, should be understood as follows: In quantitative synthesis, the understanding affects sensibility in its striving to bring the sensible given under concepts combined according to the logical forms of Quantity. In quantitative synthesis, we are striving to form judgments of the forms '*All* A's are B', '*Some* A's are B' and '*This* A is B'. In doing this, quantitative synthesis generates the schemata that enable us to apply the categories of Quantity to empirical objects.[27] In this and the upcoming sections, I will make this idea more concrete. First, we will take a closer look at Kant's quantitative logical forms.

Kant, Longuenesse points out, defines the quantitative logical forms in terms of *extensions* of concepts:

> In the *universal* judgment, the sphere of one concept is wholly enclosed within the sphere of another; in the *particular*, a part of the former is enclosed under the sphere of the other; and in the *singular* judgment, finally, a concept that has no sphere at all is enclosed, merely as part then, under the sphere of another. (Logic, §21; Ak. 9: 102)[28]

When I form the judgment 'All A's are B', I state that concept A's extension is fully contained in the extension of concept B. In the judgment 'Some A's are B', I claim that concept A's extension is partly contained in the extension of concept B. In the judgment 'This A is B', finally, I state that "concept that has no sphere at all" is contained in the extension of concept B.[29]

[27] See *KCJ*, chapter 9, especially p. 250.

[28] *KCJ*: 247

[29] What Kant means by this latter remark, Longuenesse does not really explain (she says something about it at *KCJ*: 247f., but it hardly makes Kant's remark more compre-

We can understand Kant's quantitative logical forms in two ways. Some judgments can be seen as mere combinations of concepts. If concept B is contained in concept A's intension, then concept A and B can be combined to the judgment 'All A's are B' merely by analyzing concept A (*KCJ*: 247). Only *analytical* judgments can be formed in this way.[30] To form the *synthetic* judgment 'All A's are B', however, considering concept A's intension is not sufficient. The justification of a synthetic judgment 'All A's are B' requires *sensibility*. The synthetic judgment 'All A's are B' can only be justified by considering whether concept B applies to all sensibly given objects that are thought under A (247-8).

This observation enables us to solve the problem concerning the logical forms of Quantity we encountered in the Introduction. In his Table of Judgments, Kant presents the quantitative logical forms of judgment in the following order: *universal*, *particular*, *singular*. This is puzzling, because Kant presents the categories of Quantity in the order *unity*, *plurality*, *totality*. This suggests that Kant infers the category *unity* from the universal, *plurality* from the particular, and *totality* from the singular logical form.

1. Quantity of Judgments	**1. Of Quantity**
Universal	Unity
Particular	Plurality
Singular	Totality

Longuenesse combines her ideas about the different kinds of judgments with an analysis of the categories and logical forms of Quantity Frede and Krüger (1970) have provided. Frede and Krüger have pointed out that Kant does not always present the logical forms of Quantity in the order in which he presents them in the *Critique*. In some of his lectures and notes on metaphysics, Kant arranges them in the order *singular*, *particular*, *universal*.[31] In his published works and in his lectures on logic, he follows the order *universal*,

hensible). In chapter 5 I will argue that Longuenesse's interpretation of the logical forms of Quantity does not enable her to account for Kant's remark.

[30] This follows from Longuenesse's explanation on *KCJ*: 247-8 and her remarks on *ibid*: 127n.

[31] See Reflection 4700, Ak. 17: 679; *Metaphysic Volckmann*, Ak. 28-1: 396; *Metaphysic von Schön*, Ak. 28-1: 480; *Metaphysic Dohna-Wundlacken*, Ak. 28-2: 626 (*KCJ*: 248n.).

particular, *singular* (*KCJ*: 248; Frede and Krüger, 1970: 31-2).[32] In these published works Kant follows the Aristotelian tradition (32). Within this tradition, universal judgments are considered prior to particular judgments. The judgment 'Some *A*'s are *B*' should be seen as a 'limitation' of the judgment 'All *A*'s are *B*' (33).

The two kinds of judgments Longuenesse distinguishes, she states, help us understand why Kant presents the logical forms of Quantity in two different orders. The traditional order *universal*, *particular*, *singular* applies to judgments that combine concepts without appealing to sensibility. In such judgments, general judgments are prior to particular judgments. We regard the extensions of the concepts combined as given, and the subject concept's extension can either *fully* or *partly* be contained in the extension of the predicate concept. For such judgments, therefore, the particular judgment 'Some *A*'s are *B*' should be seen as a limitation of the universal judgment 'All *A*'s are *B*' (*KCJ*: 248).

For judgments that *do* rely on sensibility, this is different. Consider the synthetic judgments 'Some swans are white', 'All birds have a beak' or 'All apples on this table are red'. We should not see the judgment 'Some swans are white' as a limitation of the universal judgment 'All swans are white'. Rather, we should understand this judgment as a conjunction of *singular* judgments. We form this judgment by determining for various sensibly given objects we think under the concept 'swan' that the concept 'white' applies to them. We thus move from singular judgments ('*This* swan is white', '*That* swan is white') to a particular judgment (*ibid*). In forming a universal judgment like 'All birds have a beak', we do the same. In this case, we progress from singular judgments to a particular judgment, and, eventually, to the universal judgment 'All birds have a beak' (*ibid*).[33] To the logical forms of Quantity we can apply the distinction between judgments of perception and judgments of experience we encountered in chapter 1[34] (*ibid*). The judgment "All birds have a beak" might be a mere judgment of perception. In this case, the judgment results from the accidental circumstance I have never seen a bird without a beak. The judgment, however, may also be the result of an extensive investigation. In that case, it is a judgment of experience.

Taking into account the sensible conditions under which most judgments are formed gives rise to an order of the quantitative logical forms that dif-

[32] See Logic, §21, Ak. 9: 102; *Prolegomena*, §21, Ak. 4: 302; *Metaphysic Pölitz*, Ak. 28-2: 747 and all Kant's lectures on logic (*KCJ*: 248n.).

[33] Frede and Krüger see this similarly, see Frede and Krüger (1970): p. 44.

[34] See section 1.8.

fers from the traditional one. If we adopt this perspective on judgments, we should regard singular judgments as prior to particular judgments, and regard particular judgments as prior to universal judgments. This gives rise to the order *singular*, *universal*, *particular* (*ibid*).

Now the question is: which order of logical forms does Kant use to derive the categories of Quantity? This becomes clear from a footnote in the *Prolegomena* Frede and Krüger point to:

> I would prefer this designnation [*judica plurativa*] for judgments that are called in logic *particularia*. For the latter expression already contains the thought that the judgments are not universal. But when I start from unity (in singular judgments) and so proceed to totality, I cannot yet include any reference to totality; I only think plurality without totality, not the exclusion of totality. This is necessary if logical moments are to underlie the pure concepts of the understanding; in logical usage, things can stay they are. (*Prolegomena*, §20n., Ak. 4, 302; 45, n. 13)[35]

In this footnote Kant explains why he prefers to call particular judgments 'plurative' judgments. The reason he prefers this name is that the name 'particular judgment' implies the judgment is not universal. Kant seems to say that calling particular judgments 'plurative' would do justice to the fact we form these judgments on the basis of singular ones, and that we infer universal judgments from particular ones. This "is necessary, if logical moments are to underlie the pure concepts of the understanding". The passage suggests, therefore, that Kant infers the categories of Quantity from the logical forms in the order *singular*, *particular*, *universal*. This would mean that he relates the category *unity* to singular, the category *plurality* to particular, and the category *totality* to universal judgments. This, it seems, is indeed what Kant has in mind: we "start from unity (in singular judgments)", and "proceed to totality". Why, then, does Kant present his logical forms of Quantity in the order *universal*, *particular*, *singular*? This is answered by the last remark: "In logical usage, things can stay as they are". In logic, where sensibility does not play a role, the logical forms of judgment can be understood in their traditional way. This explains why

[35] See *KCJ*: 249. This translation is derived from Thompson (1989): 171. Thompson follows the translation provided by Peter G. Lucas (1953) Manchester: Manchester University Press. This translation differs slightly from the translation Longuenesse is using and the Carus-Ellington translation I use. I think this translation is more accurate. Because this passage returns in the later chapters, I have chosen to use this translation.

Kant presents them in their traditional order, and keeps calling particular judgments 'particular' in stead of 'plurative'.[36]

2.4 The Schema of Quantity

As we saw in section 2.2, quantitative synthesis enables us to represent manifolds of representations *as* manifolds. Longuenesse believes that because quantitative synthesis aims at making possible the logical forms of Quantity, it generates the *schemata* the categories of Quantity express. How should we understand this?

A problem we have regarding the schemata of Quantity is the fact that Kant does not present three schemata of Quantity, but only one:

> The pure **schema of magnitude** (*quantitatis*) [...] as a concept of the understanding, is **number**, which is a representation that summarizes the successive addition of one (homogeneous) unit to another. (A142/B182)

It seems, therefore, that there is one schema of Quantity, whereas there are three categories. Later, we will consider how Longuenesse solves this problem. In short, her idea is that each of the categories of Quantity expresses a different *aspect* of this one schema. Understanding this, however, becomes easier if we first take a closer look at the schema itself.

2.4.1 Generating the Extension of a Subject Concept

Kant describes the schema of Quantity as "a representation that summarizes the successive addition of one (homogeneous) unit to another." This "representation" he equates with the notion "number". Let us first consider what Kant could mean by "a representation that summarizes the successive addition of one (homogeneous) unit to another."

In 2.2, I have explained what the activity of quantitative synthesis consists in. This activity as a whole, Longuenesse thinks, generates representations "that [summarize] the successive addition of one (homogeneous) unit to another". Generating such representations makes possible the logical forms of Quantity in judgments (249). Kant, we saw, defines the quantitative logical forms in terms of the extensions of concepts. When our judgment relies on sensibility, Longuenesse thinks, it can only have a quantitative logical form if its subject-concept has an extension. A judgment like 'All birds

[36] See *KCJ*: 249 and Frede and Krüger, 1970: 34-7

have a beak' we form by considering whether the predicate 'has a beak' applies to all sensible objects thought under the concept 'bird'. This requires that we are able to represent a manifold of objects we think under that concept. Now the idea is that quantitative synthesis generates such manifolds of objects, and that this generates "a representation that summarizes the successive addition of one (homogeneous) unit to another": the schema of Quantity (251-3).

How does this work? Quantitative synthesis, we saw, enables us to represent a manifold of sensible representations *as* manifold. Now Longuenesse's idea is that because quantitative synthesis aims at making possible quantity in judgments, it eventually generates manifolds of representations that *can be thought under the same concept.* Representing manifolds of representations that are thought under the same concept is what makes quantity in judgments possible. It provides our concepts with an *extension* (249-50). Let us look at an example: As we saw in 2.2, quantitative synthesis enables us, for instance, to represent *as* manifold the windows the front of a certain house contains. By bringing these representations under one concept ('windows in the front side of the house'), it becomes possible to form such judgments as 'All windows in the front of the house are closed' or 'Some windows in the front of the house are broken'. In this way, quantitative synthesis makes quantity in judgments possible.[37]

This analysis enables us to understand in which sense quantitative synthesis generates "a representation that summarizes the successive addition of one (homogeneous) unit to another". By "homogeneous" Kant means *thought under the same concept* (276). For quantity in judgments to be possible we need to generate a representation of a *collection* of representations thought under the same concept. Doing so requires, first, that we regard certain representations as individual instances of one and the same concept. Each of these representations becomes a "unit" homogeneous with the other 'units'. For a representation of a *collection* of representations to arise, we must represent multiple representations as 'units' by succesively placing them in time. We must successively add "one (homogeneous) unit to another". By successively adding homogeneous to another we generate the manifolds of representations thought under the same concept that are necessary for Quantity in judgments (249-50).

Why, then, does Kant describe the schema of Quantity as "a representation that *summarizes* the successive addition of one (homogeneous) unit to another"? For most judgments, successively adding homogeneous units to

[37] This, I take Longuenesse to be explaining at *KCJ*: 249-50 and 271-2.

another suffices. For a judgment like 'All windows in the front of the house are closed', it suffices we represent a collection of objects thought under the concept 'window in the front of the house'. *Summarizing* the successively added units, however, is necessary if we want to assign a *number* to the collection of objects we have represented. This is necessary for judgments like 'the house has five windows'.[38] This brings us to the second part of Kant's definition of the schema of Quantity: *number*, which I will discuss in the next subsection.

So: the schema of Quantity is generated because in quantitative synthesis we generate representations of collections of things (objects or aspects of objects) that can be thought under the same concept. We can now understand how the categories of Quantity relate to this schema: The categories of Quantity express the different stages within the generation of the schema of Quantity. The category *unity* applies to each of the representations we regard as "(homogeneous) unit". A "successive addition" of such units generates a representation to which we the category *plurality* can be applied. The category *totality*, finally, applies to the representation "that summarizes" such a "successive addition" (254). In 2.5, we will have a closer look at the categories of Quantity.

2.4.2 Number as the Schema of Quantity

We now understand why Longuenesse thinks Kant describes the schema of Quantity as "a representation that summarizes the successive addition of one (homogeneous) unit to another." We still need to explain, however, why she thinks Kant equates this representation with the notion *number*.[39]

To understand what Kant means when he describes the schema of Quantity as "number", it is useful to remind ourselves what exactly transcendental schemata *are*. In chapter 1, we saw that Kant thinks that for concepts to be 'objective' (to be related to an object), they must express a mark multiple intuitions can have in common. 'Red' clearly is an 'objective' concept, because it expresses a mark that intuitions of strawberries and tomatoes can have in common. The categories, we saw, are special concepts because – unlike 'red' – they do not express marks of objects that can be given to us by means of a sensation. The categories also differ from geometrical concepts like 'circle', because they do not – like these concepts – express the spatial *shape* an object can have. The categories express very different

[38]This, I take Longuenesse to be explaining at *KCJ*: 253-4.

[39]Remember: "The pure **schema of magnitude** (*quantitatis*) [...] as a concept of the understanding, is **number**".

kinds of marks. They express those marks of objects that result from the figurative synthesis by means of which the understanding helps generating those objects.[40] The transcendental schemata are precisely these marks.[41]

If the transcendental schemata are a special kind of marks, this must also be the case for the schema of Quantity: number. We can imagine one regards 'number' as a kind of mark. A collection of things (objects or aspects of objects), thought under a certain concept, will have a certain cardinality. One could say that all sets with a certain cardinality have some sort of mark in common. All collections with cardinality nine, for instance, have a certain mark in common. Further, we could say that all collections that have *some* cardinality have a mark in common: the mark 'having *some* cardinality'.[42]

This idea explains why Kant, on the one hand, describes 'number' as a transcendental schema, but, on the other hand, also refers to numbers as *concepts*.[43] Probably, Kant regards the number concept n as the concept that expresses that mark all collections with cardinality n have in common. The concept 'number' then expresses the mark all collections with *some* cardinality have in common.[44]

This has interesting implications. In 2.4.1, we saw that we generate the schema of Quantity by regarding certain representations as singular instances of one and the same concept. By combining these representations into a representation of a collection, we generate the schema of Quantity. What we generate by generating the representation of such a collection is the representation of a collection that has a definite cardinality: it has a mark that can be expressed by a number concept.[45] If this indeed is how Kant sees this, this means he regards the mark of 'having cardinality n' as generated by figurative synthesis. This implies that the concept 'number' and the various number concepts have a very special status. In fact, their status is similar to that of the categories. Just like the categories, number

[40]See section 1.2.

[41]See section 1.6.

[42]These points, Longuenesse explains differently. This, however, is the point I think she wants to make when she says: 'Thinking a *concept* of number is reflecting the specific rule for generating a given homogeneous multiplicity. Then we have not only a schema (number as a "representation gathering the successive addition of homogeneous units"), but also a concept reflecting the schema (a concept of number).' (*KCJ*: 256) Remember that, according to Longuenesse, every concept expresses a rule for synthesis.

[43]Kant says, for instance "Thus the concept of a **number** (which belongs to the category of allness) is not always possible [...]" (B111) (*KCJ*: 255).

[44]Longuenesse does not explicitly make this distinction, although she does make some remarks about this distinction at *KCJ*: 256.

[45]In section 2.5 I will say more about collections that, according to Kant, do not have a definite cardinality, such as infinite collections.

concepts express marks of objects that are generated by figurative synthesis (261).[46]

An interesting implication of Longuenesse's analysis of Kant's notion of number is that it suggests that Kant's ideas about number are rather close to those of Frege.[47] In his *Foundations of Arithmetic* (1884), Frege argues that numbers do not express marks of objects. One of Frege's arguments for this claim, is that whether a number n applies to some empirical object, is underdetermined by that object itself. He says, for instance: '*One* pair of boots may be the same visible and tangible phenomenon as *two* boots. Here we have a difference in number to which no physical difference corresponds [...]' (§25). For concepts that *do* clearly express marks of objects, like 'brown', this is not the case (§22). After he has argued numbers do not express marks of objects, Frege raises the question how it is possible we can use number concepts to form objective judgments (§26). Even though the number 'two' does not express a mark of an object, the judgment 'I am wearing two shoes' is objectively true or objectively false. Frege solves this problem by stating that numbers do not express marks of objects, but of *concepts* (§46). As Frege says: 'If I say "the King's carriage is drawn by four horses", then I assign the number four to the concept "horse that draws the King's carriage".' (*ibid*)[48]

The special status Kant assigns to number concepts suggests he struggles with a problem similar to Frege's. Just like the categories, numbers do not express marks of objects that can be given by means of a sensation. Neither do they, like geometrical concepts, express an object's possible spatial form. Still, number concepts are objective. Just like Frege, Kant explains this by appealing to our conceptual capacities. The marks numbers express are generated because we generate collections of representations (objects and

[46]Longuenesse does not explicitly say that number-concepts have a similar status as the categories, but she does emphasize that number-concepts have a special status (*KCJ*: 255-6; 259). Also, she says that number concepts are concepts of the understanding: 'The notion of a (homogeneous) multiplicity, like that of the determinate unity of this multiplicity, is a pure concept of the understanding, dependent on one of its original logical functions.' (*KCJ*: 261) This might seem to raise a problem for the completeness of the category-table, but I do not think it does. As Kant says: "the categories, as the true **acestral concepts** of pure understanding, also have their equally pure **derivative concepts** [...]" (A81-B107). The number concepts might be examples of such "derivative" concepts of the understanding.

[47]Longuenesse discusses the similarities between Kant and Frege at *KCJ*: 257-63. Because the comparison with Frege helps understanding Longuenesse's idea, I have provided a slightly more elaborate comparison. Although Longuenesse does not discuss all of the points I discuss here, I think the points I make are in line with her analysis.

[48]See also *KCJ*: 257n.

aspects of objects) we think under the same *concept*. Kant would agree with Frege that, in itself, no number concept applies to a pair of shoes. To apply a number concept to a pair of shoes, we must first regard these shoes as individual instances of a certain concept. As we can do this in various ways, various numbers can be applied to them.[49]

2.5 Different Kinds of Quantities

The following has become clear: Quantitative synthesis aims at making possible the logical forms of Quantity (2.1). To make these logical forms possible, concepts need to have an *extension* (2.3). Quantitative synthesis enables us to represent collections of objects *as* collections (2.2.4). This enables us to provide our concepts with an extension, because it enables us to represent a collection of objects and think them under the same concept. When quantitative synthesis generates a collection of objects, it generates the schema of Quantity: *number*. This schema justifies the application of the categories of Quantity to empirical objects (2.4.1), and also the application of number concepts (2.4.2).

A question which has not been fully answered yet, is what exactly the relationship between the categories and the logical forms of Quantity consists in. What has become clear is the general relationship between the categories and the logical forms. What we would like to know, however, is whether each of the categories of Quantity has a relationship to a specific logical form.

Earlier, we saw that Longuenesse adopts certain ideas from Frede and Krüger. Frede and Krüger explicitly link the category *unity* to singular judgments, the category *plurality* to particular judgments, and the category *allness* to general judgments. Representing a *unity* makes singular judgments possible, representing a *plurality* makes particular judgments possible, and representing an *allness* makes general judgments possible (1970: 40-41).

Longuenesse is vaguer about this. To be able to form a general or particular judgment, she states, we need to represent a *plurality* of objects. By striving towards such judgments, therefore, we generate representations to which the category *plurality* applies. The category *allness* becomes important only later. It becomes important if we want consider the *result* of our synthesis. We do this, in particular, when we want to assign a *number* to the generated *plurality*. When we do so, we 'summarize' the "successive

[49] The fact that Kant's ideas regarding this point are similar to those of Frege does not mean, of course, that Frege agrees with Kant's ideas about number.

addition of one (homogeneous) unit to another" and represent an *allness* (*KCJ*: 254). The relationship between the logical forms and the categories, therefore, is less strict than Frede and Krüger suggest: by striving towards particular *or* universal judgments we generate the schema of Quantity. This schema justifies the application of the various quantitative categories. Still the category *unity* should be linked to singular, the category *plurality* to particular, and the category *allness* to general judgments. The *order* in which the categories are generated: *unity*, *plurality*, *allness*, corresponds to the *order* in which empirical judgments are generated: singular, particular, universal (248-9).

An important point Longuenesse makes, is that 'summarizing' a manifold of representations is not always possible. Kant describes the category *totality* as "plurality considered as a unity" (B111). The concept *totality*, however, is "not always possible wherever the concepts of multitude and of unity are" (*ibid*)[50] (*KCJ*: 255; 255n.[51]). Longuenesse does not explain why this is the case. The reason the concept *allness* is not always possible, I think, is that – as Kant says – the "the concept of a **number** [...] belongs to the category of allness" (B111). Here, Kant seems to mean that to every sensible representation the category *allness* (or *totality*) applies to, some number concept applies.[52] This would mean that something the category *totality* applies to must always have a definite cardinality. This explains why the concept *totality* cannot always be applied to representations the concept *plurality* applies to. Not to every representation the concept *plurality* applies a number concept can be applied. Not every representation to which the concept *plurality* applies has a determinate cardinality. In particular, this holds for *infinite* collections (B111). When we represent an infinite collection, we successively add homogeneous units to another, but are incapable of *summarizing* these units into a representation of a totality.

There is a final point that needs consideration. Longuenesse's analysis

[50]Full quotation: "[...] the concept of a **number** (which belongs to the category of allness) is not always possible wherever the concepts of multitude and of unity are [...]" (B111).

[51]Longuenesse also points to Kant's arguments in the Antinomies of Pure reason (*KCJ*: 255).

[52]The notion "belongs to" in this passage can be interpreted in various ways, but I think this is he most plausible interpretation. In the *Critique*, Kant uses the notion "belongs to" in this way in at least one other passage. In his discussion of the difference between the philosophical and the mathematical method, he says: "For I am not to see what I actually think in my concept of a triangle (this is nothing further than its mere definition), rather I am to go beyond it to properties that do not lie in this concept but still belong to it." (A718/B746)

explains how the categories of Quantity can be applied to discrete collections of objects. In the *Prolegomena*, however, we see that Kant recognizes another application of these categories. The categories can also be applied to *individual* objects. This is possible if objects are regarded as *quanta*: as objects with a certain *magnitude* or size. Kant makes clear, for instance, that the categories can be applied to the representation of a line:

> The principle that a straight line is the shortest distance between two points presupposes that the line is subsumed under the concept of quantity [*Größe*], which certainly is no mere intuition but has its seat in the understanding alone and serves to determine the intuition (of the line) with regard to the judgments which may be made about it in respect to the quantity [*Quantität*], that is, to plurality [*Vielheit*], (as *judica plurativa.*)* For under them it is understood that in a given intuition there is contained a plurality of homogeneous parts [*daß in einer gegebenen Anschauung vieles Gleichartige enthalten sei*]. (*Prolegomena*, §20, Ak. 4, 301-2)[53]

Kant, moreover, presents the categories of Quantity in a slightly different way than he does in the *Critique*. After each category of Quantity he places a second concept between brackets: *measure* (das Maß), *quantity* (*Größe*) and *whole* (*das Ganze*) (*Prolegomena*, §20, Ak. 4, 303).

1. As to Quantity
Unity (Measure)
Plurality (Quantity)
Totality (Whole)

These concepts, Longuenesse states, are the categories of Quantity applied to continuous magnitudes, such as individual empirical objects (*KCJ*: 265).

How does the application of the categories of Quantity to continuous magnitudes fit into Longuenesse's theory? Earlier, we saw that synthesis according to the categories of Quantity enables us, for instance, to represent a collection of twenty apples *as* collection of twenty apples. Now the idea is that our capacity to regard a collection of objects *as* collection of objects also

[53] See also *KCJ*: 265.

enables us to regard individual objects *as* objects with a certain magnitude. It enables us, for instance, to regard a line *as* a line of twenty centimetres.

How this is possible, we saw earlier: in 2.2.4. Quantitative synthesis, we saw, enables us to represent manifolds of representations *as* manifolds. To represent a collection of twenty apples *as* a collection of twenty apples, we must first separately represent these twenty apples, and then take them together. We must represent these apples one by one, and then take them together. When we want to regard spatial representations like a line *as* spatial representations with a certain magnitude, we must do something similar. We must take a certain measure unit as a *unity* and then consider how many times this *unity* fits into the spatial representation. We can consider, for instance, how often the measure unit 'centimetre' fits into a line. This we do by considering the line as a *plurality* of lines of a centimetre. Again, we do this by one by one representing these lines, and taking them together.[54]

Longuenesse does not explain how exactly the concepts *measure*, *quantity* and *whole* fit into this story. She seems to understand this as follows: If we measure, for instance, a line, we first take a measure unit by means of which we measure that line. This generates a *measure*. By adding such *measures* one by one, we generate a *quantity*. If we want to measure a line, we must continue to add such *measures* until we represent the *whole*: the complete line. So: to measure a spatial object, we need all three categories of Quantity: *measure* (*unity*), *quantity* (*plurality*) and *whole* (*allness*).

This explanation shows that for continuous magnitudes, the relationship between the logical forms and the categories is slightly looser than for discrete magnitudes. Our striving towards particular and general judgments, we saw, makes us represent collections of discrete object: *pluralities*. If we want to assign a number to such a collection we regard it as an *allness*. For continuous magnitudes this relationship is slightly vaguer. When we consider a line as a *plurality* or a *totality* of lines of a certain length, we do not necessarily do this to form a particular or general judgment. Kant's point is rather that our *capacity* to form such judgments enables us to regard a line in such a way.[55]

[54]Here, I provide a slightly more elaborate explanation of the point I take Longuenesse to be making at *KCJ*: 263-9.

[55]This is how I read Longuenesse's remark on the *Prolegomena* passage quoted earlier: 'Thanks to the logical form of "plurative" judgment, says Kant, "it is understood that in a given intuition there is contained a plurality of homogeneous parts." He means I think, that the same capacity to judge that makes us capable of reflecting our intuitions according to the logical form of quantity also makes us capable of recognizing in the line

2.6 Conclusion

In this chapter I have explained how Longuenesse applies her general theory – as explained in chapter 1 – to the categories of Quantity. Within the act of figurative synthesis we can distinguish various acts of synthesis: quantitative, qualitative and relational synthesis. Together, these acts enable us to represent empirical objects. Quantitative synthesis forms one element of the act of synthesis. Quantitative synthesis enables us to represent the manifold of representations an empirical object is build up from *as* manifold.

Each of the syntheses the act of figurative synthesis contains aims to make possible a specific logical form in judgments. Quantitative synthesis aims to make possible the logical forms of Quantity. Quantitative synthesis not only enables us to collect the materials needed to generate empirical objects. It also enables us to represent *collections* of such empirical objects (or aspects of such objects). This enables us to think collections of objects under one concept. This enables us to provide our empirical concepts with an extension, which makes possible the logical forms of Quantity. When quantitative synthesis generates collections of objects, it generates the *schema* of Quantity: *number*. It makes us represent collections of objects to number concepts can be applied to. The schema of Quantity justifies the application of the categories *unity*, *plurality* and *allness* to objects. Applied to the pure intuition of space quantitative synthesis enables us to *measure* objects. In the next chapter, we will see why Friedman criticizes Longuenesse's analysis.

a plurality of homogeneous segments, thought under the concept "equal to segment s, the unit of measurement."' (*KCJ*: 265) I will say more about this in chapter 5.

Chapter 3

Friedman's Criticism

In the previous chapter, I have explained how Longuenesse applies her general theory to the categories of Quantity. Quantitative synthesis, we saw, enables us to represent *manifolds* of representations. This enables us to represent *collections* of objects or aspects of objects and to think them under one and the same concept. For this reason, quantitative synthesis enables us to generate the *extensions* of concepts, which makes the logical forms of Quantity possible. Quantitative synthesis also justifies the application of number concepts and the categories of Quantity to empirical objects. As we saw in chapter 1, Michael Friedman (2000) criticizes Longuenesse's interpretation of the *Critique*. One aspect of Longuenesse's interpretation he criticizes is her analysis of the categories of Quantity. In this chapter, I will discuss Friedman's criticism.

3.1 Friedman's Criticism

In chapter 1, we have seen that Friedman and Longuenesse interpret Kant's transcendental project in quite different ways. Longuenesse, we saw, reads Kant in a *cognitive* way, Friedman in a more *epistemic* way. The previous chapters have clarified why Longuenesse's reading of Kant can be described as 'cognitive'. Longuenesse interprets Kant's idea that the categories are "*a priori* conditions of the possibility of experiences" (A94/B126) in a specific way. By 'experience' Kant means: intuitions thought under concepts. More precisely, 'experience' consists of intuitions thought under concepts *combined according to the logical forms of judgment*.[1] Experience in this sense is not made possible by the categories as 'full-fledged concepts' (*KCJ*: 199), but

[1]See section 1.1 and 1.8.

rather by the *functions of the understanding* that form the sources of these concepts. The activity of *figurative synthesis* ensures empirical objects are given to us in such a way that they can be brought under concepts. Within the act of figurative synthesis, we exercise the various functions of the understanding. These functions of the understanding ensure our intuitions can be thought under concepts combined according to the various logical forms. This is how the functions of the understanding, and thus the categories, make experience possible.

Friedman, we saw in chapter 1, provides a different interpretation of Kant's notion of 'experience'. By 'experience' Kant means *scientific knowledge*. This leads Friedman to interpret Kant's idea that the categories are "*a priori* conditions of the possibility of experiences" in a different way. The categories make experience possible because they provide us with the Principles of the Understanding. These principles enable us to justify scientific laws. The categories make experience possible in *this* sense.[2]

In Kant's work, Friedman recognizes the ideas of Thomas Kuhn.[3] Kuhn's *The Structure of Scientific Revolutions* (1962) has introduced the notion 'paradigm' into the philosophy of science. As Kuhn has observed, sciences tend to work with sets of theories that cannot be tested within that science itself. To carry out the empirical investigations of that scientific field, we must presuppose these theories. These basic theories a science works with, form the *paradigm* of that science. The paradigm a science works from determines what can be thought and investigated within that science. What Kant has recognized, Friedman thinks, is that certain Newtonian laws have a paradigmatic status for Newtonian physics. These laws cannot be investigated empirically, because they make empirical investigations first possible.[4] The categories and the Principles of the Understanding are conditions for experience, because they make *empirical science* possible.[5]

Longuenesse's cognitive reading of the *Critique*, Friedman thinks, leads

[2]See section 1.8.

[3]This becomes clear from, for instance, Friedman (1997), esp. p. 12-4. See also footnote 18.

[4]These points I again derive from Friedman (1997): 12-4.

[5]See Friedman, 2000: 213-4; 204. This, we already saw in chapter 1. Friedman (1997) does not make entirely clear whether the a priori principles Kant lists in the System of Principles have such a 'paradigmatic' status, or – for instance – Newton's laws of motion which, as we saw in 1.8, can be derived from these principles. I think Friedman assigns this status to both groups of principles. As we saw in chapter 1, these principles are equally necessary, although Newton's laws of motion are necessary for a more limited group of objects. See Friedman 1992a (181-6) for the relationship between the a priori principles and Newton's laws of motion.

to problems. Longuenesse's interpretation of Kant does not allow her to reconstruct convincing proofs of Kant's Principles of the Understanding. We see this, among other things, in her ideas about the categories of Quantity. If Longuenesse's interpretation would be correct, Kant would not be able to prove the Principle of the Understanding belonging to the categories of Quantity: the principle Kant proves in the 'Axioms of Intuition'. In the Axioms of Intuition, Kant proves that the mathematics of *continuous* mathematics can be applied to empirical objects. Kant wants to prove that the laws of geometry apply to these objects and that these objects can be measured (Friedman, 2000: 206-7).

Showing that the mathematics of continuous magnitudes can be applied to empirical objects, Friedman argues, is one of Kant's most important projects. Before the scientific revolution, philosophical thinking was governed by the Aristotelian distinction between the sublunary and the superlunary sphere. According to this world picture, the superlunary sphere is governed by the laws of geometry. The sublunary sphere is not governed by these laws, and can therefore only be described by the laws of *teleology*. The scientific revolution led to an overthrow of this Aristotelian worldview. One of the ideas that guided the scientific revolution was the idea that the sublunary and the superlunary spheres should be regarded as one sphere, and that this entire sphere is governed by geometrical laws (1996: 437). This idea strongly influenced philosophers such as Descartes, Spinoza and Leibniz. Kant thought his predecessors failed to *justify* the idea that mathematics can be applied to nature. Kant's attempts to justify the application of mathematics have led to his ideas about the pure forms of intuition and the categories. (*ibid*) In particular, they led to his proof of the Axioms of Intuition (2000: 207).

In the Axioms of Intuition, Kant proves the principle "All intuitions are extensive magnitudes" (B202).[6] Because intuitions are extensive magnitudes, mathematics can be applied to them. Kant justifies his Principles of the Understanding by showing that the phenomenal world must confirm to these principles for us to be able to experience her. If we follow Longuenesse's interpretation, Friedman argues, this implies that Kant's proofs of the Principles of the Understanding have a specific structure. What Kant shows, is that if the phenomena would not confirm to the Principles of the Understanding, we would not be able to bring these phenomena under concepts. More precisely: We would not be able to think the phenomena under

[6] A-edition: "All appearances are, as regards their intuition, **extensive magnitudes.**" (A162)

concepts combined according to the logical forms of judgment.[7] This suggests that Kant's Axioms of Intuition should be interpreted as follows: If phenomena would not be extensive magnitudes, it would not be possible to think them under concepts combined according to the logical forms of Quantity.[8]

This reconstruction of Kant's proof in the Axioms is problematic. To think objects under concepts combined according to the logical forms of Quantity, we saw in chapter 2, we must generate collections of objects and think them under the same concept. What this generates, however, are *discrete* magnitudes: it generates discrete collections of empirical objects. All Longuenesse's analysis can explain, therefore, is that the mathematics of *discrete* magnitudes can be applied to the phenomenal world. It does not explain why the mathematics of *continuous* magnitudes can be applied to it (207). It does not become clear why geometry applies to empirical objects and – in particular – it does not become clear why it would be possible to *measure* these objects (206). Longuenesse discusses these points, but her explanation is unsatisfactory (*ibid*). Longuenesse attempts to understand continuous magnitudes in terms of discrete magnitudes. This, however, is impossible. We can understand discrete magnitudes in terms of continuous magnitudes, but not the other way around. Discrete magnitudes we can understand in terms of the proportions between continuous magnitudes ('line segment a fits five times into line segment b'). There is, however, no way continuous magnitudes can be understood in terms of discrete magnitudes (*ibid*). Longuenesse's interpretation of Kant's notion of 'number', therefore, is incorrect. Kant understands numbers in the traditional way: in terms of proportions between line segments. He does not understand them in terms of sets of objects thought under the same concept (*ibid*).

3.2 Thompson on Mathematical Objects

To what extent Friedman's criticism of Longuenesse is justified, I will discuss in chapter 4. First, however, we must look at a specific aspect of Friedman's criticism. In her analysis of the categories of Quantity, we saw, Longuenesse uses certain ideas of Frede and Krüger's. She uses the idea that Kant links the category *unity* to singular, and the category *totality* to general judg-

[7]That this is how Friedman reconstructs Longuenesse's general argument becomes clear from Friedman, 2000: 203-4.

[8]That this is how Friedman reconstructs Longuenesse's argument with respect to Kant's Axioms of Intuition becomes clear from Friedman, 2000: 205-6.

ments. Manley Thompson (1989), Friedman states, has refuted Frede and Krüger's argument (Friedman, 2000: 206n.). Although Friedman mentions Thompson's article only briefly, this aspect of his criticism is interesting. It is interesting, because Longuenesse has admitted that Thompson's argument has at least partly refuted Frede and Krüger's article. Some of her ideas, therefore, should be revised. She denies, however, that Thompson's article is problematic to her general theory (Longuenesse, 2005: 45-6). In chapter 4, I will consider whether this is the case. First, however, I will provide a detailed discussion of Thompson's theory.

To understand Kant's ideas regarding the categories of Quantity, Thompson states, we should distinguish between two kinds of objects: empirical objects, or *bodies*, on the one hand, and mathematical objects on the other. Mathematical objects are spatial shapes. They are not, themselves, empirical objects, but they are possible *forms* of empirical objects.[9] Empirical objects can be regarded in two ways: as empirical object, or as mathematical object. An empirical object's spatial form is a mathematical object. When we form judgments about this spatial form, we judge about a mathematical object. This we do, for instance, when we *measure* the object. We then determine the size of its spatial form (Thompson, 1989: 174-6). This is different when, for instance, we want to determine the empirical object's weight. An object's weight is not determined by its spatial form, but by its causal interaction with other empirical objects. In such judgments, we thus judge about empirical objects regarded as empirical objects (176). This we do in most empirical judgments.[10]

To judge about an object, that object must be synthesized. Judgments about a mathematical object, or an empirical object regarded as mathematical object, require a different kind of synthesis than judgments about empirical objects regarded as empirical objects. For the first kind of judgments, only a *mathematical* synthesis is required. For the second kind of judgment, a *dynamical* synthesis is required (174-7).[11] Kant explains the difference between these two syntheses as follows:

> All **combination** (*conjunction*) is either **composition** (*compo-*

[9]See A223/B271.

[10]These ideas, Thompson mainly derives from Kant's examples in §26 of the B-Deduction (see B162-3) and his discussion of the distinction between dynamic and mathematical synthesis (see B201n.).

[11]Thompson's interpretation of Kant's notion of mathematical synthesis is in line with Longuenesse's description of the quantitative synthesis of pure spatial shapes. His interpretation of the notion 'dynamical' synthesis is in line with Longuenesse's notion of relational synthesis.

> *sition*) or **connection** (*nexus*). The former is the synthesis of a manifold of what does not **necessarily** belong **to each other** [...] and of such a sort is the synthesis of the **homogeneous** in everything that can be considered **mathematically** [...]. The second combination (*nexus*) is the synthesis of that which is manifold insofar as they **necessarily** belong **to one another,** as e.g. an accident belongs to some substance [...]. (B201n.)

By pointing to the distinction between mathematical and empirical objects, Thompson criticizes Frede and Krüger's reading of the footnote from the *Prolegomena* we saw in the previous chapter:

> I would prefer this designnation [*judica plurativa*] for judgments that are called in logic *particularia*. For the latter expression already contains the thought that the judgments are not universal. But when I start from unity (in singular judgments) and so proceed to totality, I cannot yet include any reference to totality; I only think plurality without totality, not the exclusion of totality. This is necessary if logical moments are to underlie the pure concepts of the understanding; in logical usage, things can stay they are. (*Prolegomena*, §20n., Ak. IV, 302; 45, n. 13[12])

In this passage, we saw in chapter 2, Kant explains why he prefers to call particular judgments 'plurative' judgments. According to Longuenesse and Frede and Krüger, we saw, Kant prefers this name because it does justice to the fact that we form universal judgments on the basis of these 'plurative' judgments. The passage shows, moreover, that if we want to derive the categories from the logical forms, we must regard these logical forms in the order *singular*, *particular*, *universal*. Singular judgments then correspond to the category *unity*, particular judgments to *plurality* and universal judgments to *totality*.[13]

This reading of the passage, Thompson argues, is not justified (1989: 171-2). Although Kant does connect the category *unity* to singular judgments ("when I start from unity (in singular judgments)") in this passage, we cannot conclude from this that *unity* should always be connected to singular judgments. This footnote stands in a particular context. It is a

[12]Translation derived from Thompson, 1989: 171. Thompson follows the translation provided by Peter G. Lucas (1953) Manchester: Manchester University Press (see chapter 2, footnote 35).

[13]See section 2.3. See also Thompson, 1989: 171-2.

footnote to a section in the *Prolegomena* in which Kant argues that a judgment requires the categories to be "objectively valid" (*Prolegomena*, §20, Ak. 4, 302). This is even required for mathematical judgments:

> Even the judgments of pure mathematics in their simplest axioms are not exempt from this condition. The principle that a straight line is the shortest distance between two points presupposes that the line is subsumed under the concept of quantity [*Größe*], which certainly is no mere intuition but has its seat in the understanding alone and serves to determine the intuition (of the line) with regard to the judgments which may be made about it in respect to the quantity [*Quantität*], that is, to plurality [*Vielheit*], (as *judica plurativa*.)* For under them it is understood that in a given intuition there is contained a plurality of homogeneous parts [*daß in einer gegebenen Anschauung vieles Gleichartige enthalten sei*].[14] (*Prolegomena*, §20, Ak. 4, 301-2)

The judgment 'a straight line is the shortest distance between two points' is a judgment about the intuition of a straight line: a mathematical object. This means, Thompson points out, that Kant's footnote concerns a specific kind of judgments: judgments about *mathematical* objects, not about *empirical* objects (1989: 172). For judgments about mathematical objects the relationship between the categories and logical forms of Quantity should be understood in a specific way. The reason for this is that mathematical objects form specific kinds of 'pluralities'. The line about which we form the judgment 'a straight line is the shortest distance between two points', Kant says, contains "a plurality of homogeneous parts". This plurality strongly differs from the plurality a collection of empirical objects forms. A collection of empirical objects is a *discrete* magnitude. A line is a *continuous* magnitude (*ibid*).

Because a line is a continuous magnitude, we can regard it in a few different ways. We can regard the line as one individual object. We can, however, also regard it as a finite collection of lines of a specific length. Finally, we can even regard it as an infinite collection of smaller lines: as the line is continuous, it has infinitely many parts (*ibid*). For a discrete collection of empirical objects, this is different. Such a collection can, for instance, not be regarded as one individual object. This leads to an important difference. To a mathematical, continuous magnitude like a line, the category *unity*

[14] A part of this passage we already encountered in 2.5.

can be applied in two different ways. First, the category *unity* applies to the unit of measurement by means of which a continuous magnitude can be measured. The category, however, also applies to the mathematical object as individual object. So: the category *unity* applies both to the length-unit by means of which we measure a line, and to the line as individual object (173). To a discrete collection of empirical objects, the category 'unity' can only be applied in one way. The category *unity* does not apply to such a collection as a whole. It only applies to the collection's members.[15]

Because there are two ways in which *unity* applies to mathematical objects, for judgments about mathematical objects, *unity* must sometimes be linked to singular judgments (183). Kant, however, links *unity* primarily to universal judgments (182). In the *Prolegomena*, we saw in the previous chapter, Kant presents the categories of Quantity in the following way (*Prolegomena*, §20, Ak. 4, 303):

1. As to Quantity
Unity (Measure)
Plurality (Quantity)
Totality (Whole)

Thompson thinks, like Longuenesse, that the concepts "measure", "quantity" and "whole" should be regarded as the categories of Quantity applied to continuous magnitudes. *Unity* as unit of measurement should be linked to universal judgments. We fix such units of measurement by means of universal judgments like 'Every line of exactly this length is to be counted as unit' (173).[16] The *unity* Kant links to *singular* judgments is the *unity* that applies to a mathematical object as a whole. When Kant says "when I start from unity (in singular judgments)", *unity* refers to the line considered as unity. *Unity* in this sense should be linked to singular judgments like 'This line is a quantity' (*ibid*) or 'This line has length' (176). If we intend to measure the line, we "start" from judgments like those. We first judge 'this line has length', and then determine this length. We then "proceed" to a judgment like 'This line has such and such a length' (173).

[15]In the next section, I will say more about the application of the categories of Quantity to discrete collections. As we will see there, the category *unity* applies to each object thought under the subject concept of a universal judgment.

[16]See also Thompson, 1989: 182

The judgment ‘This line has such and such a length’, Thompson thinks, can be regarded as plurative and singular at the same time (*ibid*). Why would this be the case? That the judgment can be regarded as a singular judgment is clear: The judgment’s subject is an individual object (173-4). To see why the judgment can be considered a *plurative* judgment, we must note that because the line is a continuous magnitude, it contains an infinite manifold of homogeneous parts. By means of the judgment ‘This line has such and such a length’, we count the number lines of a certain length the line contains. Because we only count the lines of one specific length, we do not count all parts of the line. This makes the judgment plurative, but not universal (172-3). This explains Kant’s remark “when I start from unity (in singular judgments) and so proceed to totality, I cannot yet include any reference to totality”. When I want to measure a line’s length, I intend to count *all* its parts, and thus the *totality* of its parts. I can, however, only count some of these parts. Therefore I “proceed to totality”: I *strive* towards it. However: “I cannot yet include any reference to totality”. I never reach it. I only count a *plurality* of parts of the line, so “I think plurality without totality”. However: I do not think “the exclusion of totality”. I *can* regard the line as a *totality* of parts. This I do in the judgment ‘This line has such and such a length’ regarded as a *singular* judgment (173). Regarded as singular judgment, the judgment applies to the line as a whole, and as such, the line can be regarded as a *totality* of parts (172-3). These ideas are confirmed by the category table in the *Prolegomena*. Singular judgments, Kant links to the concept *whole*. Particular or plurative judgments, he links to the concept quantity (182).

3.3 Thompson on Empirical Objects

In the case of mathematical objects, Thompson makes clear, Kant seems to connect the category *unity* to universal judgments, and the category *totality* to singular judgment. *Unity* (*measure*) he links to judgments like ‘Every line of exactly this length is to be counted as unit’. *Plurality* (*quantity*) he links to judgments like ‘This line has such and such a length’ regarded as plurative. *Totality* (*whole*) is linked to these judgments regarded as singular. Now the question is how the correspondence of the categories and judgment forms should be understood for judgments about *empirical* objects.

At first sight it seems that for empirical judgments the category *allness* should be linked to universal judgments, whereas *unity* should be linked to singular judgments. It seems that a singular empirical object an only be regarded as a *unity*. In a particular (plurative) judgment, it seems, we judge about a *plurality* of such *unities*, and in a general judgment about a *totality* of them (177). This idea, however, can be refuted too (*ibid*).

The category *unity* cannot only be linked to singular judgments, but can be linked to universal judgments as well. In a universal judgment like 'All men are mortal' we think each individual human as a *unity*. We regard all humans as 'unities' under the concept 'man', and think them without distinction (179). Unlike Longuenesse and Frede and Krüger, Thompson does not think that Kant's universal judgments can be regarded as 'conjunctions of singular judgments' (*ibid*). The judgment 'All men are mortal' should not be regarded as a conjunction of judgments like 'John is mortal', 'Mary is mortal', etc. What this judgment expresses, is that each object we think under the concept 'man' should also be thought under the concept 'mortal' (*ibid*).

In a particular (or 'plurative') judgment like 'some men are mortal', we do *not* regard the objects we think under the concept 'man' as unities. We think them as potentially different. We take it to be possible that the concept 'mortal' applies to some of these objects, but not to others. We think each individual human as part of a possible *plurality*, and not as a *unity*. For this reason, particular judgments should be linked to the category *plurality* (*ibid*).[17]

The question which remains to be answered is whether singular judgments can be linked to the category *totality* (or *allness*). To show that this is possible, Thompson uses a complicated argument. According to Leibniz, Thompson points out, knowledge of individual objects is made possible by a certain kind of *allness*. In the part of the Transcendental Dialectic Kant calls 'The Transcendental Ideal', he criticizes this aspect of Leibniz's thought.[18] However, what Kant criticizes is *not* the idea that knowledge of individual objects is made possible by a kind of *allness*. What he criticizes is Leibniz's conception of this *allness*. Kant assigns his own meaning to this notion of *allness*, and *allness* in this sense, he links to singular judgments. Let us have a closer look at this idea.

In 'The Transcendental Ideal' Kant makes the following remark: "the **determination** of a **thing** is subordinated to the **allness** (*universitas*) or the sum total of all possible predicates" (A572/B600). This remark occurs

[17]What it means exactly to regard an object as part of a possible plurality, Thompson does not explain.

[18] Kant does not explicitly mention Leibniz in these passages. Thompson thinks it becomes clear from Kant's remarks elsewhere in the *Critique* (A273-4/B329-30) that the position he is criticizing here is Leibniz's. (Thompson, 1989: 180n.)

in his description of Leibniz's views on individuals. Kant criticizes these views, and the idea that "the determination of a thing is subordinated to the allness (*universitas*) or the sum total of all possible predicates" is one idea he criticizes.

Let us first consider in which sense Leibniz thinks "the determination of a thing is subordinated to the allness (*universitas*) or the sum total of all possible predicates".[19] In the *New Essays Concerning Human Understanding* (1765), Leibniz says the following:

> The most important point in this [problem of individuation] is that individuality involves infinity, and only someone who is capable of grasping the infinite could know the principle of individuation of a given thing. This arises from the influence that all things in the universe have on another.' (Leibniz, *New Essays*, Book III, chapter 3, §6, quoted by Thompson (1989): 180)

In the passage quoted, Leibniz reacts to Locke's views on the formation of general ideas. In his *Essays Concerning Human Understanding* (1690), Locke explains how we, humans, form general ideas. Humans abstract general ideas from individual ideas (Book III, chapter 3, §6). Children, for instance, first form individual ideas like 'mother' or 'nurse'. When they get to know more and more people, they will, at some point, abstract from the differences among these people and acquire the concept 'man' (§7).

This idea, Leibniz criticizes. Leibniz agrees with Locke that abstraction enables us to generate more and more general ideas. He denies, however, that general ideas are generated on the basis of *individual* ideas (Leibniz, *New Essays*, Book III, chapter 3, §6). Individual ideas require general ideas. A child that has not yet formed the concept 'man' does not have a clear idea of his mother either. The child cannot distinguish his mother from other women very well, and will easily apply the concept 'mother' to other women (§8).

In which sense 'individuality involves infinity' and why 'only someone who is capable of grasping the infinite could know the principle of individuation of a given thing', becomes clearer in Leibniz's *Discourse on Metaphysics* (1686). In this work, Leibniz claims that individuals are ontologically structured in such a way that the 'complete' concept of an individual would enable us to tell for each possible predicate P whether P applies to this individual. We humans do not possess complete notions of individuals, but God does:

[19] In order to be able to explain Thompson's idea, I provide a slightly more elaborate explanation of Leibniz's ideas than Thompson does.

> [...] God, seeing Alexander's individual notion or haecceity, sees in it at the same time the basis and reason for all the predicates which can be said truly of him, for example, that he vanquished Darius and Porus; he even knows *a priori* (and not by experience) whether he died a natural death or whether he was poisoned, something we can know only through history. (Leibniz, *Discourse on Metaphysics*: §8)

When Leibniz says 'only someone who is capable of grasping the infinite could know the principle of individuation of a given thing', Thompson thinks, he means that someone who knows the principle of individuation of a given thing should know for each predicate in the *infinite* collection of possible predicates, whether it applies to this thing. One should know the infinite set of predicates the intension of such an individual notion contains.[20]

Considering Leibniz's views on individuals, we can understand what Kant means when he says that, according to Leibniz, "the determination of a thing is subordinated to the allness (*universitas*) or the sum total of all possible predicates". To cognize an individual as individual, Leibniz thinks, I must be able to tell for every possible predicate P whether P or whether not-P applies to x. In this sense, determining an individual requires that we subordinate it to "the sum total of all possible predicates".

The idea that "the determination of a thing is subordinated to the allness (*universitas*) or the sum total of all possible predicates", we saw, is an idea Kant criticizes. Now the question is: *why* does Kant criticize this view? The idea Kant criticizes, Thompson argues, is *not* the idea that "the determination of a thing is subordinated to [...] allness (*universitas*)". What Kant criticizes, is the idea that this *allness* (*universitas*) can be equated with "the sum total of all possible predicates" (Thompson, 1989: 181). The reason Kant finds this problematic, is that he denies Leibniz's principle of the identity of indiscernibles (180). Leibniz thinks that if to some objects a and b the same predicates apply, a and b must be the same object.[21] Kant denies this principle, because he believes that two empirical objects to which the same predicates apply can still be numerically distinct. Two objects to which the same predicates apply can take in two different places in space: "a place $= b$ can just as readily accept a thing that is fully similar and equal to another

[20] Thompson does not say this very clearly. That this is how Thompson reads Leibniz (or how Thompson takes Kant to be reading Leibniz), I derive from Thompson, 1989: 180, footnote 24 and 25.

[21] See, for instance, Leibniz, *Discourse on Metaphysics*: §9: '[...] it follows that it is not true that two substances can resemble each other completely and differ only in number.'

in a place = a as it could if the former were ever so internally different from the latter." (A272/B328) In the Transcendental Ideal, Thompson states, Kant criticizes Leibniz because Leibniz thinks "the sum total of all possible predicates" is sufficient to uniquely determine an individual object. Kant denies that *allness* in this sense suffices to distinguish an individual from all others. Two individuals that are equal with respect to "the sum total of all possible predicates" may still be numerically distinct. Therefore the *allness* (*universitas*) to which "the determination of a thing is subordinated" cannot be equated with "the sum total of all possible predicates" (1989: 180-1).

That Kant himself does think that "the determination of a thing is subordinated to [...] allness (*universitas*)", becomes clear from a passage earlier in the Transcendental Dialectic. In the passage Thompson points to, Kant explains that the judgment 'Caius is mortal' can be formed in two different ways. The judgment can be formed by the *understanding*, or by *reason.* If we form it by means of the understanding, we form it on the basis of experience. If we form the judgment by means of reason, the judgment forms conclusion of some syllogism (177). In the syllogism 'All men are mortal, Caius is a man, so Caius is mortal', for instance, reason infers the judgment 'Caius is mortal' from two other judgments. In this case, the judgment follows *a priori.* As Kant puts it:

> The function of reason in its inferences consisted in the universality of cognition according to concepts, and the syllogism is itself a judgment determined *a priori* in the whole domain of its condition. I can draw the proposition "Caius is mortal" from experience merely through the understanding. But I seek a concept containing the condition [*Bedingung*] under which the predicate (the assertion in general) of this judgment is given (i.e., here, the concept "human"), and after I have subsumed [the predicate] under this condition, taken in its whole domain ("all humans are mortal"), I determine the cognition of my object according to it ("Caius is mortal"). (A321-2/B378)

Directly after Kant has explained that the judgment 'Caius is mortal' cannot only be formed by the understanding, but also by reason, he says:

> Accordingly, in the conclusion of a syllogism we restrict a predicate to a certain object, after we have thought it in the major premise in its whole domain under a certain condition. This complete magnitude of the domain, in the relation to such a

> condition, is called **universality** (*universalitas*). In the synthesis of intuition this corresponds to **allness** (*universitas*), or the **totality** of conditions. (A322/B379-8)[22]

Here, we recognize the *allness* (*universitas*) we encountered in 'The Transcendental Ideal'. In this passage, however, Kant does not describe this *allness* as "the sum total of all possible predicates", but as a "totality of conditions". What could this "totality of conditions" be?

To answer this question we must wonder what Kant means by the "synthesis of intuition" this *allness* "corresponds to". For this, there are two candidates (Thompson, 1989: 178). The "synthesis of intuition" might be the synthesis of intuitions that enables us to derive the judgment 'All men are mortal' on the basis of experience. It could, however, also be the "synthesis of intuition" that enables us to form the judgment 'Caius is mortal' on the basis of experience. Given the context, the second option is more plausible. Before, Kant used the judgment 'Caius is mortal' as an example of a judgment that can be inferred from experience. The judgment 'All men are mortal', he only uses as an example of a major premise of a syllogism the judgment 'Caius is mortal' could be inferred from (*ibid*).

Both interpretations of the "synthesis of intuition" can be united with Kant's remark that: "This complete magnitude of the domain, in the relation to such a condition, is called **universality** (*universalitas*)". 'Universality' concerns the *logical* universality of a judgment. *Allness* is its ontological counterpart. Logically, both the judgment 'All men are mortal' and the judgment 'Caius is mortal' are universal.[23] The *allness* corresponding to this universality could be either the "totality of conditions" that makes possible the application of the predicate 'mortal' to 'all men'. It could, however, also be the "totality of conditions" that makes possible the application of the predicate 'mortal' to 'Caius' (178-9). Because, as we saw before, the second interpretation is more likely, we should consider in what sense a "totality of conditions" makes possible the judgment 'Caius is mortal'.

To form the judgment 'Caius is mortal' I must regard Caius as an individual object distinguishable from other objects (179). The fact that Caius exists as such an individual object, and the fact that certain predicates apply

[22] A question this passage raises is why, in the judgment 'All men are mortal', we think the predicate 'mortal' "in its whole domain". Do we not, rather, think the concept 'men' "in its whole domain"? What Kant means, Thompson thinks, is that in this judgment 'one judges that the predicate applies universally under the condition that the subject is all humans' (1989: 178).

[23] As Kant says: "The logicians rightly say that in the use of judgments in syllogisms singular judgments can be treated like universal ones." (A71/B97)

to Caius, is determined by the *causal* influences of other empirical objects. Objects, Kant thinks, stand in a constant causal interaction, and therefore they determine each others properties. The fact I can regard Caius as an individual object, and can apply the concept 'mortal' to it, is determined by the influence of empirical objects existing before and at the same time as Caius (*ibid*). As Thompson puts it:

> As all co-existing substances are in principle interacting with each other throughout the time of their existence, and as the existence of each substance is the result of the causal interactions of substances that existed before it, the conditions that determine the applicability of predicates to a given substance constitute an indefinite plurality. (*ibid*)

The factors that enable us to recognize Caius as an individual object form an 'indefinite plurality'. This, Thompson infers from Kant's solution to the First Antinomy. The Antinomies of Pure Reason are contradictions reason necessarily encounters in attempting to apply the categories beyond the limits of possible experience. Kant distinguishes four Antinomies of Pure Reason, that all consist in a *thesis* and an *anti-thesis*. This thesis and anti-thesis seem equally convincing, but as they contradict each other, they cannot both be true. The first Antinomy consists in the thesis: "The world has a beginning in time, and in space is also enclosed in boundaries" (A427/B455), and the anti-thesis "The world has no beginning and no bounds in space, but is infinite with regard to both time and space." (A427/B455) Kant solves the first Antinomy by stating that the "series of conditions for a given perception" (A518/B546) does not form an *finite* series, nor an *infinite* series, but an *indefinite* series (*regressus in indefinitum*) (A519-20/B547-8).[24] According to Kant there is thus an indefinite series of 'conditions' causing Caius to exist, and causing him to have the property of being mortal (Thompson, 1989: 179).

The indefinite plurality of conditions determining an individual we can regard as a *unity*. This provides us with an *allness* of conditions (as we saw before, "**allness** (totality) is nothing other than plurality considered as a unity" (B111)). The concept *allness* as *universitas* applies to the *allness* of conditions that enable me to regard Caius as an individual object and to apply the predicate 'mortal' to him. Contrary to *allness* as "the sum total of all possible predicates", this *allness* of conditions enables us to distinguish an object from every other object. By bringing my intuition of Caius under

[24]See Thompson, 1989: 179n.

this concept I regard Caius 'as a single individual distinct from every other in the universe' (Thompson, 1989: 179).

3.4 Two Notions of *Allness*

In the previous sections, we saw that Thompson distinguishes two kinds of *allness*. He distinguishes between *allness* that can be applied to individual empirical objects, and *allness* that can be applied to mathematical objects. Thompson refers to the first kind of *allness* as '*allness* as *universitas*'.

Thompson's analysis of *allness* as *universitas* raises a few questions. In the previous chapter, we saw that Kant links the category *allness* to the notion of *number*: "the concept of a **number** [...] belongs to the category of allness" (B111). I have explained this passage as follows: according to Kant, to every sensible representation the category *allness* (or *totality*) applies, some number concept must apply.[25] This implies that a representation to which the category *allness* applies must have a definite cardinality. Now the problem is that, according to Thompson, the *allness* of conditions which determines an individual object forms an *indefinite* plurality (see 3.3). This suggests that this *allness* does *not* have a definite cardinality.[26]

Thompson solves this problem in the following way. The *allness* Kant mentions in B111 is not *allness* as *universitas*, but the *allness* which applies to mathematical objects. A mathematical object considered as *allness* must have a finite magnitude. To such an object we can apply a number (183).

A related point which needs consideration is how Kant sees the relationship between the categories and the logical forms for *arithmetical* judgments. According to Thompson, Kant finds this relationship obvious. Arithmetical judgments apply to numbers. Arithmetical judgments, moreover, are "not general" (A164/B205), but singular: "Although it is synthetic, however, [the judgment 7 + 7 = 12] is still only a singular proposition." (A164/B205) (Thompson, 1989: 183). Because Kant links numbers to the category *allness*, this confirms the idea that Kant links singular judgments to *allness*. The *allness* arithmetical judgments apply to is not the *allness* as *universitas* which applies to individual, empirical objects. It is the *allness* which applies to *geometrical* judgments (*ibid*).

[25] See section 2.5

[26] See also Thompson, 1989: 182-3.

3.5 Conclusion

In this chapter, I have discussed Friedman's criticism of Longuenesse's theory. Friedman, we saw, interprets Kant's *Critique* differently than Longuenesse does. Friedman focuses on epistemological issues in Kant, Longuenesse's focuses on the cognitive aspects. Friedman believes that Longuenesse's reading of the *Critique* leads to problems. This we see, among other things, in her analysis of the categories of Quantity. Longuenesse assumes that synthesis according to the categories of Quantity aims at generating the extensions of concepts. The fact that empirical objects are synthesized according to these categories, should guarantee Kant's principle "All intuitions are extensive magnitudes". Longuenesse's ideas about the goal of quantitative synthesis, however, only explain why we are capable of representing *discrete* magnitudes. An aspect of Friedman's criticism I have granted special attention to is his remark about Thompson's views. In her analysis, Longuenesse assumes that Kant infers *unity* from general judgments, and *allness* from singular judgments. This idea, she adopts from Frede and Krüger. Thompson criticizes Frede and Krüger's argument, and shows we have good reasons to think that Kant links *unity* to general, and *allness* to singular judgments.

What implications do these criticisms have for Longuenesse's analysis? To answer this question, we should first consider whether Friedman's criticism is justified and whether Thompson's analysis is convincing. This will be the topic of the next chapter.

Chapter 4

Evaluation

In the previous chapter, I have discussed Friedman's criticism of Longuenesse's interpretation of Kant's ideas on Quantity. Friedman, we saw, criticizes Longuenesse for regarding discrete magnitudes as prior to continuous magnitudes. Also, Friedman finds it problematic that Longuenesse's interpretation is partly based on Frede and Krüger's claim that the category *unity* should be linked to singular, and the category *allness* to universal judgments. Frede and Krüger's argument is refuted by Manley Thompson. Thompson, we saw, has shown that we do have good reasons to think Kant intends to link *unity* to universal, and *allness* to singular judgments. In this chapter I will evaluate both Friedman's and Thompson's arguments and consider to what extent Longuenesse's views need to be revised.

4.1 Discrete and Continuous Magnitudes

The first point we need to consider is Friedman's claim that Longuenesse regards discrete magnitudes as prior to continuous magnitudes, and attempts to understand continuous magnitudes in terms of them. I think it is possible to defend Longuenesse against this line of criticism. This I will show in this section.

Friedman reconstructs Longuenesse's position as follows: Quantitative synthesis is what makes possible the logical forms of Quantity, because it enables us represent *collections* of empirical objects and to think them under one and the same concept. Thinking collections of objects under one concept enables us to provide our concepts with an *extension*. This is what makes possible the logical forms of Quantity. As Friedman points out, this analysis explains that quantitative synthesis enables us to represent *discrete* magnitudes. It does, not however, explain why it enables us to represent *continuous* magnitudes. Longuenesse fails to account for the continuity of space and time and the empirical objects given in them.[1]

The question we should ask is whether Longuenesse's analysis of quantitative synthesis *should* account for our capacity to represent continuous objects. I think Longuenesse does not need to explain this. As Longuenesse points out in her reaction to Friedman (Longuenesse, 2005: chapter 2), she does not think it is quantitative synthesis that enables us to represent such objects. What enables us to represent empirical objects as continuous is the fact these objects are given to us in space and time.[2] The representations of space and time are no products of quantitative synthesis (47). The representation of an objective space and an objective time are generated by the activity of figurative synthesis, but they are prior to *quantitative* synthesis (47-8). Just like quantitative synthesis makes possible syntheses according to the categories of Quality and Relation, the representations of time and space make possible quantitative synthesis.[3]

How should we understand this? In chapter 1, I have explained that Longuenesse understands figurative synthesis as an activity in which we combine sensible representations according to the 'sensible forms' of the objective unity of apperception. By combining representations according to these forms, we regard these representations as standing in one objective time and one objective space. We combine sensible representations according to the sensible forms of the objective unity of apperception because the understanding affects sensibility.

Now in which sense are space and time prior to the activity of quantitative synthesis? The figurative syntheses according to the various categories lead us to regard our representations as standing in one objective space and one objective time. To regard our representations in this way, however, we need the representations of an objective space and an objective time. These representations are what enable us to combine our representations according to the objective sensible forms of the objective unity of apperception.[4] Space and time, one could say, are the sensible counterparts of the objective unity of apperception itself. In the beginning of the B-Deduction, in

[1]See section 3.1.

[2]This is what I take Longuenesse to explain at Longuenesse, 2005: 46-7.

[3]See Longuenesse, 2005: 47-8. I assume Longuenesse regards space and time as *logically* prior to quantitative synthesis, not temporarily.

[4]This is how I understand Longuenesse's remark that we represent 'space and time [...] as one whole within which all appearances ought to be situated and ordered' (Longuenesse, 2005: 47). She quite clearly explains this point at *ibid*, p. 36.

§15, Kant discusses "the possibility of a combination in general" (B129). He wonders what it is that makes the synthesis of representations possible. This question he answers by analyzing the concept "combination" (*Verbindung*). "Combination" or synthesis requires three things. It requires (1) a manifold of representations, (2) the synthesis of these representations, and (3) something Kant calls "the concept of the unity of the manifold":

> But in addition to the concept of the manifold and of its synthesis, the concept of combination also carries with it the concept of the unity of the manifold. (B130)

This "concept of the unity of the manifold" is *not* a category, but something "higher" than the categories:

> The representation of this unity cannot, therefore, arise from the combination; rather, by being added to the representation of the manifold, it first makes the concept of combination possible. This unity, which precedes all concepts of combination *a priori*, is not the former category of unity (§10); for all categories are grounded on logical functions in judgments, but in these combination, thus the unity of given concepts, is already thought. The category therefore already presupposes combination. We must therefore seek this unity (as qualitative, §12) some place higher, namely in that which itself contains the ground of the unity of different concepts in judgments [...] (B130-1)

Right after Kant has said this, he introduces, in §16, the "synthetic", or the "objective"[5] unity of apperception: the "I think" that "must **be able** to accompany all my representations" (B131). The "unity" of §15 clearly is the objective unity of apperception.[6]

When, in figurative synthesis, the understanding affects sensibility, what affects sensibility first is the objective unity of apperception. The objective unity of apperception 'generates the a priori representation of a complete unity of our representations' (*KCJ*: 241n.). Space and time are sensible

[5]The synthetic unity of apperception Kant mentions in, for instance, §16 is the *objective* unity of apperception he discusses in §19. Kant states, for instance: "The **transcendental unity** of apperception is that unity through which all of the manifold given in an intuition is united in a concept of the object. It is called **objective** on that account, and must be distinguished from the **subjective unity** of consciousness [...]" (B139)

[6]See *KCJ*: 241-2n. and Longuenesse, 2005: 36.

forms of this a priori representation. Therefore, prior to any synthesis according to the various categories, figurative synthesis generates the representations of 'space and time as qualitative unity, preceding and conditioning all unity according to the categories' (241). This is Kant's point in §26 of the B-deduction:

> Space, represented as **object** (as is really required in geometry), contains more than the mere form of intuition, namely the **comprehension** of the manifold given in accordance with the form of sensibility in an **intuitive** representation, so that the **form of intuition** merely gives he manifold, but the **formal intuition** gives unity of the representation. (B160n.)

When understanding affects sensibility in figurative synthesis, it first generates the representation of "[s]pace, represented as object" or the "formal intuition" of space. This representation precedes the various acts of synthesis according to the categories. This becomes clearer from what Kant says immediately after:

> In the Aesthetic I ascribed this unity merely to sensibility, only in order to note that it precedes all concepts, though to be sure it presupposes a synthesis, which does not belong to the senses, but through which all concepts of space and time first become possible. For since through it (as the understanding determines the sensibility) space or time are first **given** as intuitions, the unity of this *a priori* intuition belongs to space and time, and not to the concept of the understanding (§24). (B160-1n.)

The *unity* of space and time is not generated by means of a category: a "concept of the understanding". It "precedes all concepts". Still, this unity is generated because "the understanding determines the sensibility". From this, Longuenesse infers that the representations of an objective time and an objective space are generated because the understanding, and thus the objective unity of apperception, affects sensibility, but that they are generated prior to any act of synthesis according to the categories.[7]

[7] That this is the point Longuenesse wants to make, I derive from Longuenesse, 2005: p. 36, especially footnote 27. See also *ibid*, p. 68 and p. 70. There, she makes a slightly different, but related point.

According to Longuenesse, the formal intuitions of space and time – the first products of figurative synthesis – are space and time as Kant presents in the Transcendental Aesthetic (see *KCJ*, chapter 8). Note that this is also suggested by the footnote of B160-1.

So: although space and time are generated by figurative synthesis, they are *not* generated by *quantitative* synthesis. This means that Longuenesse's analysis of quantitative synthesis does not have to account for all characteristics of space and time. What, then, *does* account for these characteristics? Although space and time are partly generated by the understanding, the understanding does not determine all of their characteristics. Space and time are generated because the understanding affects sensibility. The sensible faculty, therefore, contributes to the "formal intuitions" this figurative synthesis generates as well. Space and time are continuous as a result of the combination of understanding and sensibility.[8]

Longuenesse's analysis raises various questions, but I do not want to discuss these problems here. What is important for us, is that Longuenesse is not – like Friedman suggests – forced to understand continuous magnitudes in terms of discrete magnitudes. Space and time as formal intuitions are continuous and their continuity accounts for the continuity of empirical objects given in them. Empirical objects are not continuous because they are generated by means of quantitative synthesis. They are continuous because they are given in space and time.

Which effect, then, *does* quantitative synthesis have on objects? Quantitative synthesis enables us to represent manifolds of representations *as* manifolds. It enables us, among other things, to represent a manifold of spaces within the representation of space. The fact that space contains an infinite plurality of spaces is not due to quantitative synthesis. This is due to the specific nature of our sensible faculty. Representing this manifold of spaces *as* manifold, however, we do in quantitative synthesis.[9] In quantitative synthesis, we can represent these spaces one by one to combine them into a representation of a manifold of spaces. Quantitative synthesis also is necessary to *measure* objects: to measure an object we must represent its spatial form as a manifold of spaces. The fact, however, that an empirical object *has* a continuous spatial form which allows it to be measured is *not* a result of quantitative synthesis.

I think we can conclude that Friedman is correct that Longuenesse's analysis of quantitative synthesis does not account for the fact that empirical objects are continuous. Friedman is incorrect, however, that this is problematic. Because Longuenesse assigns a quite autonomous status to space and time, space and time can account for some of the characteristics Kant ascribes to empirical objects. One of the characteristics space accounts

[8]This point, I take Longuenesse to be making at Longuenesse, 2005: 34-5 and 48-9.

[9]This follows from Longuenesse's remarks at Longuenesse, 2005: 48-9

for is the continuity of these objects. Longuenesse, therefore, does not need to explain how quantitative synthesis accounts for this.

4.2 Thompson's Argument: Universal Judgments

From the previous section, it follows that we do not need to follow Friedman's first line of criticism. How is this for the other problem we saw in chapter 3: Thompson's refutation of Frede and Krüger's argument? Before I consider whether Longuenesse should revise her views, we should wonder whether Thompson's argument is convincing. In this section and the following, I will evaluate Thompson's views.

For mathematical judgments, Thompson's analysis seems to work out fine. For empirical judgments, his analysis is more problematic. Even this part of Thompson's analysis, however, contains some very interesting aspects. Especially, the idea that the universal form of judgment should be linked to *unity* rather than *allness* is convincing. It is convincing for two reasons.

One argument in favour of this idea is provided by Thompson himself, although he does not himself present it as a direct argument for his claim. Suppose the category *allness* would be linked to the universal form of judgment. Consider the judgment 'All humans are mortal'. If we link this universal judgment to *allness*, we take *allness* to be referring to the complete extension of the concept 'humans'. Given Kant's definition of the categories, however, it is not very plausible that this is what *allness* refers to. Kant provides the following definition of the categories: "[The categories] are concepts of an object in general, by means of which its intuition is regarded as **determined** with regard to one of the **logical functions** for judgments." (B128) If *allness* would be linked to universal judgments, *allness* would be a concept by means of which the intuition of the collection of all humans is regarded determined with regard the universal logical function of judgments (Thompson, 1989: 178). We can ask, however, whether Kant really regards 'all humans' as an object of which we can have intuitions. As Thompson says: '[...] Kant nowhere indicates that he regards "all humans" as an object of intuition' (*ibid*). An advantage of the analysis Thompson provides, is that it does not require us to regard the collection of all humans as an object of intuition. A universal judgment requires we bring individual objects under the category *unity*. This is what makes us regard them as "determined" with regard to the universal logical function. The only thing Thompson's analysis requires is that we regard these individual objects as objects of intuition.

This brings us to a second, more important advantage of Thompson's analysis. Thompson's idea leads to a much more convincing interpretation of Kant's universal judgments than the interpretation Longuenesse and Frede and Krüger provide. According to Thompson, we saw in the previous chapter, in a universal judgment like 'All men are mortal' we do not think 'a conjunction of singular judgments' (179). Rather, we think that 'any object falling under the concept "human" also falls under the concept "mortal"' (*ibid*).[10] Longuenesse's explanation of the relationship between the categories and logical forms of Quantity leads her to understand universal judgments as conjunctions of singular judgments. In figurative synthesis, Longuenesse thinks, we first generate the representation of a *unity*, then of a *plurality* of such unities, and eventually of an *allness* of such unities. The quantitative logical forms are generated analogously. We first form singular judgments like 'This bird has a beak', 'That bird has a beak', etc. These singular judgments we can combine to particular judgments like 'Some birds have a beak'. Eventually, we can combine these judgments to universal judgments like 'All birds have a beak'. According to this analysis, universal judgments are conjunctions of singular judgments.[11]

Considering the status Kant assigns to judgments, it is implausible he regards universal judgments as conjunctions of singular judgments. As Kant emphasizes, judgments are *rules*. In the *Prolegomena*, Kant says "Judgments, when considered merely as the condition of the unification of given representations in a consciousness, are rules." (*Prolegomena*, §23, Ak. 4: 305).[12] In the *Critique*, Kant describes the understanding – the "faculty for judging" (A69/B94) – as a "faculty of *rules*" (A299/B356, emphasis mine). There is an important difference between universal judgments considered as rules, and universal judgments considered as conjunctions of singular judgments. This follows from Nelson Goodman's (1947) analysis of rules.[13] Consider, for instance, the judgment 'All the coins in my pocket are silver'.[14] This judgment is a typical example of a universal judgment that should be understood as a conjunction of singular judgments. The fact that all coins in my pocket are silver is a coincidence. There is no connection between the property 'being a coin in my pocket' and the property 'being silver'. For this reason, this judgment is not a *rule*. By means of this judgment, I do

[10] Thompson does not really provide an argument for this claim.

[11] See section 2.3. for Longuenesse's analysis of Kant's quantitative logical forms.

[12] This is pointed out by Longuenesse, see *KCJ*: 93.

[13] For a very clear explanation of Goodman's point, see Counihan 2008: 95-8.

[14] Example derived from Goodman, 1947: 124.

not intend to say that to every object I bring under the concept ‘coin in my pocket’, the concept ‘silver’ should be applied (Counihan, 2008: 96). For the judgment ‘All men are mortal’ this is different. It is no coincidence that to every object the concept ‘human’ applies the concept ‘mortal’ applies as well. We can say the concept ‘mortal’ applies to an object *because* that object is human.[15]

That Kant is aware of the distinction between universal judgments that are rules and universal judgments that are conjunctions of singular judgments, is suggested by his Reflection 3286:

> Logical generality says something about kind or species and not about all individuals in an aggregate of them; the latter only provides particular sentences. Like: all planets in our system are dark bodies.
>
> Empirical generality is merely *analogous* to logical [generality]. (Reflection 3286 (1776-89), Ak. 16: 758-9)[16]

In this passage, Kant distinguishes between two kinds of general judgments. A genuine general judgment expresses something about arts and species, not about a collection of individuals. The judgment ‘All planets in our system are dark bodies’, Kant seems to say, is not a proper general judgment. This judgment, we could say, is formed by determining for each planet in our solar system that it is dark. A proper general judgment would be a judgment like ‘All planets are dark bodies’. This judgment states that planets are a species of the art of dark bodies. This judgment expresses a necessary relationship between the concepts ‘planet’ and ‘body’.[17]

[15]See Counihan, 2008: 98. Goodman thinks a universal statements that is a rule (‘law’, in his terminology) ‘is accepted as true while many cases of it remain to be determined, the further, unexamined cases being predicted to conform with it.’ (Goodman, 1947: 124) A sentence like ‘All the coins in my pocket are silver’, on the other hand, ‘is accepted as a description of contingent fact *after* the determination of all cases, no prediction of any of its instances being based upon it.’ (*ibid*)

[16]Die logische Allgemeinheit sagt etwas von Gattung oder Arten und nicht von allen individuen in einem aggregat derselben; denn letztere giebt nur particulare satze. Als: alle Planeten unseres Systems sind dunkele Korper. Empirische allgemeinheit ist nur *analogon* der logischen.

[17]One might ask whether, in the context of the Transcendental Logic, Kant is not interested in “empirical generality” rather than “logical” generality. I do not think this is the case. Note that Kant does not say that genuine general judgments are *analytic*. His definition accounts for certain synthetic judgments as well. Within the context of transcendental logic, I think, Kant is interested in judgments that form *necessary* combi-

By analysing the quantitative logical forms in the way she does, Longuenesse assigns to universal judgments the status of the judgment 'All coins in my pocket are silver' or 'All planets in our system are dark bodies'. What is interesting is that this aspect of Longuenesse's analysis is not even in line with her own ideas about Kant's logical forms of judgment. According to Longuenesse, the logical forms of judgment are – primarily – forms of *analysis* (*KCJ*: 11). They are the forms of those judgments by means of which we generate concepts. To form a concept like 'tree', for instance, we need certain judgments:

> [W]e generate the concept 'tree' [...] insofar as we learn to attribute to every object thought under the concept 'tree', without any added condition, the predicates 'having a trunk', 'having branches', and so on. But we also recognize an object under the concept 'tree' by learning to attribute to it various characters dependent on *added* conditions: "If the whether gets cold, trees lose their leaves," "If a tree gets no water, it perishes," etc. (*KCJ*: 145)

From this it follows that we acquire a concept like 'tree' by forming certain universal judgments: judgments like 'All trees have a trunk', 'All trees have branches' and 'If the whether gets cold, trees lose their leaves'.[18] The rules we form when we acquire the concept 'tree' enable us to recognize trees, and to recognize them under various circumstances. The universal judgments we generate when acquiring the concept 'tree' inform us what 'counts' as a tree. This implies that the judgment 'All trees have property A' does not only tell me something about the trees I have encountered up till now. It also tells me something about the objects I will encounter in the future. This means the universal judgments by means of which we generate concepts cannot be conjunctions of singular judgments.

nations of concepts. Such judgments can express necessary relationships, such as causal relationships, among empirical objects. I think that because we are capable of forming judgments in this sense, we can, in synthesis, generate necessary relationships among objects. I think, therefore, that the general judgments Kant is interested in are "logical" rather than merely "particular". Also note that if the general judgments Kant is interested in in transcendental logic would, in fact, be merely particular, it would not have made sense to add the general judgment form to his table of judgments.

[18] Longuenesse does not say that forming a concept like 'tree' requires we form *explicit* judgments. Following Moritz Steckelmacher (1879) *Die formale Logik Kants in ihren Beziehungen zur Transzendentalen*, Breslau: Köbner, p. 21-2, she describes these judgments as 'silent' judgments (*KCJ*: 122).

4.3 Thompson on the Transcendental Ideal

I have now explained which aspect of Thompson's analysis I find convincing: Thompson's analysis leads to a much more plausible interpretation of Kant's universal judgments. Less convincing, however, I find Thompson's argument for his claim that singular judgments about empirical objects should be linked to the category *allness*. In chapter 3, we have seen that Thompson's argument for this claim rests on his interpretation of two passages from the Transcendental Dialectic. In this section and the following, I will argue that Thompson's interpretation of these passages is problematic.

The first point we need to look at is Thompson's analysis of Kant's remarks in the Transcendental Ideal. Thompson, we saw, reconstructs Kant's point as follows: In the Transcendental Ideal Kant criticizes Leibniz's idea that the "**allness** (*universitas*) or the sum total of possible predicates" (A572/B600n.) is sufficient to distinguish an empirical object from any other object. Leibniz thinks that if the same concepts from the "sum total of possible predicates" apply to an object x and an object y, object x and y must be one and the same object. Because Kant does not accept Leibniz's principle of indiscernibles, he denies that "the **determination** of a **thing** is subordinated to the **allness** (*universitas*) or the sum total of all possible predicates." (A572/B600n.)

Thompson's analysis suggests that Kant finds the notion of the "**allness** (*universitas*) or the sum total of possible predicates" too *weak*. The notion is too weak to determine an individual object.[19] If we look at Kant's views in the Transcendental Ideal, however, we see that Kant rather finds this notion to *strong*.

To understand Kant's remarks in the Transcendental Ideal, we first have to take a closer look at the part of the *Critique* of which the Transcendental Ideal forms a section: the Transcendental Dialectic. The Transcendental Dialectic forms the second part of the Transcendental Logic: the part of the *Critique* in which Kant discusses our discursive cognitive faculty. In the *Critique of Pure Reason*, we saw, Kant criticizes the sceptical conclusions of – in particular – Hume. Kant argues, contra Hume, that we are justified to form judgments like 'A causes B'. There are twelve basic pure concepts of the understanding, and these concepts can be applied to the empirical objects given to us. The proof for this claim Kant provides in the Transcendental Analytic.

[19] See chapter 3, footnote 18. Here, I follow Thompson's assumption that, in the Transcendental Ideal, Kant criticizes Leibniz.

Showing that the application of the categories to empirical objects is justified is not all Kant wants to do. He also wants to find a solution for the typical questions metaphysics is concerned with: Does the world have a beginning in time, or has it always existed? Does God exist? Do we have an immortal soul? Kant thinks we are incapable of answering such metaphysical questions. When we try to answer these questions, we try to acquire knowledge of things that cannot sensibly be given to us. Knowledge, however, we can only acquire of things that are sensibly given.

Although we are incapable of answering the classical metaphysical questions, our cognitive faculty does – by its nature – attempt to formulate answers to these questions. By its nature, our cognitive faculty develops certain *illusions*. These illusions lead us to make metaphysical statements like "The world must have a beginning in time" (A297/B353) or 'We have an immortal soul'. Judgments like those are false or at least unjustified. Kant wants to solve the classical metaphysical questions by providing us insight into the illusions our cognitive faculty generates. By laying bare these illusions, we can avoid being misled by them.[20] In the Transcendental Dialectic, Kant provides a systematic overview of the necessary illusions our cognitive faculty generates.

How does Kant do this? Kant searches for the necessary illusions of our cognitive faculty in the same way he searched for the categories in the Transcendental Analytic.[21] The categories, we saw, are generated by the understanding. By giving a systematic overview of the various actions the understanding can perform, Kant could provide a systematic overview of

[20]Here, I follow Allison, who points out that we should distinguish between the *illusions* reason generates, and the *errors* these illusions lead to. In itself, an illusion cannot be erroneous. We only fall into an error if we judge the illusion to be true. See Allison, 2004: ch. 11, esp. p. 328-9. Allison clarifies this distinction by means of the following analogy: Suppose some straight stick appears to us as bended because it is standing in water. Although our perception of this stick is illusionary, it is not itself erroneous. We only error once we *judge* the stick *is* bended. The same holds for our transcendental illusions: these illusions are not erroneous, but they can easily lead to errors. Note, moreover, the illusionary perception of the bended stick does not disappear even though we know the stick is not bended. The illusion is unavoidable. This also holds for the illusions of reason (*ibid*). See also A293-8/B249-55. Allison adopts important parts of his analysis from Grier (2001).

[21]Kant explicitly announces this. He says, for instance: "Here we must strike out on the same path as we took above in the deduction of the categories; that is, we must consider the logical form of rational cognition and see whether in this way reason will not perhaps also be a source of concepts, regarding objects in themselves as determined synthetically *a priori* in respect of one or another function of reason." (A329/B386)

the various categories.[22] The necessary illusions Kant lays bare in the Transcendental Dialectic are generated by a specific aspect of our discursive cognitive faculty: *reason*.[23] The understanding, we saw earlier, is a "faculty for judging" (A69/B94). It generates *judgments* on the basis of the intuitions sensibility provides us with. The task of reason is to *order* those judgments the understanding generates. Reason tries to infer these judgments from each other, and tries to form a system in which as many judgments as possible can be inferred from as few principles as possible (A307/B364; Allison, 2004: 309) This, reason does by generating series of *syllogisms* [*Vernunftschlüsse*]: inferences with more than one premise. Reason, for instance, attempts to bring a judgment like 'Caius is mortal' under a higher rule like 'All humans are mortal'. This it does by means of the syllogism 'All humans are mortal, Caius is human, so Caius is mortal'. The judgment 'All humans are mortal', reason will try to bring under an even higher rule, such as 'All animals are mortal'. This, reason will do by means of a second syllogism: 'All animals are mortal, all humans are animals, so all humans are mortal' (A307/B364).[24] Reason, therefore, can be called a "faculty [...] of drawing inferences mediately" (A299/B355)

In exercising its task, reason follows certain principles. These principles can be traced back to the principle "find the unconditioned for conditioned cognitions of the understanding" (A307/B364). This principle is a merely logical principle. Now Kant's point is that his principle only makes sense if we presuppose a second, *synthetic* principle:

> But this logical maxim cannot become a principle of **pure reason** unless we assume that when the conditioned is given, then so is the whole series of conditions subordinated to the other, which is itself unconditioned, also given [...]. (A307-8/B364)

To follow the maxim "find the unconditioned for conditioned cognitions of the understanding", reason must assume there is some "unconditioned" to be found. Therefore, reason must adopt this second principle: "when the conditioned is given, then so is the whole series of conditions subordinated to the other, which is itself unconditioned".[25]

[22] See section 1.3.

[23] I will not, here, discuss the exact relationship between reason and the understanding. I say slightly more about this in chapter 5.

[24] This point is clearly explained by Allison, 2004: 315.

[25] This explanation I derive from Allison, 2004: 312. Allison also provides a defence of this argument. See *ibid*: p. 329-32.

This second principle of reason has a special status. On the one hand, reason needs this principle to perform its task. On the other hand, the principle is illusionary. What we must see is that this principle is purely *subjective*. We cannot assume reality confirms to this principle. As long as we recognize the principle is an illusion, it is unproblematic and even useful. Once, however, we assume reality conforms to this principle, this leads to problems.[26] These problems, Kant discusses in the Transcendental Dialectic.

There are various variants of the principle "when the conditioned is given, then so is the whole series of conditions subordinated to the other". In the Transcendental Ideal, Kant discusses one of these variants. In this section of the Transcendental Dialectic, he distinguishes two principles: the principle of *determinability* en het principle of *thoroughgoing determination*. The principle of determinability states:

> Every **concept,** in regard to what is not contained in it, is indeterminate, and stands under the principle of **determinability:** that of **every two** contradictorily opposed predicates only one can apply to it. (A571/B599)

The principle of determinability applies universally to concepts. It states that if nor concept B, nor its opposite not-B is contained in the intension of a concept A, A can be further determined by means of B. The concept 'human', for instance, can be further determined by means of the concept 'female'. If I say about an object x that x is human, I can further determine x by saying whether x has the property 'female'.

The principle of determinability is a "merely logical principle" (A572/B600). In this respect, the principle differs from the second principle: the principle of thoroughgoing determination:

> Every **thing,** however, as to its possibility, further stands under the principle of **thoroughgoing determination;** according to which, among **all possible** predicates of **things,** insofar as they are compared with their opposites, one must apply to it. (A751-2/B599-600)

[26]As Kant says, more generally, about the illusions of reason: "[...] what we have to do with here is a **natural** and unavoidable **illusion** which itself rests on subjective principles and passes them of as objective" (A298/B354).

Again, my explanation is partly derived from Allison, 2005: ch. 11, esp. p. 329-32.

This principle is *not* a merely logical principle. This principle states that for every object x, and every concept A in the set of "all possible predicates of things" it holds that either A or not-A applies to x. The reason this is more than a logical principle is that the principle presupposes there is such a thing as set of "all possible predicates of things" or "the sum total of all possible predicates of things in general" (A572/B600).

The passage Thompson points to in his analysis, occurs in the context of Kant's discussion of the principle of determinability and the principle of thoroughgoing determination:

> The **determinability** of every single **concept** is the **universality** (*universalitas*) of the principle of excluded middle between two opposed predicates, but the **determination** of a **thing** is subordinated to the **allness** (*universitas*) or the sum total of all possible predicates. (A572/B600n.)

At the basis of the principle of determinability, Kant makes clear, lies a logical principle: the principle of excluded middle. At the basis of the principle of thoroughgoing determination, however, there lies the *ontological* notion of the "allness (*universalitas*) of the sum total of all possible predicates".

Kant's argumentation in the Transcendental Ideal is difficult to understand, and there is a lot of discussion on how this part of the *Critique* should be understood. One thing, however, seems to be clear. One of the points Kant wants to make is that the notion of a "sum total of all possible predicates" is an *idea*: a necessary illusion of reason.[27] Reason necessarily develops the idea of this "sum total of all possible predicates" to make possible the principle of thoroughgoing determination. As Allison points out, we have the same situation as before. The principle of thoroughgoing determination is a maxim of reason: reason should strive towards a complete determination of empirical objects. This maxim presupposes the set of all possible predicates to be given. This, however, is an illusion (Allison, 2004: 404).[28] In itself, there is nothing wrong with the idea of "sum total of all possible predicates". Reason, however, falls into error when she assumes this "sum total of all possible predicates" actually *exists*. In fact, this "sum total

[27]The notion of an *idea* is a technical notion: it is a pure concept of reason. I will say more about this notion in the next section.

[28]Actually, Allison says the principle of thoroughgoing determination requires the notion of an *omnitudo realitatis*. This is something slightly different from the "sum total of all possible predicates". As, however, Kant derives the notion of an *omnitudo realitatis* from the "sum total of all possible predicates" (see also Allison, 2004: p. 399-402), I think my formulation of this point is correct as well.

of all possible predicates" does not exist. There is no set of predicates waiting for us to be discovered. We ourselves must *form* these predicates. We are, therefore, constantly attempting to generate this sum total of possible predicates. This task, however, can never be regarded as finished.[29]

Thompson, we saw, reads the the Transcendental Ideal in the following way: Kant criticizes Leibniz because "sum total of all possible predicates" does not enable us to distinguish an object from all others. I do not think this is correct. In as far as Kant criticizes Leibniz, he criticizes him for not recognizing the *idea* of a "sum total of all possible predicates" for what it is: an illusion of reason.[30] Leibniz assumes this "sum total of all possible predicates" *exists*. Even if Kant would agree with Leibniz's principle of indiscernibles, he would have problems with this view. Even if the "sum total of all possible predicates" would suffice to individuate an object, this notion would still be a mere *idea*. The "sum total of all possible predicates" is not to weak to individuate an individual object. It is too strong to be cognized by our cognitive faculty.

4.4 *Allness* as *Universitas*: a Category?

If I am correct that Kant argues that the "sum total of all possible predicates" is a notion that is too strong rather than too weak, this raises questions about Thompson's views on the relationship between singular judgments and the category *allness*. Thompson, we saw in chapter 3, thinks that Kant does not – like Leibniz – link singular judgments to the "allness (*universitas*) [...] of all possible predicates", but to an "allness (*universitas*) [...] of conditions" (A322/B379). The "allness (*universitas*) [...] of all

[29] This point is most explicitely made by Longuenesse (see, for instance, *KCJ*: 307-8). The idea seems to be confirmed by Allison, who says that, according to Kant, '[...] the general concept of a reality cannot be treated as a genus that can be specified *a priori*, since it is only through experience that we can become acquainted with the determinate species of reality that could fall under it.' (2004: 401) That it is the function of an idea of reason to provide reason with a goal becomes clear from the relation Kant draws between ideas and virtue. (A569/B597) Kant also says that an idea is called "**only** an **idea**", because it is a "concept that will [...] never be reached in execution" (A328/B385)

The point Kant eventually wants to make, is that *God* is a necessary idea of reason. God is the *ideal* of pure reason. The "sum total of all possible predicates" is what Kant would call an idea "*in concreto*" (A568/B596). God is an idea "*in individuo*": "an individual thing which is determinable, or even determined, through the idea alone." (A568/B596) From the idea of the "sum total of all possible predicates", reason infers the ideal of God. (See also *KCJ*: 307-8)

[30] See footnote 19.

possible predicates" does not suffice to distinguish an object from all other objects, but the "allness (*universitas*) [...] of conditions" does. If Kant regards the "allness (*universitas*) [...] of all possible predicates" as an *idea* of reason, he regards it as a concept for which no object can ever be given, because it transcends the limits of possible experience. If this is true, we should wonder how this is for the "allness (*universitas*) [...] of conditions" the category *allness* is supposed to refer to. Can *allness* in this sense be given in experience?

If we look at the passage in which Kant introduces the notion of an "allness (*universitas*) [...] of conditions", this seems to be precisely what he is denying. The passage Thompson uses to argue for his claim forms a part of a section in which Kant introduces the notion of a transcendental idea. In the Transcendental Dialectic, we saw in the previous section, Kant wants to provide a systematic overview of the necessary illusions of reason. Kant provides us with this systematic overview, by providing a systematic overview of the pure concepts of reason: the *ideas*. These ideas and the principles belonging to these ideas form the necessary illusions of reason. In the Transcendental Analytic, Kant arrived at a systematic overview of pure concepts of the understanding and principles belonging to them by looking at the possible actions understanding can perform. Because all actions of the understanding are exercised within the act of judging, the table of judgment forms provided a guiding thread for finding the twelve categories. His systematic overview of the ideas of reason, Kant acquires in a similar way. He finds the pure concepts of reason by determining the various actions reason can exercise.

Now which actions are it reason can exercise? The task of reason, we already saw, is to order our judgments by bringing them under higher and higher principles. This reason does by generating *syllogisms*. In finding the pure concepts of reason – the "faculty [...] of drawing inferences mediately" (A299/B355) – therefore, the forms of *syllogisms* provide a guiding thread:

> The form of judgments (transformed into a concept of the synthesis of intuitions) brought forth categories that direct all use of the understanding in experience. In the same way, we can expect that the form of the syllogisms, if applied to the synthetic unity of intuitions under the authority of the categories, will contain the origin of special concepts *a priori* that we may call pure concepts of reason or **transcendental ideas,** and they will determine the use of the understanding according to principles in the whole of an entire experience. (A321/B378)

Let us have another look at the passage in which, according to Thompson, Kant links the category *allness* to the singular form of judgment. Below, I have quoted this passage plus the sentence immediately following it. For convenience, I have numbered the four sentences the passage contains:

> [1] Accordingly, in the conclusion of a syllogism we restrict a predicate to a certain object, after we have thought it in the major premise in ist whole domain under a certain condition. [2] This complete magnitude of the domain, in relation to such a condition, is called **universality** (*universalitas*). [3] In the synthesis of intuition this corresponds to **allness** (*universitas*), or the **totality** of conditions. [4] So the transcendental concept of reason is none other than that of the **totality of conditions** to a given conditioned thing. (A322/B378-9)

This passage is difficult to understand, and it can be interpreted in various ways. The question that is of interest to us is whether Thompson's interpretation of this passage is tenable. To me, this seems difficult to maintain. According to Thompson, the *allness* as *universitas* Kant mentions in sentence 3 of this passage is a *category* expressing the "totality of conditions" determining some individual object. This seems difficult to reconcile with Kant's statement in the fourth sentence. In this sentence, Kant defines a transcendental *idea* as a concept "of the totality of conditions to a given thing". Because categories and ideas are very different concepts, we can be certain that a category cannot express the same thing as an idea does. A category is an *objective* concept: it expresses a possible mark of empirical objects. An idea is *not* an objective concept: it expresses something that cannot be given in an empirical representation.[31]

If we want to claim that the *allness* as *universitas* Kant mentions in sentence 3 is a category, we should – somehow – explain that this *allness* refers to a *totality* that differs from the *totality* Kant mentions in sentence 4. We might then be able to argue that the *totality* Kant mentions in sentence 3 is a different *totality* than the *totality* he mentions in sentence 4. Allison (2004) provides such a reading of this passage. Allison thinks that sentence 2 and 3 of this passage repeat a result from the Transcendental Analytic. In these sentences, Kant infers the category *totality* from the universal logical function. In the fourth sentence, Kant uses this result to define the notion of a transcendental idea. Allison summarizes Kant's moves as follows:

[31] See, for instance: A313/B370 or A567-8/B595-6.

> [F]irst, from the concept of a condition taken in its totality (universality as logical function) to the concept of a totality of conditions (the category of allness or totality), and, second, from this to the totality of conditions for a given conditioned (the transcendental concept of reason). (316)

Whether this interpretation of the passage is correct, I will consider shortly. What is important for now is that it does not seem possible for Thompson to follow Allison's reading. Just like Longuenesse and Frede and Krüger, Allison assumes the category *totality* should be linked to the universal function of judgment. *Totality* refers to the extension of the subject concept of such a judgment. In the passage under discussion, Allison thinks, Kant wants to point out the difference between *totality* as a category on the one hand, and the notion of a transcendental idea on the other:

> whereas "totality" as category is equivalent to "allness," in the sense of all the individuals falling under the extension of a concept, "totality" as thought by reason refers to the completeness of the set of conditions presupposed by something taken as conditioned. (*ibid*)

Allison's interpretation of the category *allness* allows him to maintain that, whereas the *allness* in sentence 3 *can* be given in experience, the *allness* in sentence 4 cannot. Thompson, however, denies the category *totality* should be understood as a totality of individuals thought under the same concept. The category *totality* itself refers to a 'set of conditions presupposed by something taken as conditioned'. It refers to the set of conditions determining an individual object. This makes it very difficult to say – as Allison does – that, in this passage, Kant is 'indicating the *distinction* between the category of allness or totality and a transcendental concept of reason' (*ibid*). If we adopt Thompson's interpretation of the category *totality*, it becomes unintelligible why the *totality* in sentence 3 can, and the *totality* in sentence 4 cannot be given in experience.

It might, of course, be possible to solve this problem, and there might also be other ways than Allison's to argue that the *totality* in sentence 3 is a category. It is, however, possible to provide a more plausible reading of this passage than either Thompson or Allison does. Short before the passage under discussion, Kant discusses the *function* of reason. Kant says: "The function of reason in its inferences consisted in the universality of cognition according to concepts" (A321/B37). As I explained before, Kant characterizes the function of reason because this will enable him to find the transcendental ideas. The categories are generated because the function of the *understanding* affects sensibility. The transcendental ideas are generated because the function of *reason* is applied to certain sensible representations. This we saw before:

> [W]e can expect that the form of syllogisms, if applied to the synthetic unity of intuitions under the authority of the categories, will contain the origin of special concepts *a priori* that we may call pure concepts of reason or **transcendental ideas** [...]" (A321/B378)[32]

In the passage Thompson uses to argue in favour of his interpretation, Kant's remark "This complete magnitude of the domain, in relation to such a condition, is called **universality** (*univeritas*)" (sentence 1), I think, is not meant to remind us of the elementary function of the understanding exercised in universal judgments. It is meant to remind us of the function of *reason*: "the universality of cognition according to concepts".[33] In the subsequent sentence (2), Kant does not discuss the category *totality*. He simply describes the result of the application of the function of reason to "the synthetic unity of intuitions under the authority of the categories". This result consists in an "allness (*universitas*), or the **totality** of conditions", which is an *idea*, not a *category*.

If I am correct, then Kant does not make a complicated move from a function of the understanding, to a category, to an idea. As Allison himself states, this would be quite puzzling (Allison, 2004: 316). In stead, Kant immediately moves from the function of reason to a transcendental idea.[34] If this reconstruction is correct, then this is problematic for Thompson's analysis. Thompson's claim that the singular form of judgment should be linked to the 'category' *allness* as *universitas* fully rests on his interpretation of this passage. I think, therefore, we should conclude Thompson lacks evidence for this claim.

[32]This point is clearly explained by Allison (2004): 216-9 This part of Allison's analysis I do find convincing.

[33]I think it is very well possible, however, the two functions are closely related. I will say more about this in chapter 5. For an interesting analysis of the function of reason and the *relational* functions of the understanding , see Allison (2004): 316-7.

[34]Note that the fact that in the Transcendental Ideal, the notion *allness* as *universalitas* returns in in Kant's description of a specific idea confirms my reading.

4.5 Conclusion

In this chapter, I have responded to Friedman's two objections against Longuenesse's ideas about the categories of Quantity. As we saw in 4.1, we can defend Longuenesse's theory against Friedman's first objection. Friedman is correct that Longuenesse's characterization of quantitative synthesis does not enable her to account for the fact that empirical objects are continuous. This, however, is not a problem, because Longuenesse explains this differently. The status of Friedman's second objection has become doubtful. As I have argued in 4.3, 4.4 and 4.5, Thompson's theory about the relationship between the categories and logical forms of judgment is problematic. It is, therefore, questionable to what extent Thompson has refuted Frede and Krüger's argument. Thompson does, however, point out something very important: Kant's general judgments should not be understood as conjunctions of singular judgments. As I have argued in 4.2, this is correct. Kant cannot understand general judgments as conjunctions of singular ones, as he regards judgments as *rules*. Because Longuenesse – just like Frede and Krüger – regards general judgments as conjunctions of singular ones, her theory is problematic.

As neither Frede and Krüger's, nor Longuenesse's, nor Thompson's account of the relationship between the logical forms and categories of Quantity seems to work, it turns out that all important questions concerning this relation are still open. We must find a new answer to the question how the categories, the logical forms and the schema of Quantity are related. In the next chapter, I will argue that the answer to this question might be less satisfactory than Frede and Krüger, Thompson and Longuenesse have argued.

Chapter 5

Judgment and Quantity

Longuenesse's theory about the relationship between the categories and logical forms of Quantity, we saw in the previous chapter, leads to a serious problem. If we follow Longuenesse's interpretation of the quantitative logical forms, we cannot do justice to Kant's idea that judgments are *rules*. With respect to this point, Thompson's interpretation seems more hopeful. His theory, however ran into problems of its own. It seems that after more than a hundred pages we must conclude that all important questions concerning the categories of Quantity are still open. We must find a new answer to the question how the categories, the logical forms, and the schema of Quantity are related. As I will show in this chapter, the answer to this question might be less satisfactory than Thompson, Longuenesse and also Frede and Krüger have argued.

5.1 Judgment and the Categories of Quantity

If we look at the debate concerning the categories of Quantity, we see the following: Thompson, Friedman and Longuenesse all agree that the categories of Quantity can be used to *measure* individual objects. Friedman thinks this is the main function of the categories, and believes that other applications of the categories of Quantity rely on this application. Longuenesse and Thompson see this differently. Both Longuenesse and Thompson assume that – somehow – the categories of Quantity make possible the quantitative logical forms. Longuenesse thinks the categories of Quantity enable us to represent collections of objects that provide our concepts with their extensions. Our capacity to measure individual objects relies on this capacity. Thompson sees a different relationship between the two roles of the categories. Applied to empirical objects, Thompson thinks, the categories make possible the quantitative logical forms. They make us regard an empirical object in a way that enables us to think it under one of the logical forms of Quantity. The categories of Quantity can also be applied to empirical objects regarded as mathematical objects. This we do when we measure these objects. This, however, is a special application of the categories of Quantity which differs quite strongly from their application to empirical objects.

The theories Thompson and Longuenesse provide have both turned out to be problematic. In this chapter, I will argue that this might not be a coincidence. I think that the idea that synthesis according to the categories of Quantity makes possible the quantitative logical forms of judgment is problematic. I think there is a relationship between the logical forms and the categories in the sense that both are generated by the same functions of the understanding. There does not, however, seem to be a deeper relationship between them. In this chapter, I will explain why this seems to be the case.

5.2 Kant's Definition of the Categories

Why would we think that synthesis according to the categories of Quantity makes possible the quantitative logical forms? Both Thompson and Longuenesse seem to adopt this view from Frede and Krüger. Frede and Krüger infer this idea from Kant's definition of the categories:

> I will merely precede this with the **explanation of the categories.** They are concepts of an object in general, by means of which its intuition is regarded as **determined** with regard to one of the **logical functions** for judgments. Thus the function of the **categorical** judgment was that of the relationship of the subject to the predicate, e.g., "all bodies are divisible." Yet in regard to the merely logical use of the understanding it would remain undetermined which of these two concepts will be given the function of the subject and which will be given that of the predicate. For one can also say: "Something divisible is a body." Through the category of substance, however, if I bring the concept of a body under it, it is determined that its empirical intuition in experience must always be considered as subject, never as mere predicate; and likewise with all the other categories. (B128-9)

Frede and Krüger infer from this passage that when we synthesize an object according to a category of Quantity, this enables us to regard the quantitative logical form of a judgment about that object as "determined" (Frede en Krüger, 1970: 41). If we synthesize an object according to the category *unity*, for instance, this determines that judgments about this object will have a singular logical form. From this idea, Frede and Krüger infer that synthesis according to *unity* generates the representation of an individual object, that synthesis according to *plurality* makes us represent multiple objects, and that synthesis according to *allness* makes us represent a collection of objects. This enables us, respectively, to form singular, particular and general judgments (*ibid*).[1]

Longuenesse, we saw, largely adopts Frede and Krüger's view. The main difference is that Longuenesse is slightly vaguer about the exact relationship between the categories and the forms of judgment. She states that – more generally – the categories of Quantity make possible the various quantitative logical forms. To form particular or general judgments we need to represent a *plurality* of objects regarded as *unities*. If we reflect on this *plurality*, in particular if we assign a number to such a *plurality*, we regard it as an *allness*.[2] Longuenesse does, however, adopt Frede and Krüger's idea that synthesis according to the categories of Quantity makes possible the quantitative logical forms.

Although Thompson criticizes Frede and Krüger, he still assumes that the categories of Quantity make possible a judgment's quantitative logical form. We regard an object as a *unity* in order to form a universal judgment about it, we regard an object as part of a possible *plurality* in order to be able to form a particular judgment about it, and regarding an object as constituting 'a totality of conditions' enables us to form singular judgments about it.[3]

[1] Frede and Krüger say: 'Überlegt man sich nun, welcher Art die Synthesis in einer Anschauung sein muß, damit Urteile über sie hinsichtlich ihrer Quantität als bestimmt sehen werden können, so gibt sich als einzige plausible Antwort: wir müssen das Mannigfaltige so synthetisieren können, daß wir einen, mehrere oder eine Gesamtheit von Gegenständen vor uns haben; dann werden wir jeweils einzelne, plurative oder allgemeine Urteile fällen können.' (*ibid*)

[2] See section 2.5.

[3] See section 3.3. That Thompson thinks the categories of Quantity make possible the quantitative logical forms becomes especially clear in his analysis of singular judgments. Applied to the person Caius, Thompson states, the category *totality* expresses that Caius 'as an object of intuition constitutes a totality of conditions sufficient for the application of a predicate to a single object' (Thompson, 1989: 179). Caius is then 'regarded as determined in respect of the singular function in judgment' (*ibid*).

The idea that the categories of Quantity make possible the quantitative logical forms of judgment leads to a problem. This is recognized by Thompson, Longuenesse and Frede and Krüger alike. The idea, it turns out, is difficult to apply to Kant's remarks about the categories of Quantity in the *Prolegomena*:

> Even the judgments of pure mathematics in their simplest axioms are not exempt from this condition. The principle that a straight line is the shortest distance between two points presupposes that the line is subsumed under the concept of quantity [*Größe*], which certainly is no mere intuition but has its seat in the understanding alone and serves to determine the intuition (of the line) with regard to the judgments which may be made about it in respect to the quantity [*Quantität*], that is, to plurality [*Vielheit*], (as *judica plurativa.*)* For under them it is understood that in a given intuition there is contained a plurality of homogeneous parts [*daß in einer gegebenen Anschauung vieles Gleichartige enthalten sei*]. (*Prolegomena*, §20, Ak. 4, 301-2)

The point Kant wants to make in this passage is quite clear. Consider some empirically given line. There is no guarantee that the axioms of geometry apply to such an empirical representation. The reason we are justified to apply the axioms of geometry to it, is that the line can be thought under "the concept of quantity".[4] The concept of *quantity* "serves to determine the intuition (of the line) with regard to [...] plurality, (as *jucica plurativa.*)". Now suppose that we regard some line's intuition as determined with regard to particular ('plurative') judgments. Do we do this in order to be able to form particular judgments about this line? This seems implausible. It seems that most interesting judgments we could form about a line regarded as *plurality* are either singular or general. First, regarding a line as a *plurality* enables us to form singular judgments like 'This line has such and such a length'.[5] Second, what Kant argues in the above passage is that when a line is determined with respect to the particular logical function, this justifies the application of certain *general* judgments to it: the axioms of geometry.[6]

As I said before, this problem is recognized by all aforementioned authors. All of these authors solve the problem by arguing that the passage

[4]Why this is the case, Kant explains in the Axioms of Intuition.

[5]Example derived from Thompson, 1989: 173

[6]That the axioms of geometry are general is implied by Kant's remarks in A163-5/B204-6.

quoted concerns a special application of the categories. Frede and Krüger claim that, in the *Prolegomena*, Kant discusses a specific type of judgments. Kant discusses judgments that do not merely have a quantitative logical form, but that concern quantity itself (Frede and Krüger, 1970: 48). He discusses judgments in which we determine, for instance, an object's size. When we determine an object's quantity, Frede and Krüger think, this can affect the logical form of the judgments formed about that object. When, for instance, we determine which size a certain line has, regarding that line as a *plurality* must not yield a particular judgment. It may yield a singular judgment. When, in the *Prolegomena*, Kant says that a line is determined with regard to 'plurative' judgments, he means that judgments about this line rely on our capacity to form particular judgments (49). The judgment 'this line has length', for instance, is made possible by a particular judgment like 'multiple measure units are part of this line' (48-49).

Longuenesse offers a slightly different solution. As we saw in chapter 2, Longuenesse thinks that more in general our capacity to represent collections of objects makes possible the various logical forms of Quantity. The capacity to represent collections of objects also enables us to represent the line as a collection of smaller lines. Longuenesse thus slightly loosens the relationship between synthesis and judgment. She interprets the *Prolegomena*-passage as follows:

> [Kant] means, I think, that the same capacity to judge that makes us capable of reflecting our intuitions according to the logical form of quantity also makes us capable of recognizing in the line a plurality of homogeneous segments, thought under the concept "equal to segment *s*, the unit of measurement." (*KCJ*: 265)

When we represent a line as a *plurality*, therefore, we do not necessarily aim at forming particular judgments about that line. Rather, we apply the same capacity that enables us to form such judgments.

Thompson offers a third solution. Thompson solves the problem by assuming that singular judgments about mathematical objects can be regarded as particular judgments. A judgment like 'This line has such and such a length', can be regarded as a particular judgment (Thompson, 1989: 173-4). When we regard a line as a *plurality*, it is determined with regard to particular judgments in *this* sense.[7]

[7] See section 3.2.

None of the solutions offered, I think, really solves the problem. I think there is a problem with the assumption that synthesizing an object according to some category of Quantity makes possible the quantitative logical forms of judgments about that object. A judgment about an object must always have a certain quantitative logical form.[8] Now suppose "determined with regard to one of the logical functions for judgments" means: 'synthesized such that judgments about that object can have a specific logical form'. This would imply that objects must always be determined with respect to one of the logical functions of Quantity, or at least to 'the' logical function of Quantity.[9] That this is not what Kant had in mind is suggested by the following Reflection:

> First, there must be certain titles of thinking, under which appearances in themselves are brought: for example whether they are regarded as magnitude or as subject or as ground or as whole or merely as reality (figure is not a reality). Due to [the titles of thinking] I will not, in the appearance, regard as subject whatever I want, or either as subject or predicate however I want it, but [the appearance] is determined as subject *respective* as ground. Therefore, what kind of logical function is actually valid for the appearance with respect to the others, that of quantity or of the subject, so which function of judgment.[10] Because otherwise we could use logical functions at will, without determining, also without observing, that the object is more suited to one [function] than to the other. Therefore, one can think an appearance without bringing it under a title of thinking in general, and thus without determining an object for it. (Reflection 4672 (1773-75) Ak. 17: 635-6)[11]

[8]Wolff has suggested that judgments of the form 'A is B' do not have a quantitative logical form (Wolff, 1995: 14). There might be such exceptions, but I cannot think of any exceptions that provide a solution to the problem I am raising here.

[9]This is what Longuenesse suggests, see *KCJ*: 251. This also becomes clear from her ideas about the relationship between the logical forms and the categories.

[10]This sentence is ungrammatical in German. See footnote 11

[11] Zuerst müssen gewisse Titel des Denkens seyn, worunter Erscheinungen an sich selbst gebracht werden: z.E. ob sie als Größe oder als subiect oder als Grund oder als Ganzes oder blos als realitaet angesehen werden (figur ist keine realitaet). Ich werde um deswillen in der Erscheinung nicht, was ich will, als subiect ansehen oder, wie ich will, entweder als subiekt oder praedicat, sondern es ist bestimmt als subiect *respective* als Grund. Was vor eine logische Funktion also eigentlich von der Erscheinung in Ansehung der andern gültig sey, ob die der größe oder des subiects, also welche function der Urtheile. Denn sonst können wir nach Belieben logische functionen brauchen, ohne auszumachen, auch ohne

In this reflection, Kant suggests that an object *mustn't* be determined with respect to one of the logical functions of Quantity or to 'the' logical function of Quantity. He suggests that an object *can* be determined with respect to the logical function of Quantity *or*, for instance, the logical function of "the subject". This reflection suggests that synthesis and judgment differ in an important respect. A judgment usually has a quantitative, a qualitative and a relational logical form. Reflection 4672, however, suggests that a sensible representation must not be synthesized according to a category of Quantity, a category of Quality and a category of Relation. I think Thompson's distinction between empirical objects regarded as empirical objects and empirical objects regarded as *mathematical* objects helps us understand Kant's remarks. When we regard an empirical object as a mathematical object, we saw, we regard it primarily as a spatial object. When we regard it as an empirical object we regard it as a substance standing in causal relations with other substances.[12] When we regard an object as determined with respect to the logical function of Quantity, I suggest, we regard it as a mathematical object. When we regard it as determined with respect to the logical function of "the subject", on the other hand, we regard the object as a substance, and thus as an *empirical* object. Although every substance is also a mathematical object, it must not always be regarded as such. I think we only regard it as a mathematical object when, for instance, we measure it. Further, we can imagine that certain things that are not substances can be regarded as mathematical objects. The distance between two objects, for instance, can be regarded as a mathematical object. Therefore, it is plausible that objects might be determined with respect to the logical function of Quantity without being determined with respect to the logical function of "the subject" and vice versa.

If this idea is correct, this has an important implication. This would mean that the application of the categories of Quantity Kant discusses in the *Prolegomena* is not a special application of these categories. The application of the categories of Quantity to empirical objects regarded as mathematical objects is *the* application of these categories. That this is the *only* application of these categories is not only suggested by Reflection 4672. To my knowledge, all applications of the categories of Quantity Kant discusses

warzunehmen, daß das obiect einer mehr als der andern angemessen sey. Also kan man eine Erscheinung denken, ohne sie unter einen Titel des Denkens überhaupt zu bringen, mithin ihr ein obiect zu bestimmen.

Schulthess (1981: 213) briefly discusses this Reflection in his analysis of the development of the categories.

[12] See Thompson, 1989: 174-6 and section 3.2.

concern applications to objects regarded as mathematical objects.[13] The categories of Quantity can – first and foremost – be applied to *spaces*. Other applications of these categories, it seems, should be understood on the basis of this application. Another representation the categories of Quantity can be applied to is the representation of time. The reason, however, they can be applied to time is that we can represent time by means of space.[14] One may point out that the categories of Quantity can also be used to measure *qualities* of empirical objects like their temperature or weight. This, Kant does indeed argue in the Anticipations of Perception. It seems, however, that Kant argues for this claim by pointing out that we can represent such qualities as magnitudes in a way that is similar to the way we represent *spaces* as magnitudes. Although a sensation (that which represents a reality[15]) "can only be apprehended as a unity" (A168/B210), Kant says, it is "capable of a diminution, so that it can decrease and thus gradually disappear" (A168/B209-10). Kant's point seems to be that although a reality does not have parts, we can *represent* it *as* having parts. We can, at different moments in time, represent different degrees of a reality by imagining the decrease of that reality. This is the reason we can regard qualities as having a magnitude. Representing a spatial figure as having a magnitude we do in a similar way: this we do by placing the different parts of that figure in different moments in time. It seems that this analogy of qualities to spatial figures justifies the application of the categories of Quantity. This suggests that this application should be understood on the basis of their application to space.

So: the categories of Quantity primarily apply to objects regarded as mathematical objects. Precisely when the categories are applied to mathematical objects, we saw, it is difficult to maintain that synthesis according to the categories of Quantity makes possible quantity in judgments. This has become clear from our analysis of the passage from the *Prolegomena*. This suggests that the notion "determined with regard to one of the logical functions for judgments" should not be interpreted in the way Frede and Krüger, Longuenesse and Thompson do.

[13] I think this is also (partly) the point Friedman, 2000: 205-6; 206n. wants to make.

[14] Friedman (1992: 129-32) has argued that, according to Kant, our capacity to measure spaces enables us to measure time. This follows – among other things – from Kant's remark that "time [...] cannot be made representable to us except under the image of a line, in so far as we draw it, without which sort of presentation we could not know the unity of its measure at all [...]" (B156) (See also Friedman, 1992: 131). The idea that the categories of Quantity primarily apply to spaces, and that their other applications should be understood on the basis of this application I infer from Friedman's analysis.

[15] See A168/B210.

5.3 The Quantitative Forms of Judgment

In the previous section we saw that we can raise objections against the idea that synthesis according to the categories of Quantity makes possible the quantitative logical forms. There is another reason to think that synthesis according to the categories of Quantity does *not* aim at making possible the logical forms of Quantity. That this is the case becomes clear when we consider how we should interpret Kant's logical forms of Quantity.

In interpreting Kant's logical forms of Quantity, we should keep in mind that Kant is interested in a specific kind of judgments. Kant is interested in judgments that form necessary combinations of concepts. He is not interested in judgments that form such necessary combinations because the judgment's predicate is contained in its subject. He is interested in judgments that form necessary, but *synthetic* combinations. Why is Kant interested in these judgments? Only these kinds of judgments can express causal relations among representations. Because our capacity to form *these* judgments affects sensibility, we generate causal relations among objects in the phenomenal world. Kant's ideas about synthesis are comprehensible only if we assume that, by judgments, Kant means judgments expressing necessary relationships among representations.

Assuming that judgments express necessary relationships among representations, how should we understand the logical forms of Quantity? At first sight, singular and particular judgments do not fit into this picture. If we think of a judgment expressing a necessary relation, we think of a *general* judgment, not a particular or singular one. Does, then, the fact that Kant adds the particular and singular forms of judgment to his Table of Judgments lead to problems? Not necessarily. It depends on how we interpret these judgments. If we interpret these judgments in the way Longuenesse and Frede and Krüger do, we cannot reconcile them with Kant's notion of a judgment. If a singular judgment merely expresses that some individual object A has property B, then we can hardly say this judgment expresses a necessary relationship between A and B. The same holds if a particular judgment would express that one or more objects A have property B. It is, however, possible to interpret the particular and singular forms of judgments in a way that *is* in line with Kant's ideas about judgment.

In the *Logic*, we saw in chapter 2, Kant defines the quantitative logical forms in terms of the extensions of concepts:

> In the *universal* judgment, the sphere of one concept is wholly enclosed within the sphere of another; in the *particular*, a part

> of the former is enclosed under the sphere of the other; and in the *singular* judgment, finally, a concept that has no sphere at all is enclosed, merely as part then, under the sphere of another. (*Logic*, §21, Ak. 9: 102)

An important question we should ask is what exactly Kant means by the extension, the "sphere", of a concept. Longuenesse thinks that, for Kant, the extension of a concept consists in the sensible objects we think under that concept (*KCJ*: 87). In Reflection 3042, Kant calls these objects the "x, y, z" thought under a concept:

> A judgment is a cognition of the unity of given concepts: namely, that what is B, together with other things x, y, z, belongs under the same concept A, or again: that the manifold under B is also to be found under A. (Reflection 3042 (1773-77), Ak. 16: 629, quoted in *KCJ*: 88)

Considering Kant's critical conception of an object, an object is always the *representation* of an object (CKJ: 88n.). The extension of a concept thus consists of the *representations* thought under that concept. From the perspective of general logic, these representations can be concepts or intuitions. Transcendental logic, however, teaches us that we cannot *only* think concepts under intuitions (*ibid*) (after all, "[t]houghts without content are empty" (A51/B75)). Therefore, the "x, y, z" thought under a concept 'ultimately refer to objects of intuition, irreducible to any concept' (*KCJ*: 88n.).

Thompson (1989) criticizes the idea that the extension of a concept consists of the objects or individuals that concept applies to. In fact, Kant thinks the extension of a concept consists in the *concepts* thought under that concept: its species and subspecies (170).[16] Of course, we can also think sensible objects under a concept. In itself, however, a collection of objects cannot form an extension. That this is the case becomes clear from Kant's comparison between extensions of concepts and *spaces* (*ibid*):

> One can regard every concept as a point, which, as the standpoint of an observer, has its horizon, i.e., a multiplicity of things that can be represented and surveyed, as it where, from it. Within this horizon a multiplicity of points must be able to be given to infinity, each of which has its narrower field of view; i.e., every species contains subspecies in accordance with the

[16] See also Friedman, 1992: 67

> principle of specification, and the logical horizon consists only of smaller horizons (subspecies), but not of points that have no domain (individuals). (A658/B686)[17]

Kant compares the concepts we think under a concept to the spaces every bounded space contains. Individuals Kant compares to the *points* such a space contains. According to Kant's conception of space, a collection of points cannot form a space[18] (Thompson, 1989: 170). Only a collection of *spaces* can form a space. For concepts, Thompson thinks, something similar holds: If one or more objects are thought under a concept, this does not provide the concept with an extension. A concept only has an extension in as far as *concepts* are thought under that concept.

Note that Thompson's interpretation of Kant's notion of extension is subtle. Thompson does not deny that that we think *objects* under concepts. In fact, we need these objects to define the logical forms of Quantity. Contrary to Longuenesse, however, Thompson also assigns an important role to the *concepts* we think under a concept. Thompson's interpretation of extension enables us to provide interpretations of singular and particular judgments that are in line with Kant's views on judgments. These interpretations, moreover, explain some puzzling remarks Kant makes about these logical forms.

5.3.1 Universal and Singular Judgments

Longuenesse's interpretation of Kant's notion of extension leads to at least one problem. How can Kant say that, in a singular judgment, "a concept that has no sphere at all is enclosed, merely as a part, under the sphere of another", or – as he puts it in the *Critique* – that singular judgments "have no domain [*Umfang*] at all" (A71/B96)? An example of a singular judgment Kant provides is 'Caius is mortal' (A322/B378). If the extension of a concept consists in the representations thought under that concept, it seems impossible to say that the concept 'Caius' has no extension. 'Caius', after all, applies to at least one sensible representation: the person Caius. If we assume the extension of a concept consists of the representations thought under that concept, then Kant's claim that the subject concept of a singular judgment has no extension becomes incomprehensible.

[17] See Thompson, 1989: 170n.

[18] "Now in space there is nothing real which can be simple; points, which are the only simple things in space, are merely limits, not themselves anything that can as parts serve to constitute space" (B419, quoted by Thompson, 1989: 170n.)

Thompson's interpretation of extension does not suffer from this problem. According to Longuenesse's interpretation, the singular judgment 'A is B' expresses that to the one object x we think under a concept A, the concept B applies. If we follow Thompson's interpretation of extension, we can say that the singular judgment 'A is B' expresses that the concept A under which we happen to think no other concepts is contained in the extension of B.[19] If we adopt Longuenesse's notion of extension it becomes incomprehensible why Kant says that the subject concept of a singular judgment has no extension. If we follow Thompson's interpretation, however, Kant's remark can be understood. Under the subject concept of a singular judgment we do not think any *concepts*, only an object.[20] For this reason, this concept has no extension.

How, then, should we understand singular judgments? To understand this, it will prove helpful to consider how *general* judgments should be interpreted. Thompson, we saw in chapter 3, thinks that the universal judgment 'All A's are B' expresses that any object x that falls under the concept A, also falls under the concept B (1989: 179). I think this interpretation of general judgments is correct. A great advantage of this interpretation over Longuenesse's or Frede and Krüger's interpretation, we saw, is that this interpretation enables us to do justice to Kant's idea that judgments are rules: combinations of concepts expressing necessary relationships among representations.

Our analysis of general judgments also enables us to analyse singular judgments. I think the singular judgment 'A is B' – just like general judgments – expresses 'Any object x that falls under the concept A, also falls under the concept B'.[21] The only difference between singular and general concepts is that the subject concept of a general judgment does, and the subject concept of a singular judgment does not have an extension. This analysis of singular judgments enables us to understand a striking remark

[19] This is not Thompson's own interpretation of singular judgments. Thompson (1972) provides an extensive analysis of singular judgments. If I understand Thompson correctly, he thinks we should regard the singular judgment 'A is B' as a judgment of the form 'There is a unique A, and A is B'. Thompson says: 'The general logic required by Kant's transcendental logic is thus at least first order quantificational logic plus identity but minus proper names or other singular terms that are in principle eliminable. A proper name represents an empirical concept used with an existence and a uniqueness claim and is hence eliminable in favour of a predicate expression.' (334-5) I think this analysis of singular judgments is incompatible with Kant's remarks in Reflection 3068 which I will discuss below.

[20] Or: multiple objects. I will say more about this later.

[21] See footnote 19.

Kant makes in Reflection 3068:

> In general judgments, the *sphere* [*sphaera*] of a concept is wholly enclosed within the sphere of another; in the particular, a part of the former is enclosed under the sphere of the other; in the singular a concept that has no sphere at all is enclosed, merely as a part then, under the *sphere* of another. Therefore, the *iudicia singularia* are to be assessed as like the *universalibus*, and, conversely, a *iudicium universale* is to be assessed like a singular judgment with respect to the *sphere*. Plurality in as far as in itself, it is only one. (Reflection 3068 (1776-89), 16: 640)[22]

In this reflection, Kant says that singular and general judgments are equivalent. Not only is it possible to understand a singular judgment as a general one. Kant explicitly says that, "with respect to the *sphere*", general judgments can be understood as singular ones. My interpretation of singular and universal judgments enables us to regard these judgments as equivalent. What Reflection 3068 shows, I think, is that from the perspective of general logic, it is irrelevant whether the subject concept of a general concept has an extension. Both in singular and general judgments the subject concept is regarded as "only one". The general judgment 'All A's are B' and the singular judgment 'A is B' both express that any object falling under A falls under B.[23] The fact that the subject concept of a general judgment does, and the subject concept of a singular concept does not have an extension only becomes relevant if we compare the quantity [*Größe*] of cognition these judgments express:

> If, on the contrary, we compare a singular judgment with a generally valid one, merely as cognition, with respect to quantity

[22]Im allgemeinen Urteile wird die *sphaera* eines Begriffs ganz innerhalb der *Sphaera* eines andern beschlossen; im particularen ein theil des ersteren unter die Sphäre des andern; im einzelnen ein Begrif, der gar keine *Sphaeram* hat, mithin blos als Theil, unter die *sphaeram* eines andern beschlossen. Also sind die iudicia singularia den vniversalibus gleich zu schatzen, und Umgekehrt ist ein *iudicium vniversale* als ein einzelnes Urtheil in Ansehung der *sphaera* zu betrachten. Vieles, so fern es an sich nur eines ist.

The translation of the first sentence is a modification of Michael Young's translation of §21 the *Logic* (Ak. 9: 102). The translation of the remaining of the passage partly relies on this translation.

[23]An interesting point to note, is that Kant himself does not always formulate general judgments by means of sentences of the form 'All A's are B'. Geometrical axioms, for instance, Kant regards as general judgments (see A164/B205). Examples of such judgments he formulates as follows: "between two points only one straight line is possible" (A163/B204) en "two straight lines do not enclose a space" (A163/B204).

> [*Größe*], then the former relates to the latter as unity relates to infinity, and is therefore in itself essentially different from the other. (A72/B97)

A general judgment 'All A's are B' contains infinitely many cognitions, because it contains infinitely many other *judgments*. Under A infinitely many concepts can be thought. For each of these concepts C, the judgment contains the judgment 'All C's are B' (or 'C is B'). A singular judgment does not contain any other judgments. It contains, therefore, one cognition only. In this sense, the quantity of cognition a singular judgment provides relates to the quantity of cognition a general concept provides like a "unity relates to infinity".[24]

Interpreting singular judgments as universal ones enables us to do justice to Kant's remarks about these judgments. It enables us, moreover, to regard these judgments as expressions of necessary relations. The judgment 'Caius is mortal' does not express that a certain individual object is mortal. Rather, it expresses that the concept 'mortal' applies to every object I bring under the concept 'Caius'. The judgment expresses a necessary relationship between the concept 'Caius' and the concept 'mortal'. Also, one should note that according to this interpretation of singular judgments, it is – strictly speaking – not necessary that a singular judgment applies to one object only. A judgment is singular when its subject concept does not have an extension. If the subject concept of a judgment has no extension, usually this will mean that the judgment applies to at most one object. This, for instance, is the case when the subject concept is a name, like in 'Caius is mortal'. What is interesting, however, is that Kant regards *arithmetical* judgments as singular judgments too. The reason these judgments are singular, Kant says, is that a number concept like 'seven' "is possible only in a single way" (A165/B205). In this respect, the concept differs from a geometrical concept like 'triangle', Kant says (A164-5/B205). The concept 'triangle' does have an extension, because there are various kinds of triangles. The concept 'seven' does *not* have an extension, as there is only one kind of seven. Nevertheless, the concept 'seven' can be applied to various objects. The example of arithmetical judgments suggests that Kant does indeed think that the singularity of singular judgments is due to the *concepts* thought under their subject concept, not to the *objects* thought under them.

[24] This explanation I derive from Thompson, 1989: 170. As I interpret singular judgments in a different way than Thompson does, my interpretation slightly differs.

5.3.2 Particular Judgments

The final point we need to consider, is how we should understand Kant's *particular* judgments. Thompson says the following about particular judgments:

> The subject concept in a universal judgment always has an extension and its predicate applies to every individual in *every* part (subspecies) of this extension and not merely to every individual in at least *some* part, as in a particular judgment. (Thompson, 1989: 170)[25]

According to Thompson the particular judgment 'Some A's are B' expresses that the extension of A contains a concept C such that every object falling under C also falls under B.[26]

If particular judgments are part of Kant's system, I think this is the best way to understand them. According to Longuenesse's interpretation the concept 'Some A's are B' expresses that there is at least one[27] object falling under the concept A that also falls under B. The judgment should be regarded as a conjunction of judgments of the form 'This A is B', 'That A is B',... This interpretation is not in line with Kant's ideas about judgments. Thompson's analysis of particular judgments is reconcilable with Kant's ideas. According to this interpretation, we can regard particular judgments as judgments that express the *existence* of some rule. The judgment 'Some A's are B' expresses that there should be a rule of the form 'All C's are B', where C is a concept thought under A. If we consider which function

[25] Note that Thompson provides two interpretations of general judgments. This one, and the one discussed in 5.3.1. The interpretations are not equivalent. I think Thompson's first analysis of universal judgments provides a better characterization of the judgment 'All A's are B' than his second. According to the first analysis of 'All A's are B's', this judgment expresses that thinking an object x under the concept A justifies the application of B to it. According to the second analysis, thinking x under concept A does not – in itself – justify the application of B. First, we must show that x can be thought under one of A's *subspecies*.

[26] In §21 of the *Logic*, Kant distinguishes between particular judgments that are particular "by accident" and particular judgments that are not (*Logic*, §21, Ak. 9: 103). This passage seems very interesting if we want to consider how particular judgments can be rules. Unfortunately, I do not think this passage is very reliable if we want to gain insight about Kant's interpretation of the logical forms in the *Critique*. The passage corresponds to Reflection 3036 (Ak. 16: 627), which stems from the period 1764-70. See Schulthess, 1981: 38 for an analysis of this reflection.

[27] Or: if she precisely follows Frede and Krüger: more than one, see Frede and Krüger, 1970: 34-7.

a particular judgment might fulfil in Kant's system, this interpretation is quite plausible. If I judge, for instance 'Some trees have property A', then I assume there is a *reason* why some trees have property A. One possible reason is that particular *kinds* of trees have property A. This, for instance, is the case for the property 'bears fruits'. Another reason could be that under certain *circumstances* trees have property A. This, for instance, is the case for the property 'has leaves'.[28]

5.4 Quantitative Synthesis and Judgment

We now have an interpretation of Kant's logical forms of Quantity that is in line with his ideas about judgments. Now we should note that if we assume that judgments express necessary relations among representations, the way in which we see an object is completely irrelevant for the quantitative logical form of such a judgment. We do not, as Frede and Krüger believe, need to represent a *unity* for a singular judgment, a *plurality* of objects for a particular judgment, and an *allness* of objects for a general judgment. Neither do we, as Longuenesse thinks, need to represent a *plurality* of objects to form particular or general objects. Nor do we, as Thompson suggests, need to represent an empirical object, respectively, as a *unity*, as part of a possible *plurality* or as 'determined by' an *allness* in order to form general, particular or singular judgments.

For singular, particular and general judgments the same thing is required. To make possible a singular, particular or general judgment, we need to regard objects as instances of *rules*. We must assume that a representation B applies to an object x on the basis of a *rule* ('All A's are B', 'If A then B'). If I *know* the rule, I express this rule by means of a general or singular judgment. If I do not know the rule, I express it by means of a particular judgment. Now what is it that makes us regard representations as connected according to rules? I would say that this is what the categories of *Relation* do. I do not see what the categories of Quantity could add to this. If we assume that judgments express necessary relations among representations, therefore, it becomes clear that it is unlikely that it is the task of the categories of Quantity to make possible the quantitative logical forms. We do not need these categories for this.

[28]This example I borrow from Longuenesse (*KCJ*: 145). Longuenesse uses this example to show why the formation of the concept 'tree' requires the formation of hypothetical judgments.

5.5 The Categories and the Logical Forms

It seems we do not need a special kind of synthesis to make possible the logical forms of Quantity. This raises the question: what *is* the relationship between the logical forms and the categories? In this section, I will present a possible answer to this question.[29]

I want to suggest that the relationship between the categories and the logical forms of Quantity might be more arbitrary than Frede and Krüger, Longuenesse and Thompson have argued. If we consider our analysis of the logical forms in 5.3, a clear picture emerges about the relationship between the categories and logical forms of Quantity. If we assume that by the extension of the concept Kant means the *concepts* that are thought under that concept, we can easily apply the categories of Quantity to these extensions. In a particular or 'plurative' judgment, we regard the extension of a concept as a (possible) *plurality*.[30] In singular and general judgments, we regard the extension of the subject concept as a *unity*. In a singular judgment, we regard this *unity* as a *unity* only. In a universal judgment it can also be regarded as a *plurality*. In the subject concept of a universal judgment we think "[p]lurality in as far as in itself, it is only one" (R3068), and thus *totality* ("plurality considered as a unity" (B111)). In Reflection 4700, this is exactly how Kant explains the relationship between the categories and the forms of judgment[31]:

> In a judgment, the singular proposition expresses unity, the particular sentence the plurality, and the universal *omnitudinem*. A general proposition expresses the combination of the plurality standing under the general concept of a subject by means of the common predicate, or rather the combination in the *sphere* of some concept [...] (Reflection 4700 (1773-79), 17: 679)[32]

Apparently, the quantitative functions of the understanding enable us to regard the extension of a concept as a *unity*, a *plurality* or an *allness*. Kant's

[29] This is not, I think, the only possible answer. To find out to what extent this answer is correct more research is necessary.

[30] That the extension of the subject concept of a particular judgment forms a *possible plurality* rather than a *plurality* is suggested by Thompson, 1989: 179.

[31] Frede and Krüger also refer to this Reflection to argue for their claim (1970: 31).

[32] In einem Urtheil drückt der singulaire satz die einheit, der particulare die Vielheit, und der universale *omnitudinem* aus. Ein allgemeiner Satz drückt die Verbindung des Vielen, was unter dem allgemeinen Begrif eines subjects steht, durch das gemeinschaftliche praedicat aus oder vielmehr die Verbindung in der *sphaera* eines Begrifs [...].

idea, I think, is that our capacity to think extensions in such a way affects sensibility. Because this capacity affects sensibility, we are able to apply it to (first) spaces[33], and this enables us to represent spatial objects as *unities*, *pluralities* or *totalities*.

There seem to be two problems with this idea. First, it is a problem that the extensions of concepts seem to have very little in common with a space represented as a *unity*, a *plurality* or an *allness*. The *plurality* the extension of a concept forms, for instance, seems to have little in common with the *plurality* a spatial figure can form.

I think that there indeed is a large difference between the categories of Quantity applied to extensions, and these categories applied to sensible representations. Applied to the extensions of concepts the categories of Quantity are "mere **forms of thought**" (B150). Only if these categories are schematized, it becomes possible to apply them to objects. I suggest that in the case of the categories, there happens to be a great difference between the schematized categories and the logical forms they are derived from.

Distinguishing between the categories as "mere forms of thought" and the schematized categories enables us to solve a second problem my suggestion raises: why does Kant present the logical forms in the order *general*, *particular*, *singular* while he represents the categories in the order *unity*, *plurality*, *allness*?

This remains a difficult point. We could explain this in the following way: On the one hand, Kant has had important reasons to present the logical forms in the order *general*, *particular*, *singular*. On the other hand, he has had important reasons to present the categories in the order *unity*, *plurality*, *allness*. Apparently Kant thought that the relationship between these categories and their logical forms was so "obvious"[34], that his presentation would not confuse his readers. What could Kant's important reasons be?

First, we should consider which reasons Kant could have to present the categories of Quantity in the order *unity*, *plurality*, *totality*. Here, I will present a possible answer to this question. I conjecture Kant presents the categories in this order because he wants to point to a specific dependency relation among these categories. The category *plurality* relies on the category *unity*, and the category *allness* relies on the category *plurality*. This dependence relation is important, I suggest, for Kant's projects in the Tran-

[33]See section 5.2.

[34]"The agreement of a single category, namely **community,** which is to be found under the third title, with the form of a disjunctive judgment, which is what corresponds to it in the table of logical functions, is not as obvious as in the other cases." (B111-2)

scendental Dialectic. Making the category *allness* rely on *plurality* enables Kant to restrict the application of the general or universal function of the understanding to sensibility. This enables Kant to distinguish between two kinds of *allness*: *allness* that *can*, and *allness* that *cannot* be sensibly given.

In what sense do the categories of Quantity rely on each other? The categories rely on each other because the sensible representations these categories apply to rely on each other. Applying the categories to empirical representations, we saw in chapter 1, is possible because of *time*. Time is the "mediating representation" (A139/B177) that stands "in homogeneity with the category on the one hand and the appearance on the other" (*ibid*). Therefore, the transcendental schema that justifies the application of a category to empirical objects consists in a "transcendental time-determination" (*ibid*). Longuenesse, we saw, explains this as follows: The transcendental schemata are generated by the understanding when, in figurative synthesis, the understanding affects sensibility. The understanding affects the *form* of 'inner sense': *time*, and this is what generates the 'transcendental time-determinations': the transcendental schemata. Figurative synthesis generates the empirical objects given to us. The transcendental schemata form a specific kind of 'marks' of those objects. The categories express the transcendental schemata, and this justifies their application to empirical objects. So: in figurative synthesis the understanding generates those representations the categories apply to.[35]

This, I think, is correct. This suggests, however, that the representations the categories of Quantity apply to, are generated in a specific way. This becomes clear from the schema Kant presents for these categories. As we saw in chapter 2, Kant presents only one schema of Quantity, even though there are three categories of Quantity:

> The pure **schema of magnitude** (*quantitatis*), however, as a concept of the understanding, is **number,** which is a representation that summarizes the successive addition of one (homogeneous) unit to another. (A142/B182)

Longuenesse, we saw, provides the following explanation for this: The schema of Quantity is the schema of all three categories of Quantity. The category *unity* applies to the *units* the definition mentions. The category *plurality* applies to a "successive addition" of such units. The category *allness* applies to the *summary* of such a successive addition.[36] I think this is correct. This

[35] See section 1.2
[36] See section 2.4

implies, however, that the way Kant links the categories of Quantity to time makes these categories interdependent. Kant's definition of the schema of Quantity indicates that we need *unities* to represent a *plurality*, so the representation of a *plurality* relies on the representation of *unity*. The schema suggests, moreover, that *allness* is a specific kind of *plurality*: a *plurality* which is 'summarized', or "considered as unity" (B111). This means that *allness* depends on *plurality*.

As I said before, I believe that Kant has good reasons to place the categories of Quantity in the dependency relations described. The category *plurality* Kant links to time in a specific manner. A *plurality*, Kant makes clear, always is a *plurality* of *unities*. Representing a *plurality* of *unities* requires a plurality of *moments in time*. This, Kant makes clear in the A-Deduction:

> Every intuition contains a manifold in itself, which however would not be represented as such if the mind did not distinguish the time in the succession of impressions on one another; for **as contained in one moment** no representation can ever be anything other than absolute unity. (A99)[37]

We can represent a *plurality* of representation only by representing the *unities* that *plurality* consists in at distinct moments in time. Representing a *plurality* thus always requires a certain amount of time.

An *allness*, the schema of Quantity suggests, is a specific kind of *plurality*. This implies that an *allness*, like other *pluralities*, must be represented by representing the *unities* the *allness* consists in at distinct moments in time. Characterizing *allness* as a special case of *plurality* enables Kant to provide a second condition for the application of the category of *allness*. An *allness* is a 'summarized' *plurality*. Although Kant does not explicitly say this in his definition of the schema of Quantity, his idea seems to be that a *plurality* can only be 'summarized' if it can be represented in a *finite* amount of time. It must be possible to represent the *unities* a *plurality* consists in at finite moments in time. An *allness* must thus be generated within a *finite time*.

Why would this be the case? First, Kant seems to state that we can only apply the category *allness* to a representation if we can apply a number to it:

> [T]he concept of a **number** (which belongs to the category of allness) is not always possible wherever the concepts of multi-

[37] See also section 3.2.

> tude and of unity are (e.g., in the representation of the infinite) (B111)[38]

In the *Dissertation*, Kant provides almost the same definition of 'number' as he does in the *Critique*. In the *Dissertation*, Kant explicitly says that we can only generate a number if the "successive addition of one (homogeneous) unit to another" can be exercised within a finite time:

> [...]*measurability* here only denotes relation to the unit adopted by the human understanding as a standard of measurement, and by means of which it is only possible to reach *the definite concept of a multiplicity* by successively adding one to one, and the *complete* concept, which is called a *number*, only by carrying out this progression in a finite time [...] (*Dissertation*, §1, Ak. 2: 388n.)

That Kant maintains this view in the *Critique* is suggested by his definition of infinity:

> The true (transcendental) concept of infinity is that the successive synthesis of unity in the traversal of a quantum can never be completed.*
> * This [quantum] thereby contains a multiplicity (of given units) that is greater than any number, and that is the mathematical concept of the infinite. (A432/B460 and A432/B460n.)[39]

A *plurality* is infinite if the "successive synthesis" of the units this *plurality* consists of cannot be completed within a finite time: if it "can never be completed". The reason infinity "is greater than any number" seems to be that if we *can* assign a number to a representation, this representation *can* be generated by a "successive synthesis of unity" within a finite time. Only if this is possible, we have *allness*. Otherwise we only have *plurality*. These considerations suggest that representing an *allness* requires we represent a *plurality* within a finite time.

An *allness* is thus a 'summarized' *plurality*, and only *pluralities* that can be represented within a finite time can be 'summarized'. This characterization of *allness* provides us with necessary conditions for the application of

[38]This we already saw in section 2.5.

[39]This definition is identical to Kant's definition in the Dissertation, where he characterizes the infinite as "a magnitude which, when related to a measure treated as unit, constitutes a *multiplicity larger than any number*" (*Dissertation*, §1, Ak. 2: 288n.)

the category *allness*. The category *allness* can only be applied to *pluralities* that can be generated within a finite time.

This is important. By characterizing *allness* as a specific kind of *plurality*, I think, Kant restricts the application of the general function of the understanding. Why is this necessary? In chapter 4, I have discussed the passage from the Transcendental Dialectic in which Kant introduces the notion of a *transcendental idea*:

> Accordingly, in the conclusion of a syllogism we restrict a predicate to a certain object, after we have thought it in the major premise in its whole domain under a certain condition. This complete magnitude of the domain, in relation to such a condition, is called **universality** (*universalitas*). In the synthesis of intuition this corresponds to **allness** (*universitas*), or the **totality** of conditions. So the transcendental concept of reason is none other than that of the **totality of conditions** to a given conditioned thing. (A322/B378-9)

I have argued that, in this passage, Kant does *not* remind us of his results in the Transcendental Analytic. Kant does not remind us of the fact that the universal logical function generates the category *allness*. When Kant says "This complete magnitude of the domain, in relation to such a condition, is called **universality** (*universalitas*)", he reminds us of the function of reason he introduced a paragraph earlier: "The function of reason in its inferences consisted in the universality of cognition according to concepts" (A321/B378). When we apply this function to certain sensible representations, we generate a transcendental *idea*: a concept "of the totality of conditions to a given conditioned thing".

The fact that in the passage under discussion Kant does not remind us of the results from the Transcendental Analytic does not imply there cannot be a *relation* between this passage and the Transcendental Analytic. Although I think that in this passage Kant reminds us of the function of reason and not of the universal logical function, I believe these functions are closely related. In fact I believe the two functions are one and the same.

Why would this be the case? In the Metaphysical Deduction, Kant says:

> The pure understanding separates itself completely not only from everything empirical, but even from all sensibility. It is therefore a unity that subsists on its own, which is sufficient by itself, and which is not to be supplemented by any external additions. (A64-5/B89-90)

The understanding forms a complete system. Kant's table of judgments is supposed to provide us with a complete overview of the actions – functions – the understanding can exercise. As Wolff (1995) has pointed out, Kant's use of the notion "understanding" is ambiguous. This, for instance, we see in the following passage:

> General logic is constructed on a plan that corresponds quite precisely with the division of the higher faculties of cognition. These are: **understanding, the power of judgment,** and **reason.** In its analytic that doctrine accordingly deals with **concepts, judgments, and inferences,** corresponding exactly to the functions and the order of those powers of mind, which are comprehended under the broad designation of the understanding in general [*des Verstandes überhaupt*]. (A130-1/B169)

In this passage, we see two uses of the notion "understanding". On the one hand, Kant mentions the understanding as one of the components of the "higher faculties of cognition". These "higher faculties of cognition" consist, furthermore, of *reason* and the *power of judgment*. Later, however, Kant says that the various "functions" and "powers of the mind" – and thus these very "higher faculties of cognition" can be "comprehended under the broad designation of the understanding in general" (Wolff, 1995: 89-92).

Wolff has shown that the actions Kant wants to describe by means of the table of judgments are the actions of the "understanding in general".[40] If this is correct – and I think it is – then this has important implications. Kant's table of judgments provides a complete description of the functions of the "understanding in general". Reason is a component of the "understanding in general". This implies that – besides the functions of the understanding – there cannot be a distinct function of reason. This implies that the function

[40] See Wolff, 1995: 89-94. Wolff argues that the Metaphysical Deduction provides an implicit argument for Kant's claim that our higher faculty of cognition ("understanding in general") consists of three components: reason, the power of judgment and understanding in the narrow sense. I will not repeat Wolff's argument here. One passage that supports this claim is Kant's remark "General logic is constructed on a plan that corresponds quite precisely with the division of the higher faculties of cognition" (the table of judgments is the table of general logic). Another remark that supports it is Kant's remark in the Metaphysical Deduction that "the **understanding** in general can be represented as a **faculty for judging.**" (A69/B94) Wolff points to the relation between this remark and Kant's remarks in A130-1/B169 (Wolff, 1995: 89-90). Wolff also explains why there is a relation between judgment and reasoning in syllogisms (96-106). This partly explains why "understanding in general" – a "faculty for judging" – must also contain the faculty for reasoning.

of reason should be one of the functions of the understanding. It seems the general logical function is also is the function of reason.[41]

If the general or universal function of the understanding is the function of reason, then this makes clear why the application of this function to sensibility must be restricted. Applied to certain sensible representations, the general function of the understanding generates an *allness* as *universitas*: a necessary illusion that is expressed by a transcendental idea. The schema of Quantity enables Kant to explain why the representation the transcendental idea expresses cannot be sensibly given. The *allness* the category *allness* expresses can only be generated by means of a finite, successive synthesis of its parts. When the general function of the understanding is applied to a *plurality* of representations for which this is not possible, it generates a different kind of *allness*: *allness* as *universitas*. In that case, it does not generate a *category*, but a transcendental *idea*.

When the general function of the understanding is applied to a *plurality* or representations which can be generated within a finite time, this generates the category *allness*. I think the general function of the understanding generates *allness* as *universitas* precisely when the function is applied to a *plurality* of representations that cannot be generated within a finite time. *Allness* as *universitas*, I suggest, is an *allness* that cannot be generated by means of a finite successive synthesis of its parts.

If this analysis is correct, then this shows that Kant has important reasons to present the categories of Quantity in the order *unity*, *plurality*, *allness*. The empirical representations these categories apply to can only be generated in this order. Making the representation of an *allness* depend on *plurality* enables Kant to distinguish between the *allness* the category *allness* applies to, and the *allness* transcendental ideas apply to.[42]

We have now seen which reasons Kant might have had to place the categories of Quantity in the order *unity*, *plurality*, *allness*. Why, then, does Kant place the logical forms of judgment in the order general, particular,

[41] Wolff does not connect reason to the universal logical function, but to the *relational* logical functions (see Wolff, 1995: 145-7). I think the function of reason is connected to both. Here, I partly follow Allison (2004). Allison connects the function of reason to the relational categories. He says: 'the putative real or transcendental function of reason is to extend [the relation between the conditioned and its conditions expressed in the relational categories], which is thought by the understanding in a piecemeal fashion, to the ideal goal of the totality of these conditions' (317). I think this is correct. The point I want to make is that this function is exercised by the general logical function. I will not consider whether my point is compatible with Wolff's views regarding this point.

[42] This idea can be further tested by considering whether this analysis can be applied to Kant's various arguments in the Transcendental Dialectic.

singular? Actually, I think the much discussed footnote of the *Prolegomena* does provide the most plausible explanation for this:

> I would prefer this designnation [*judica plurativa*] for judgments that are called in logic *particularia*. For the latter expression already contains the thought that the judgments are not universal. But when I start from unity (in singular judgments) and so proceed to totality, I cannot yet include any reference to totality; I only think plurality without totality, not the exclusion of totality. This is necessary if logical moments are to underlie the pure concepts of the understanding; in logical usage, things can stay as they are. (*Prolegomena*, §20n., Ak. 4: 302n.[43])

We should partly read this passage in the way Frede and Krüger suggest. Kant makes clear that in synthesis "I start from unity" and then "proceed to totality". Here, he again makes clear that, in sensible synthesis, *allness* relies on *plurality*. We cannot define *plurality* in terms of *allness*. We need *plurality* to define *allness*. The term 'particular judgment' suggests that, in such a judgment, we apply a predicate to a part of a complete extension. Kant prefers to understand these judgments as judgments in which we regard the extension of a concept as a (possible) *plurality*. I do not think, however, that this reformulation provides particular judgments with different logical properties. Kant only needs this reformulation to explain how the particular logical function can generate the category *plurality*.

I thus partly agree with Frede and Krüger. I disagree with Frede and Krüger's claim that Kant's footnote shows that singular judgments are prior to particular and general judgments. When Kant says "when I start from unity (in singular judgments) and so proceed to totality", he does not want to say that in *judgments* we move from singular, via particular, to general judgments. What Kant wants to say, is that if we represent an *allness*, we must first regard certain representations as determined with respect to the singular logical function, then we must regard them as determined with respect to the particular, and finally we must regard them as determined with respect to the general logical function. In the *real* use of the understanding[44] the general logical function relies on the other two quantitative functions. This real use of the understanding, however, should be distinguished from its *logical* use: "in logical usage, things can stay as they are". In its logical

[43]Translation derived from Thompson (1989): 171/Peter G. Lucas (1953) Manchester: Manchester University Press. See footnote 35.

[44]See section 1.1 and 1.2.

use, the general logical function does *not* rely on the other two functions. The reason Kant presents the logical forms in the order general, particular, singular, is probably that he wants to make this clear. It is very well possible that Kant – as Frede and Krüger suggest – did not want to give the impression that transcendental logical considerations played a role in forming his table of judgments.[45] Kant's interpretation of the logical forms, moreover, does not provide him with any reason to revise the traditional order.

5.6 Implications

In the Introduction, we saw that Longuenesse's interpretation of the Transcendental Analytic differs from most other interpretations because she assigns a greater value to Kant's Metaphysical Deduction. At first sight, the Metaphysical Deduction does not seem to provide much help if we want to consider in what sense the categories make experience possible. It seems the Metaphysical Deduction only proves the completeness of Kant's category table. Why the categories make experience possible, Kant seems to explain later: in the Transcendental Deduction and the Analytic of Principles. Longuenesse sees this differently. According to Longuenesse, the Metaphysical Deduction is crucial if we want to understand Kant's views. We can only understand why the categories make experience possible if we consider the relationship each category has to the form of judgment from which it is inferred.[46]

What do my arguments in this chapter tell us about that status of the Metaphysical Deduction? I still think the Metaphysical Deduction is of great importance to Kant's views in the *Critique*. The relation between judgment and synthesis Kant points to in the Metaphysical Deduction is important. The logical forms in Kant's Table of Judgments provide us with a complete overview of the actions the understanding can exercise: "The functions of the understanding can [...] all be found together if one can exhaustively exhibit the functions of unity in judgments" (A69/B94). Synthesis, Kant says, is an act that is performed by the understanding:

> [...] all combination, whether we are conscious of it or not, whether it is a combination of the manifold of intuition or of several concepts, and in the first case either of sensible or non-sensible intuition, is an action of the understanding, which we would designate with the general title **synthesis** [...] (B130)

[45]See Frede and Krüger, 1970: 33

[46]See Introduction and *KCJ*: 5.

Syntheses or combinations of sensible representations are not *given*, but must actively be generated. As the understanding is the active, 'spontaneous' part of our cognitive faculty, synthesis must be performed by the understanding. As the acts of the understanding Kant discovers by means of the logical forms of judgment provide a complete description of the acts the understanding can exercise, synthesis must somehow be linked to these actions. This, Kant makes clear when he says:

> The same function that gives unity to the various representations **in a judgment** also gives unity to the mere synthesis of different representations **in an intuition** (A79/B104-5).

This explains why the logical forms of judgment provide a 'guiding thread' for the discovery of the various categories. The logical forms provide us with a complete list of functions exercised in synthesis. Because "**pure synthesis, generally represented,** yields the pure concept of the understanding" (A78/B104) this list helps us finding the complete list of categories.[47]

The arguments I have provided in this chapter do not have implications for this idea. They *do* have implications, however, for Longuenesse's specific interpretation of Kant's ideas in the Metaphysical Deduction. In particular, it has implications for Longuenesse's interpretation of Kant's statement that "[t]he same function that gives unity to the various representations in a judgment also gives unity to the mere synthesis of different representations in an intuition". In chapter 1, I pointed out we can interpret this remark in (at least) two ways. One thing Kant could mean is that in the act of synthesizing a sensible manifold we exercise a similar type of action as we do in synthesizing two concepts in a judgment. This would mean that synthesis and judgment form two distinguished acts. This is not how Longuenesse interprets the passage. Longuenesse thinks synthesis forms a *part* of the act of judgment. Synthesis should be regarded as a striving towards judgment. This idea explains the relation between the categories and the logical forms. The understanding attempts to generate in judgments the various logical forms. In its attempt to generate a specific logical form, the understanding performs the synthesis the category corresponding to that logical form expresses.[48]

In this chapter and the previous one, I have argued that Longuenesse's idea is problematic. In the previous chapter I have pointed to a problem

[47]This analysis largely relies on Wolff's analysis (Wolff, 1995, esp. p. 19-43 and 67-9). See also sections 1.2 and 1.3.

[48]See section 1.6.

in Longuenesse's analysis of the relationship between the logical forms, the categories and the schema of Quantity. In this chapter I have argued that the more general idea that underlies Longuenesse's analysis is incorrect. It does not seem to be the case that the synthesis which generates the schema that the categories of Quantity express aims at making possible the quantitative logical forms. The relationship between the categories and forms of judgments seems to be more arbitrary than Longuenesse thinks. If this is correct, this would mean that Kant's remark that "[t]he same function that gives unity to the various representations in a judgment also gives unity to the mere synthesis of different representations in an intuition" should be interpreted differently. It suggests that the first interpretation I have given of this passage is more plausible. In synthesis according to the categories of Quantity we exercise the same function as we do in forming judgments, because in both activities we exercise a similar type of action. Applied to concepts this action generates the logical forms of Quantity. Applied to sensible representations it generates the schema and thus the categories of Quantity. Synthesis and judgment are distinct actions. We do not synthesize according to the categories of Quantity *in order to* make possible the quantitative logical forms.

To what extent do my arguments refute Longuenesse's theory? To decide this, we need to do more research. If my arguments in this chapter are correct, there are two possibilities. It might be the case that the idea that synthesis makes possible the logical forms of judgment is problematic for all categories. This would mean that Longuenesse's theory is incorrect. In that case, we should consider whether there is an alternative way in which we can understand the relationship between the categories and the logical forms. We should consider whether there is another relation between the categories and logical forms besides the fact that both are generated by the same functions.[49]

A second possibility is that, in fact, Kant *does* think the categories make possible the logical forms, but that he himself has problems applying this idea to the categories of Quantity. To argue for this claim, one should conduct a more elaborate investigation than I can provide here. I do think, however, there are reasons to think that the categories of Quantity form a

[49]Such an explanation is desirable, as we would like to explain why the logical function belonging to a certain category generates precisely *that* category and *that* transcendental schema. Unless we have some theory about the relationship between judgment and synthesis, the relation between the logical forms and the categories will remain quite arbitrary. As Longuenesse herself points out, a strong point of her theory is that it makes the relationship between the categories and their schemata seem less arbitrary (*KCJ*: 246).

special group of categories.

Why would the categories of Quantity form a special group of categories? In his article about the history of the table of judgments, Tonelli (1966) has suggested that Kant first discovered the correspondence between the logical forms and the categories for the categories of Quantity, Quality and Modality (156). His argument for this claim is that only for the logical forms of Relation Kant's table of judgment strongly differs from his predecessors (151-3). It seems, therefore, that Kant has inferred the relational logical forms from the categories of Relation after he discovered the correspondence between the logical forms and categories of Quantity, Quality and Modality. For these logical forms and categories the relationship to the categories is easy to see (156-7).

Tonelli provides no further historical support for his suggestion. At first sight, his story sounds plausible. It does not lead, however, to a very charitable reading of Kant. Tonelli's theory suggests that the correspondence between the logical forms and categories is only based on a parallel, not on some intrinsic relationship between judgments and the syntheses the categories express.

If we assume that Kant first discovered a relationship between judgment and synthesis, and that this discovery guided his thinking about the categories and the logical forms, Tonelli's idea becomes less plausible. That there is a relationship between judgment and synthesis becomes clearest if we look at the syntheses the categories of *Relation* express. Synthesis according to the categories of Relation makes us represent certain combinations of sensible representations as necessary. It makes us represent them as necessarily successive or necessarily co-existing. These necessary relations we express in judgments. There is, therefore, reason to think that – applied to sensibility – the faculty that enables us to form judgments generates the categories of Relation. If we assume that Kant discovered the relationship between judgment and synthesis before he started to link the different categories to the different logical forms, then it is more likely that he discovered the correspondence between the categories and judgments for the categories of *Relation*. Precisely this point is argued by Schulthess (1981). Schulthess argues that Kant already linked the categories to judgment before he started to link the categories of Quantity, Quality and Modality to their logical forms. He also argues that Kant first discovered the correspondence between the categories and the logical forms for the categories of Relation.[50]

[50]See Schulthess, 1981: 206-16 for his analysis of the development of the categories and p. 214-5 for his criticism of Tonelli.

We can conclude that there is reason to think that Kant discovered the relationship between judgment and the categories for the categories of Relation. On the other hand, we see that quite some of Kant's ideas about the categories of Quantity stem from the *Dissertation*. Already in the *Dissertation*, Kant discusses what he calls "quantitative" synthesis. This synthesis corresponds to the synthesis that, in the *Critique*, Kant ascribes to the categories of Quantity. He describes quantitative synthesis as "a progression advancing from a given part, through parts complementary to it, to the whole" (*Dissertation*, §1, Ak. 2: 338n.). Further, we saw that Kant's definition of number in the *Dissertation* strongly resembles his definition in the *Critique*.

It seems, all in all, that Kant invented the notion of quantitative synthesis before he came up with the idea that synthesis should be linked to judgment. I suspect, therefore, that at some point in his thinking about the relationship between the categories and judgment, Kant became aware of a parallel between elements in his definition of number, and the logical forms of Quantity. This parallel might have provided sufficient reason for Kant to think that *unity*, *plurality* and *allness* should be regarded as categories. With his discovery of the parallel between the logical forms and these concepts, Kant thought he had discovered the function of the understanding that grounds the synthesis he had already described.

If this idea is correct, then it might be the case that Longuenesse's general theory about the relationship between the categories and logical forms of judgment is correct. In that case, the categories of Quantity would form an exception to this theory.

5.7 Conclusion

In chapter 4 we saw that both Longuenesse and Thompson's account of the relation between the categories and the logical forms of Quantity are problematic. In this chapter, I argued that this is no coincidence. The guiding thought on which both accounts are based, is untenable. Thompson and Longuenesse, like Frede and Krüger, assume that in one way or another, the categories of Quantity make possible the quantitative logical forms. This, they partly seem to infer from Kant's definition of the categories. I have argued that Kant's definition of the categories cannot be interpreted in this way. The idea that the categories of Quantity make possible the quantitative logical forms, moreover, cannot be reconciled with Kant's statement that judgments are rules. It seems that – as Friedman has suggested –

the categories of Quantity mainly apply to spaces, and it seems their main function is to make spaces measurable. This suggests their relationship to the logical forms of judgment is more arbitrary than Thompson, Frede and Krüger and Longuenesse have argued. I have sketched what this relationship might be. The implications of this story are still unclear. It might be possible to maintain Longuenesse's general theory that the categories make possible the logical forms of judgment. This depends on whether the categories of Quantity form an exceptional group of categories or not.

Conclusion

In this thesis, I have considered an important question Kant's Metaphysical Deduction raises: What is the relation between the categories and the logical forms of judgment Kant deduces them from? A specific problem I looked at is what we might call 'the problem of the categories of Quantity': Why does Kant present the categories of Quantity in the order *unity*, *plurality*, *totality* and the logical forms in the order *universal*, *particular*, *singular*?

I have evaluated an interpretation of Kant's work that provides extensive answers to these questions: Béatrice Longuenesse's *Kant and the Capacity to Judge*. According to Longuenesse, we saw in chapter 1, understanding the relation between the categories and the logical forms is essential if we are to understand Kant's claim that the categories are "*a priori* conditions of the possibility of experiences" (A94/B126). Experience arises when we think sensibly given objects under concepts combined in judgments. Originally, the categories are so called *logical functions of the understanding*. These functions generate the logical forms by combining concepts into judgments. These functions, however, can also combine *sensible* representations. In *figurative synthesis* these functions of the understanding synthesize sensible representations into empirical objects. By synthesizing sensible representations to empirical objects, we guarantee that these objects can be thought under concepts combined in judgment. In this way, the categories – as functions of the understanding – make experience possible.

The idea that the categories ensure that objects are given to us such that they can be thought under concepts combined according to the logical forms of judgment, Longuenesse works out for the various groups of categories. Every category makes possible the logical form from which it is deduced. For the categories of Quantity this works in the following way: When the logical function of Quantity is applied to sensible representations, we saw in chapter 2, this generates *manifolds* of sensible representations. This activity, Longuenesse calls 'quantitative synthesis'. Quantitative synthesis also enables us to represent collections of empirical objects. This makes it possible to provide our empirical concepts with an *extension*. To have Quantity in our judgments, our concepts must have extensions. Quantitative synthesis thus makes possible the logical forms of Quantity.

Longuenesse's analysis of the categories of Quantity, we saw, presupposes that Kant regards empirical universal judgments as conjunctions of singular judgments. This idea enables Longuenesse to provide a solution to 'the problem of the categories of Quantity'. It enables her to say that Kant deduces the category *unity* from the singular logical form and the category *totality* from the universal logical form. As we saw in chapter 3, Manley Thompson has provided an alternative account of the relationship between the categories and logical forms of Quantity. Thompson denies that Kant's universal judgments can be regarded as conjunctions of singular judgments. In chapter 4, I argued that this is correct. The idea that universal judgments are conjunctions of singular judgments cannot be reconciled with Kant's idea that judgments are *rules*. If a universal judgment is supposed to be a rule, it cannot be a conjunction of singular judgments. Thompson's own analysis of the categories of Quantity, however, is problematic as well. Thompson fails to provide any evidence for his claims.

As we saw in the final chapter of this thesis it is no coincidence that Longuenesse's and Thompson's theories run into problems. Both Thompson and Longuenesse assume that the categories of Quantity make possible the quantitative logical forms. This idea is problematic. The idea is difficult to reconcile with important remarks Kant makes in the *Prolegomena* and elsewhere. It conflicts, moreover, with Kant's idea that judgments are rules. The relationship between the categories and the logical forms of Quantity might, therefore, be more arbitrary than Thompson, Frede and Krüger and Longuenesse have argued.

If my conclusions are correct, this not only means that Longuenesse's analysis of the categories of Quantity problematic. It means that Longuenesse's theory general idea about the relationship between the categories and the logical forms cannot be applied to these categories. To what extent Longuenesse's general theory can be maintained, is still unclear. Her idea that the categories make possible the logical forms still seems quite attractive. It might be possible to argue that the categories of Quantity form a mere exception to this theory, and that for the other groups of categories, the theory can be maintained.

The conclusion to be drawn is that the question 'What is the relation between the categories and the logical forms of judgment' remains unanswered. Only an extensive investigation of the development of Kant's ideas on synthesis and judgment can provide an answer to this question.

Literature

Achourioti, T. and Van Lambalgen, M. (2011). 'A Formalization of Kant's Transcendental Logic', *The Review of Symbolic Logic*, 1(2), 254-289.

Allison, Henry (2004). *Kant's Transcendental Idealism. An Interpretation and Defense*, New Haven: Yale University Press.

Counihan, Marian (2008). *Looking for Logic in all the Wrong Places: an Investigation of Language, Literacy and Logic in Reasoning*, PhD Thesis, University of Amsterdam.

Frede, Michael and Krüger, Lorenz (1970). 'Über die Zuordnung der Quantitäten des Urteils und der Kategorien der Größe bei Kant', *Kant-Studien* 61, 28-49.

Frege, Gottlob (1953). *The Foundations of Arithmetic: a Logico-Mathematical Enquiry into the Concept of Number*, 2nd rev. ed., trans. J.L Austin., Oxford: Basil Blackwell.

Friedman, Michael (1992a). 'Causal Laws and Natural Science', in: Guyer (ed.) *The Cambridge Companion to Kant*, Cambridge: Cambridge University Press, 161-199.

Friedman, Michael (1992b). *Kant and the Exact Sciences*, Cambridge Massachusetts: Harvard University Press

Friedman, Michael (1996). 'Exorcising the Philosophical Tradiction: Comments on John McDowell's Mind and World', *The Philosophical Review*, 105(4), 427-467.

Friedman, Michael (1997). 'Philosophical Naturalism', *Proceedings and Addresses of the American Philosophical Association*, 71(2), 7-21.

Friedman, Michael (2000). 'Zur Diskussion: Logical Form and the Order of Nature. Comments on Béatrice Longuenesse's *Kant and the Capacity to Judge*', *Archiv für Geschichte der Philosophie*, 82, 202-215.

Grier, Michelle (2001). *Kant's Doctrine of Transcendental Illusion*, Cambridge: Cambridge University Press.

Goodman, Nelson (1947). 'The Problem of Counterfactual Conditionals', *The Journal of Philosophy*, 44(5), 113-28.

Hanna, Robert (2005). 'Kant and Nonconceptual Content', *European Journal of Philosophy*, 13(2), 247-290.

Kant, Immanuel (2002). *Theoretical Philosophy 1755-1770*, Ed. Henry Allison and Peter Heath, Cambridge, MA: Cambridge University Press.

Kant, Immanuel (1992). *Critique of Pure Reason*, Transl. Paul Guyer and Allen W. Wood, Cambridge, MA: Cambridge University Press

Kant, Immanuel (1992). *Lectures on logic*, Transl. J. Michael Young, Cambridge, MA: Cambridge University Press.

Kant, Immanuel (1977). *Prolegomena To Any Future Metaphysics That Will Be Able To Come Forward As Science*, the Paul Carus Translation extensively revised by James W. Ellingon, Indianapolis/Cambridge: Hacket Publishing Company

Kant, Immanuel (1902–) *Immanuel Kants gesammelte Schriften*, herausgegeben von den Königlich Preußischen Akademie der Wissenschaften, Berlin: De Gruyter.

Kemp Smith, Norman (1918). *A Commentary to Kant's 'Critique of Pure Reason'*, London: MacMillan and Co. Limited

Locke, John (1997). *An Essay Concerning Human Understanding*, ed. Roger Woolhouse, London: the Penguin Group.

Leibniz, Gottfried Wilhelm (1991). *Discourse on Metaphysics*, in: *Discourse on Metaphysics and Other Essays*, Trans. Daniel Garber and Roger Ariew, Indianapolis: Hacket Publishing Combany, Inc.

Leibniz, Gottfried Wilhelm (1996). *New Essays on Human Understanding*, trans. and ed. Peter Remnant and Jonathan Bennett. Cambridge: Cambridge University Press.

Longuenesse, Béatrice (1998a). *Kant and the Capacity to Judge. Sensibility and Discursivity in the Transcendental Analytic of the* Critique of Pure Reason, New Jersey: Princeton University Press.

Longuenesse, Béatrice (1998b). 'The Divisions of the Transcendental Logic and the Leading Thread', in: Mohr, George und Willaschek, Marcus (Herausgeber) *Immanuel Kant, Kritik der reinen Vernunft*, Akademie Verlag, 131-58.

Longuenesse, Béatrice (2005). *Kant on the Human Standpoint*, New York: Cambridge University Press.

Parsons, Charles (1983). 'Kant's Philosophy of Arithmetic,' in: *Mathematics in Philosophy*, Ithaca: Cornell University Press, 110-49.

Parsons, Charles (1984). 'Arithmetic and the Categories' *Topoi* 3, 109-121.

Schulthess, Peter (1981). *Relation und Funktion. Eine systematische und entwicklungsgeschichtliche Untersuchung zur theoretischen Philosophie Kants.* Berlin: De Gruyter

Thompson, Manley (1972). 'Singular Terms and Intuitions in Kant's Epistemology', *The Review of Metaphysics*, 26(2), 314-343.

Thompson, Manley (1989). 'Unity, Plurality, and Totality as Kantian Categories', *The Monist*, 72(2), 168-189.

Tonelli, Giorgio (1996). 'Die Voraussetzungen zur Kantischen Urteilstafel in der Logik des 18. Jhds., in: *Kritik und Metaphysik, Festschrift für H. Heimsoeth*, Kaulbach, Friedrich and Ritter, Joachim, Berlin, 134-158.

Wittgenstein, Ludwig (1953). *Philosophical Investigations*, Trans. G.E.M. Anscombe. Oxford: Basil Blackwell.

Wolff, Michael (1995). *Die Vollständigkeit der kantischen Urteilstafel: mit einem Essay über Freges Begriffschrift*. Frankfurt am Main: Klostermann.