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A Metaphysics of Artifacts: Essence and Mind-Dependence

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A Metaphysics of Artifacts: Essence and Mind-Dependence

A Dissertation Presented

by

TIM JUVSHIK

Submitted to the Graduate School of the
University of Massachusetts Amherst in partial fulfillment
of the requirements for the degree of

DOCTOR OF PHILOSOPHY

May 2022

Philosophy

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ABSTRACT

A METAPHYSICS OF ARTIFACTS: ESSENCE AND MIND-DEPENDENCE

MAY 2022

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My dissertation explores the nature of artifacts – things like chairs, tables, and pinball machines – and addresses the question of whether there is anything essential to being an artifact and a member of a particular artifact kind. My dissertation offers new arguments against both the anti-essentialist and current essentialist proposals. Roughly put, the view is that artifacts are successful products of an intention to make something with certain features constitutive of an artifact kind. The constitutive features are often functional features, but may include structural, material, aesthetic, and other features. I further explore the ways in which artifacts are mind-dependent and I argue that this dependence is disjunctive. Not only do they depend on the intentions of their makers, but they also can depend on social groups or public norms and thus artifacts have an importantly social dimension and I argue that this disjunctive account applies not to artifact kinds but to individual artifacts depending on their context of creation.

TABLE OF CONTENTS

	Page
ACKNOWLEDGMENTS	iv
ABSTRACT.....	v
Chapter	
1. Introduction.....	1
2. Artifacts, Essences, and Realism	8
2.1 Introduction.....	8
2.2 What's Realism?	10
2.3 Realist Accounts of Artifacts	15
2.3.1 Mind-Independence Accounts	16
2.3.2 Lowe's Nomological Account	25
2.4 Why Care About Mind-Independence?	29
2.5 A Methodological Alternative	35
2.6 Desiderata for a Theory of Artifacts	42
2.7 Problems with Realism about Artifact Kinds	45
2.7.1 Problems for the Mind-Independence Accounts.....	46
2.7.2 Problems for Lowe's Nomological Account	56
2.8 Conclusion	60
3. Artifacts and Mind-Dependence	62
3.1 Introduction.....	62
3.2 Artifacts and Physical Modification	68
3.2.1 Weitz on the Artifactuality Condition.....	70
3.2.2 Cases of Unmodified Artifacts.....	75
3.2.3 No Abstract Artifacts	80
3.2.4 Objection: Being a K vs. Being Used as a K	82
3.2.5 Objection: Swamp Cases	85
3.2.6 Conditions for Successful Appropriation.....	89
3.3 Artifacts and Mind-Independence.....	95
3.3.1 Spoils to the Victor	97

3.3.2 Three Error Theories.....	99
3.4 Artifacts and Intention-Dependence	103
3.4.1 Accidental Making.....	104
3.4.1.1 Cases of Appropriation, Again	105
3.4.1.2 Objection: Accidental and Incidental Creation.....	108
3.4.2 Automated Production	115
3.4.2.1 Direct vs. Indirect Intentions.....	117
3.4.2.2 Mass Production.....	120
3.4.3 Anticipated but Unintended By-products	122
3.5 Conclusion	125
4. Function Essentialism about Artifacts	127
4.1 Introduction.....	127
4.2 Formulating Function Essentialism	128
4.3 Problems with the Artifact Condition.....	141
4.4 Problems with the Kind Membership Condition	150
4.5 Appeal to Technical Artifacts	155
4.6 Conclusion	158
5. Intentions, Criterial Features, and Collective Mind-Dependence.....	159
5.1 Introduction.....	159
5.2 Intention-Dependence	163
5.3 Criterial Features.....	169
5.4 Artifacts: A First Pass	184
5.5 Artifacts and Social Mind-Dependence	192
5.6 What Kind of Dependence?	206
5.7 Conclusion: Tying All the Threads Together (to Make an Artifact)	213
6. What Makes a Kind an <i>Artifact</i> Kind?.....	219
6.1 Introduction.....	219
6.2 Artifacts versus Other Kinds.....	225
6.2.1 Social and Institutional Kinds.....	226
6.2.2 Natural Kinds.....	237
6.2.3 Other Kinds.....	247

6.3 Distinguishing Artifact Kinds from Each Other	251
6.3.1 Illustrating the Problem.....	255
6.3.2 Norms and Conventions.....	261
6.3.3 A Historical Example: Chopines	270
6.3.4 Artifacts and Social Practices	274
6.3.5 Artifact Kinds as Interactive Kinds.....	285
6.4 Conclusion	291
7. On the Reference of Artifact Kind Terms.....	294
7.1 Introduction.....	294
7.2 Artifact Kind Terms: The Debate So Far.....	297
7.3 Artifact Essences.....	303
7.4 Indexicality and Rigidity.....	313
7.5 The Qua-Problem.....	321
7.6 Analyticity and Epistemic Privilege	335
7.7 Conclusion	347
BIBLIOGRAPHY.....	350

CHAPTER 1: INTRODUCTION

Artifacts are everywhere. They are our constant companions in our everyday lives. So much so that we often take them for granted. Artifacts range from the simple – coffee mugs, walking canes, paper weights, and hair ties – to the extremely complex – cellphones, laptops, cars, and buildings and from the common – shoes, notepads, and hairdryers – to the rare and technical – rotary engines, particle accelerators, and mRNA vaccines. We interact with artifacts in myriad ways, making them, using them, judging them, fixing them, gifting them, recycling and reusing them. Given the ubiquity of artifacts in our lived experience, a philosophical exploration of them is called for.

While artifacts have been of philosophical interest for a long time, it is only relatively recently that distinctly metaphysical attention has been paid to them. It's only in the past several decades that philosophy has started paying attention to the *unique* questions that arise when thinking about artifacts and other social objects. With the publication of John Searle's *The Construction of Social Reality* (1995), philosophers began to appreciate the complex ontological nature of the social world. Post-Searle, philosophy has undergone something of a revolution in social ontology and normativity. This has led to vigorous investigation of social and institutional kinds like money, marriage, race and gender, and courts of law.¹ However, it's also led a number of philosophers to investigate artifacts and try and integrate them into broader philosophical frameworks. Prior to this social pivot in the late twentieth century, there were two main areas of philosophy where artifacts were routinely discussed. On the analytic side of things, interest in artifacts arose in the philosophy of art and aesthetics. This is because attempts to understand the nature of art naturally led to the suggestion that artworks are at least a kind of artifact. If

¹ For example, Thomasson 2003b, Bicchieri 2006, Gilbert 2015, Epstein 2015, Khalidi 2016, and Guala 2016.

artworks have an essence, then presumably they are essentially artifacts. Thus, to understand the nature of art, philosophers sought to understand the nature of artifacts.² On the continental side of things, interest in artifacts was primarily phenomenological. Because the phenomenologists focused on lived experience and its material context, they naturally investigated how humans experienced and interacted with material artifacts and the ways artifacts structured and extended consciousness.³

There is now a sizable literature on the nature of artifacts, including their metaphysical, epistemological, and normative and ethical dimensions. A good chunk of this literature, at least in metaphysics, seeks to determine whether artifacts and artifact kinds have essential natures in the same sense as, say, water is essentially H₂O or dogs are essentially mammals or negative charge is an essential property of electrons. That is, do chairs, coffee mugs, sandals, and rotary engines have anything in common in virtue of which they are *artifacts* and does each subkind of artifact like, say, *furniture*, *pick-up truck*, or *hammer* have something in common in virtue of which all pieces of furniture, pick-up trucks or hammers are members of that artifact kind, respectively?

There are a number of different proposals for artifact essences in the literature. Many of these proposals involve positing functional, structural, intentional or material essences for artifacts or some combination of these.⁴ In what follows I will consider and evaluate these various proposals for artifact essences with the aim of developing my own account of artifacts and artifact kinds. In brief, my view is that artifacts are successful products of an intention to make something with certain features constitutive of an artifact kind. The constitutive features of artifact

² For example, Weitz 1956, Eaton 1969, Iseminger 1973, Dickie 1984, Davies 1991, and Dipert 1993.

³ E.g. Heidegger 1962, 1993, Merleau-Ponty 1945, and Dreyfus 1990.

⁴ See, e.g. Hilpinen 1992, Bloom 1996, Thomasson 2003b, 2007, Baker 2007, Kornblith 1980, 2007, Levinson 2007, Grandy 2007, Hughes 2009, Preston 2009, Evnine 2016, Olivero 2019, Koslicki 2018, and Goodman 2020.

kinds are often functional features, but may also include structural, material, aesthetic, geographic and other features. I further explore the ways in which artifacts are mind-dependent and I argue that this dependence is disjunctive. Not only do artifacts depend on the intentions of their makers to bestow certain constitutive features on an object, but they also can depend on social groups or public norms which govern the artifact kind and thus artifacts have an important social dimension.

However, I argue that this disjunctive account of artifact mind-dependence applies not to artifact *kinds* but rather to *individual* artifacts depending on their context of creation. Thus, while my account of artifacts and artifact kinds is broadly ‘intentionalist’, it goes beyond most extant intentionalist accounts by recognizing the social nature of artifacts. In this way, artifacts are similar to natural kinds in that they have an essence while simultaneously being similar to institutional kinds in that they are distinctly social. A study of artifacts thereby falls under the purview of social ontology, writ large.

Chapter 2 is methodological. I adopt the pragmatic constraint as a method for evaluating proposals about the nature of artifacts, which involves extracting a list of pre-theoretic features from our practices and balancing them in a process of reflective equilibrium against our metaphysical commitments. Using this method, I consider various realist approaches to artifact essences and argue that they aren’t extensionally adequate to our practices because they are so radically revisionary that they end up changing the subject of our initial inquiry. They come up with essences of kinds that aren’t our familiar artifact kinds like chair and pencil but very narrowly individuated kinds all in order to maintain a specific account of essence only appropriate for natural kinds. While the realist accounts of artifact essences comprise a large portion of the literature, they are methodologically misguided.

Chapter 3 explores four positions on mind-dependence: (a) artifacts are dependent on some mind; (b) artifacts are dependent on some mind, and specifically on some intention; (c)

artifacts are dependent on some intention, and must be the result of intentionally physically modifying some object; (d) artifacts are often mind-dependent, but this isn't necessary for artifactuality. I defend (b) as the default position by eliminating the other options. I argue that (c) is false because artifacts need not be the result of physical modification. I first formulate the physical modification requirement in its strongest form, and then offer a number of counterexamples to it. This shows that artifact creation by appropriation is possible: I can move a piece of driftwood from the beach to my kitchen and thereby make a wine rack without otherwise modifying it. I then consider cases in support of (d), including swamp cases whereby a putative artifact comes into existence by randomly coalescing swamp gases. I offer various error theories to explain away intuitions in such cases including implicit attribution of intentional design, formal and functional essentialist biases, and implicit appropriation. Finally, I consider a version of (a) which claims mind-dependence but without intention-dependence. Alleged counterexamples to intention-dependence include automated and mass production, animal artifacts, and accidental creation and I show how all of these involve intentions, just not where we may initially expect.

Chapter 4 considers, and rejects, function essentialism – the view that artifacts and artifact kinds are determined by possession of a particular function. First, I give explicit formulations of the two component conditions of function essentialism: (1) to be an artifact, an object must have some function and (2) artifact kinds are individuated by a unique, shared function. Counterexamples to (1) include functionless artworks and non-art artifacts like doodles, sandcastles, and some toys. Randall Dipert argues that functions can be found for such cases if we broaden the notion of function to be the general purposes of their makers. But this conflates the reason the maker had for making their creation with the function of their creation and in

some cases Dipert's view misattributes the function to the artifact rather than the activity of production. Counterexamples to (2) include showroom models which don't necessarily have the function normally associated with their kind. A maker can intend to make a boat, say, without intending that it ever be used to travel over water. Simon Evnine responds by arguing that showroom artifacts have two functions – one standard, one idiosyncratic – and in these cases such functions happen to conflict. I argue that the artifact maker's judgement about the function of their creations carries normative force – they can justifiably object that one is misusing their creation if one doesn't use it as intended. Finally, I consider Lynn Baker's attempt to restrict function essentialism to so-called technical artifacts and show how this fails to provide a principled division between kinds of artifacts while also failing to secure the *essentialist* thesis.

Chapter 5 lays out my own account of artifact essences. Much of the intentionalist framework has been developed and defended by Risto Hilpinen, Paul Bloom, and Amie Thomasson but residual problems remain. Artifacts are the successful result of an intention to make something of a given artifact kind, where this intention is to bestow various kind-relevant features on an object. While function is often central, other criterial features may include form, material constitution, aesthetic qualities or geographic origin. I argue that none of the criterial features are individually necessary and instead I advance a cluster account: artifact kinds are individuated by a cluster of constitutive features. Further, the concept one must possess of an artifact kind can be relatively loose in order to account for animal artifacts and cases of trial and error. Finally, creation by appropriation seems to involve success conditions which can in principle make reference to the intentions or beliefs of groups of individuals or public norms. I argue that artifacts can either be dependent on a single individual's intentions or on the mental states of groups. However, this social dependence doesn't track artifact *kinds* but rather tracks

individual artifacts. What matters is the context of creation and the content of the agent's intention. It just so happens that most artifacts are created in a social context and thus are importantly dependent on social groups and public norms governing the kind.

Chapter 6 considers what makes a kind an artifact kind. I argue that we can maintain a principled distinction between artifacts and natural kinds by distinguishing between essential and accidental artifact kinds. However, artifacts start to look a lot like institutional kinds like money or marriage in virtue of their collective or social mind-dependence. The disjunctive nature of artifact mind-dependence allows us to distinguish between artifacts and institutional kinds. Artifacts are necessarily mind-dependent, either on a single individual or on a group of individuals while institutional kinds are necessarily dependent on groups or collective intentions. An isolated agent can't make money or a marriage contract but can make a salad fork or a rocking chair. We can further use intention-dependence to distinguish artifact kinds from phenomenal kinds like jade, as well as purely functional kinds like transportation. I further distinguish artifact kinds from each other. Despite many shared criterial features, chairs and stools, pens and pencils, mugs and bowls, are distinct artifact kinds. Moreover, there can't be any 'bare' artifacts on my account – every artifact must belong to an artifact kind. I argue that artifact kinds are determined by the social norms governing our artifact practices. I consider the historical case of chopines, elevated shoes worn by Venetian sex workers during the Renaissance, to illustrate my account. Chairs and stools, for example, have developed distinct, albeit similar, social practices, which are governed by different norms. These practices and concomitant norms determine the kind and in turn, it is our practices and the norms constituting them, that determine what kind any given artifact belongs to. However, our social practices and norms are contingent and can and do change over time. As a result, the constitutive features of

our artifact kinds can and do change as well. Artifact kinds are therefore what Ian Hacking has called *interactive* kinds: our interactions with the kind change our attitudes towards the kind while our attitudes towards the kind change the kind itself.

Chapter 7 explores the reference of artifact kind terms. I substitute my account of artifacts into the causal theory of reference and show how reference of artifact and natural kind terms functions analogously. So long as there is an appropriate essence to which the term can be indexed, reference can succeed. Speakers need not know the essence in order to ground the reference of artifact kind terms, although frequently they will, especially in cases where the grounder of a term is also a maker of the kind referred to. Recent arguments from Diego Marconi, Irene Olivero and Amie Thomasson aim to undercut this extension of the causal theory, but Marconi's and Olivero's arguments hinge on an implausible view of essence and epistemic access, while Thomasson's argument hinges on a particular solution to the qua-problem which we need not accept.

My dissertation contributes to work on the metaphysics of artifacts. It advances a view about what it is to be an artifact and what it is to be a member of a particular artifact kind, while drawing out some important explanatory upshots for related areas, including kindhood, normativity, and semantic and epistemic concerns about artifacts. The result is a new approach to several questions in social ontology and our understanding of artifacts, as well as the potential for a theoretical basis for subsequent inquiry in the philosophy of technology, generally.

CHAPTER 2: ARTIFACTS, ESSENCES, AND REALISM

2.1 Introduction

Many philosophers have argued that artifacts don't have essences. Often, this is because these philosophers think that to be real or to be a real kind requires an essence, but that nothing mind-dependent can be real in this way. Thus, artifacts are merely nominal or conventional kinds – projections of our concepts onto the world. However, a number of different proposals for artifact essences have been offered in the literature. While there are a plethora of answers to the essence question, many of these proposals are expressly motivated by concerns over realism (or *Realism*). They aim to give an account of artifacts and artifact kinds which fits within a broad realist framework. For such realist proposals, in order for artifacts and artifact kinds to be *real* they must meet certain realist conditions which typically involves having an essence of a certain sort.⁵ If artifacts and artifact kinds are not real, then it's thought that they can't be proper or respectable denizens of our ontology or they aren't part of the 'furniture of the world' (ignoring the irony of using an artifact kind to describe the view). But there are many different conceptions of realism, including ontological, semantic, epistemic, and nomological construals, so the constraints on what an appropriately real essence is varies accordingly. Regardless of how one construes realism, if artifacts and artifact kinds are to be part of a realist ontology, they must therefore meet the realist conditions, but in order for them to meet these conditions the proposed essence must radically depart from our ordinary conceptions of artifacts and artifact kinds. As a result, the various realist proposals of artifacts and artifact kinds all offer highly counterintuitive

⁵ For example, see Wiggins 2001, Zimmerman 2002, Elder 2007, 2014, Soavi 2009a, 2009b, Franssen and Kroes 2014, Reydon 2014, Houkes and Vermaas 2014, and Lowe 2014.

accounts of the nature of artifacts that fail to countenance our various social practices surrounding artifacts. Despite being highly revisionary, such views are quite common. My aim is to evaluate these various realist proposals of artifacts and artifact kinds and show how they are methodologically and extensionally inadequate.

My goals in this chapter are threefold. First, I aim to clarify what realism is, generally and what it requires, what realist accounts of artifacts and artifact kinds involve, and assess realism as a general philosophical methodology. Second, I propose an alternative descriptive methodological approach to artifacts and artifact kinds which is beholden to our artifact practices while still having the flexibility to revise them when necessary and I come up with several desiderata for a theory of artifacts. Finally, I show how the realist accounts of artifacts fail, both methodologically and extensionally. They are methodologically inadequate because they fail to meet their own standards for realism and they are extensionally inadequate because they fail to capture important aspects of our artifact practices. The upshot is that we'll be in a position to develop an alternative account of artifacts and artifact kinds which isn't subject to realist constraints.

The chapter is structured as follows. In section 2 I clarify what realism is and what it's usually taken to require. In section 3 I consider various realist accounts of artifacts and artifact kinds. Section 3.1 considers mind-independence accounts while section 3.2 considers nomological accounts. Section 4 challenges realism as a methodological approach and argues that its focus on mind-independence is misguided. Section 5 proposes a methodological alternative – the pragmatic constraint – which aims to vindicate our artifact practices while section 6 proposes various desiderata for a theory of artifacts given this alternative methodology. Finally, section 7 shows how the realist accounts of artifacts and artifact kinds fail. Section 7.1

considers the mind-independence accounts while section 7.2 considers nomological accounts, before briefly concluding in section 8.

2.2 What's Realism?

Debates over realism go back to (at least) the 1970's, though many of the positions have their roots in Kant's theoretical philosophy.⁶ The contrast to realism is usually antirealism or irrealism, though as will become clear below what these positions involve is just as unclear as realism itself. Realism and antirealism comes in two forms: global and local. Global realism is a claim about all of reality while local realism is a claim about some particular subset or domain of reality such as persons, electrons, truth, composite objects, or moral facts. While local antirealism about, say, composite objects, is compatible with a global realism, global antirealism is only compatible with local antirealism about all domains.⁷ Since our present concern is the nature of artifacts, I'm interested in local realism about artifacts and thus I'm assuming a global realism. Global realism can be thought of as the general claim that there's a mind-independent reality with mind-independent structure, facts about which are discoverable.

In general, realism is taken to involve three theses, an ontological, epistemic, and semantic thesis, respectively:⁸

Ontological Thesis: Real kinds are mind-independent, like gold, water, electrons, hippopotamuses, etc.; their essences are determined by nature, not by conscious agents.⁹

⁶ See Heidemann (2021).

⁷ Global realists include Wright (1992), McDowell (1994), and under certain interpretations, Putnam (1987, 1988). Global antirealists include Goodman (1978) and Rorty (1979), while Mackie (1978) is an example of a local antirealist about morality. See Brock and Mares (2007) for good discussion about what realism requires, both local and global.

⁸ See Button (2013), Thomasson (2007), Chakravartty (2007) and Devitt (1991) for discussion of these three theses.

⁹ See Putnam (1975) for discussion of the sort of essence I have in mind.

Epistemic Thesis: It's possible that we are wrong about the nature of real kinds; we have no measure of epistemic privilege with respect to such kinds, because their boundaries and identity and persistence conditions are determined by a mind-independent nature, not by us.

Semantic Thesis: The reference of the corresponding kind terms is determined by causal contact with a sample, rather than by some associated description. The extension of the term is fixed by the way the world is, not by any conceptual content we associate with the term.

Antirealism about some kind would be the denial of one or more of these theses. Since there exists the possibility that a kind may fail to satisfy, say, the semantic thesis but not the ontological and epistemic thesis, realism appears to come in degrees. Alternatively, we may want to say that failing *any* of the theses makes an entity nonreal. On the above formulation, natural kinds like gold, electrons, and (perhaps) species kinds like wombats are paradigmatic real kinds, whereas, say, institutional kinds like marriage, money (in the sense of currency like the yen), property contracts, and courts of law are not real kinds because they *prima facie* appear to violate the ontological and epistemic thesis since their nature seems to be collectively up to us. Thus, their nature or essence is mind-dependent and as a result we have privileged epistemic access to the nature of those kinds in virtue of which reference to the kind is determined by the description of the kind's nature we associate with the term.

Two other theses are often used in conjunction with one or more of the above three theses to characterize realism:

Nomological Robustness: Real kinds are the subjects of natural laws and thus allow for reliable inductive generalizations about their members.

Determinacy: Real kinds have determinate identity, persistence, and existence conditions.

Again, electrons and other natural kinds would be real kinds because they're subjects of natural laws and have determinate identity and persistence conditions (although this is controversial for species kinds). However, institutional kinds like money or courts of law satisfy neither because they aren't the subjects of natural laws and, because their nature is 'up to us', their identity and persistence conditions are thought to be indeterminate or fuzzy. Nomological robustness and determinacy are sometimes taken to be corollaries of the ontological thesis. The thought is that having a mind-independent essence will yield determinate identity and persistence conditions (and thus general existence conditions), which in turn can be involved in characterizing laws of nature and supporting reliable inductive generalizations about kind members.¹⁰ The support for this idea is that it is often assumed that for the world to be real (globally real) there must be some mind-independent *determinate* structure, which can be discovered and referred to. This may not require all facts about the structure of the world to be determinate in this way, but at least some must be, or so it's thought.¹¹ Concerns over determinacy are motivated by concerns over the cardinality of the domain. Quantifying over members of a kind should yield a determinate cardinality of the domain of those entities, but a determinate cardinality requires there to be a determinate number of such entities, and thus determinate identity and existence conditions. If the existence conditions of a kind are indeterminate then we can't know how many members of that kind there are. Assuming the world has a determinate structure, then real kinds (whichever kinds those are) must have a

¹⁰ See Wiggins (2001, 89-90) and Baker (2007, 60ff.) for discussion of how the theses are related. See also Zimmerman (2002) for discussion of mind-dependence and determinacy about artifacts.

¹¹ Global realism requires that there be local realism about some domains, even if this is quite minimal. You can't maintain that there's a mind-independent determinate structure to reality and then insist that everything about that structure is mind-dependent. At most what you could do is assume a general mind-independent reality and insist any *structure* it has is up to us; this is what Putnam (1987, 16-21) calls the 'cookie cutter' model – the world is an amorphous lump of cookie dough which our concepts divide up and structure like cookie cutters. Such a view may count as a *minimal* global realism.

determinate structure, too. Similarly, such determinacy is taken to be necessary for being the subjects of natural laws and inductive generalizations.

Finally, sometimes (local) realism is cast as a thesis about *existence* or *fundamentality*.

Existence: Real kinds are those kinds which exist.

Fundamentality: Real kinds are those kinds which are fundamental.

On some construals, fictional characters and other entities are literally fictions – creations of the mind – and thus don't really exist, in which case they aren't *real* or *real kinds*. But existence here is usually cashed out in terms of mind-independence: real kinds are those that exist mind-independently or 'objectively', so all the weight is put on the ontological thesis. Similarly, assuming mereological simples are the only fundamental kind composing the world, one could claim that simples are the only *real* kind of entity; everything else is composed of simples so isn't fundamental and thus isn't appropriately real.¹² While theses two through six are really corollaries of the ontological thesis, even fundamentality is a worry about mind-independence, since anything that depends on minds or mental states is *ipso facto* not fundamental. As a result, most approaches to realism boil down to concerns over mind-independence.

Given the above formulations of realism, it's not clear why one should care whether any given domain of entities satisfies the above theses. That is, why does it matter if a domain is 'real' in any of the above senses? Many people take institutional kinds like currency or marriage to be paradigms of nonreal entities, but it's not like we can't meaningfully talk about money or marriages. They certainly have pride of place in our immediate, everyday lives and concomitantly very real effects. If we construe realism as existence, and assuming this means

¹² Fundamentality approaches to realism are admittedly rare.

mind-independent existence, then we have to say money or marriages don't exist (or aren't real). If real kinds are construed as the most fundamental kinds, then institutional kinds like money and marriage certainly won't count as real, but neither will almost all other kinds, including gold and wombats, yet we can meaningfully talk about them.

The realism question can be raised about any domain of entities, including artifacts like chairs, watches, and nuclear attack submarines. Realist approaches to artifacts come in two forms: artifacts are either taken to fail to satisfy the realist conditions, in which case they are rejected as real kinds or there are proposals, always revisionary, for how artifacts can meet the realist conditions and therefore count as real kinds. Many philosophers lump artifacts in with institutional kinds: a chair might seem just as ontologically 'lightweight' as a marriage contract, and thus be dismissed as a serious component of our ontology. In some sense, nonreal kinds are taken to be less respectable denizens of the world. This is because artifacts like chairs don't seem to satisfy any of the above realist theses. Indeed, artifacts are usually taken to be mind-dependent by definition, and as a result the creator, at least, is thought to have some privileged knowledge about their nature. However, due to their mind-dependence, artifacts are thought to lack determinate identity and persistence conditions since their nature is in some sense 'up to us'. Similarly, artifacts like chairs appear to be too heterogeneous to support reliable inductive generalizations. Since artifacts are taken to lack a mind-independent essence, the referent of the corresponding kind term is similarly taken to be 'up to us'. In terms of fundamentality or existence, certainly no one would claim that artifacts are part of the fundamental constituents of the world, but conversely almost everyone would agree that artifacts exist, but again, only mind-dependently. Artifacts thereby appear to fail all of the realist theses so they are often rejected as

real kinds.¹³ Yet artifacts play an indispensable role in our everyday lives, so we have good reason to wonder about their nature. Realism in any of its guises has tended to be dismissive of all mind-dependent entities and as a result the majority of social ontology is taken to be incompatible with realism. But given the increasingly vast literature in social ontology, it seems apparent that concerns over realism aren't holding back this important work. As a result, it's hard to see why we should care about debates over whether artifacts and artifact kinds are 'real'.

Nonetheless, many authors pursue the second realist approach to artifacts. The artifact literature is replete with proposals for the essential nature of artifacts and artifact kinds that conform to one or more of the realist theses. Some of these authors think that for artifacts to be real, to be *really real*, or to use Arthur Fine's phrase, *foot-stompingly real*, they need a mind-independent essence which is shared by all members of the kind. Others think they need to have determinate identity and persistence conditions and thereby be reliable and projectible subjects of natural laws. In the following section I consider realist proposals about artifacts motivated by these two concerns.

2.3 Realist Accounts of Artifacts

Not all realists reject artifacts and artifact kinds as real kinds. Some realists aim to give realist accounts of artifacts and artifact kinds. The extant realist accounts fall under two broad headings: those that are motivated by the ontological thesis and aim to find a mind-independent essence for artifacts and artifact kinds and those that are motivated by the nomological thesis and aim to show that artifacts and artifact kinds can figure in reliable inductive generalizations. One or more of the other realist theses are usually thought to follow, but as I'll show below, both

¹³ Wiggins (2001) is a well-known proponent of this view.

cases are ultimately motivated by a desire to avoid mind-dependence and so both are mind-*independence* accounts. Thus, at base, the ontological thesis is motivating realist accounts of artifacts.

Note first that none of the realist proposals below give an account of the category *artifact*, but only of particular artifact kinds. Some may distinguish between *kinds* and *categories* and thereby treat *artifact* as an ontological category and members of that category like chair and hammer as *kinds* or they may treat *artifact* as a general kind of which there are many subkinds like chair and hammer.¹⁴ Either way, there is a common assumption that *to be an artifact* entails *being a member of a particular artifact kind*. The realists offer accounts of what it is to be the latter, while the former is usually left as implicitly being the collection of all subkinds.

2.3.1 Mind-Independence Accounts

The ontological thesis expresses the condition that real kinds must be suitably mind-independent and have a mind-independent common essence. Requiring an essence is requiring that there is something common to all and only members of the kind in virtue of which they are members of that kind.¹⁵ The mind-independence condition requires that those essences are not determined by or dependent on, minds or mental states. *Prima facie* we may doubt that artifacts are ‘real’ in this sense, since it seems that by definition artifacts are mind-dependent entities. But the realists are quick to point out that it’s not just any old mind-dependence that’s ontologically problematic. Many features of the world are dependent on humans in the sense that we are causally responsible for their existence. That there are rabbits in Australia is a causal

¹⁴ Lowe (2014, 18-19) explicitly adopts the former view.

¹⁵ See Fine (1994) for relevant discussion; Fine distinguishes between essential and necessity claims, but that won’t make a difference here.

consequence of the British intentionally introducing them there, but this in no way impugns their reality. Similarly, I may intentionally plant an acorn which grows into an oak tree and thus the existence of the oak tree *causally* depends on my intention, but this doesn't make my intention part of the essence of the oak tree. Thus, the kind of problematic mind-dependence must be something stronger than mere *causal* mind-dependence.

A kind must be *constitutively* mind-independent in order to be real. Constitutive mind-dependence is where the essential properties of a kind either include or depend on a mental state or states. Water is essentially H₂O and thus H₂O constitutes what it is to be water and its component properties partly constitute what it is to be water. Since being hydrogen or oxygen isn't mind-dependent, water is a real kind. By contrast, that some piece of paper is a dollar bill is only because we all agree that it is – part of what it is to be a dollar bill is to depend on collective beliefs and intentions that such a thing is a dollar bill. Mental states partly constitute what it is to be money and other institutional kinds. Money, then, is not appropriately real. By contrast, the state of affairs of there being rabbits in Australia need not include, and presumably doesn't include, any facts about mental states in a constitutive way. Mental states were involved in bringing about such a state of affairs, but they don't partly *constitute* it. Rabbits certainly could have arrived in Australia purely as a result of natural causal processes. The same is true of the acorn and oak tree. Thus, for artifact kinds to be real they must be like rabbits in Australia rather than dollar bills.¹⁶

Constitutive mind-independence will yield an appropriately mind-independent essence. But the realists must not only specify a mind-independent essence, they also need to show that the list of properties are in fact essential. One immediate problem with our quotidian artifact

¹⁶ See Khalidi (2016) for discussion of different sorts of mind-dependence in this context.

kinds like *chair* or *pencil* is that they are multiply realizable in a number of different ways.

Chairs come in a wide variety of shapes, including standard dining room chairs, office chairs, large, hand-shaped novelty chairs, bean bag chairs, thrones, high chairs, and the philosopher's favourite, armchairs. These are further made out of a variety of materials – wood, plastic, metal, cloth, resin, fibreglass, and sometimes stone. What groups them together as *chairs* seems to be their function of, roughly, comfortably seating a single person. However, this isn't sufficient to uniquely pick out the kind *chair*, since stools have the same function (and are equally multiply realizable). Since multiply realizable kinds group together heterogeneous entities by a functional or structural role that don't share a common essence,¹⁷ such kinds aren't taken to be *real* kinds, since there's no essential nature to their members. Multiply realizable kinds yield a disjunctive essence each disjunct of which may not be had by each member of the kind. Multiply realizable kinds, then, are not real kinds.¹⁸ Thus, artifact kinds, being multiply realizable in both their form and material composition, don't satisfy the ontological thesis of realism.

A number of realist proposals have been offered that attempt to (a) provide a mind-independent essence for artifact kinds and (b) avoid multiple realizability. I discuss three of them which all share the same basic features. As will become evident below, they all individuate artifact kinds very narrowly and propose a basic functional-historical account of artifact kinds. Further, they all assume that artifacts and artifact kinds are essentially *functional kinds* and they all roughly share an account of function that is what Ruth Millikan (1984, 1993, 1999) calls *proper functions*. Proper functions are what something is *supposed* to do, and are established by

¹⁷ Or in the case of jade, macroscopic properties that are perceptibly similar, e.g. green, hard, durable, etc.

¹⁸ In addition to lacking a common essence, multiply realizable kinds don't allow for reliable inductive generalizations because they aren't projectible. See Goodman (1955) and Armstrong (1989) for discussion of the projectibility of disjunctions and disjunctive properties and see Kim (1993) for discussion of this issue in the philosophy of mind.

a non-intentional history of selection and reproduction.¹⁹ That is, an artifact has the direct proper function F because previous members of its kind were produced to F and successfully performed F, and were thereby reproduced because of their success in performing F (1993, 13-14).

However, in the case of prototype artifacts, such as the Wright brothers' first fixed-wing airplane, there is no history of production, and thus no direct proper function. Instead, Millikan distinguishes between *direct* and *derived* proper functions (1984, 41-43). For example, a baker bakes bread in order to earn an income. However, the direct proper function of bread isn't to produce an income but nourishment. The production of income is a derived proper function of the bread that derives from bread's success in producing nourishment and the intentions of the baker on that particular occasion to sell it rather than eat it (Preston 2009, 224). In the case of prototypes, the artifact kind only has a derived proper function which derives from the intentions of its maker. Prototypes have no direct proper function because there is (yet) no history of selection and reproduction.

With Millikan's account of function in hand, we can turn to the three realist accounts. First, Marzia Soavi takes artifact kinds to be functional kinds and she suggests the following account (2009b, 196):

- (a) o is an object of artifact kind K iff o has the function F;
- (b) o has function F iff o was intentionally produced for F; and
- (c) F is understood as an ordered-triple of input-output, system interaction, and object structure; <I-O, S-I, O-S>.

¹⁹ While Millikan's account was developed for biological functions, she thinks it can be extended fairly straightforwardly to artifact functions. While the means of reproduction of artifacts clearly involves intentions, this is derivative or indirect. It merely *causes* the production chain, but is not constitutive of it, and thus not constitutive of artifactual functions on Millikan's account.

There are multiple notions of function in our everyday talk, and the input-output notion corresponds to one of the most common, whereby an object is disposed to realize a particular output given some specified initial input conditions. This is how we typically group artifacts into kinds, such as *chair*, *pencil*, *car*, and *firearm*. The initial input conditions of such artifacts are usually left implicit. The system of interaction specifies the proper conditions of use of the artifact. For example, a chair's function is for seating a single individual, but it does so only if used on an even surface. The system of interaction specifies the proper circumstances of use as well as what other objects or agents the artifact should be used in conjunction with for it to properly perform its function, e.g. a hammer is to be used in conjunction with nails and requires an appropriate amount of force be applied. Finally, the object structure is the materials and dimensions of the object specified by the designer that enables the object to perform its function.

These three properties jointly specify the nature of real artifact kinds, however, the resulting kinds are very narrowly individuated. The inclusion of the object-structure renders the kinds not merely functional, but Soavi is content to call her account a functional-structural account, so long as it avoids the problem of multiple realization, as she argues it does. While the input-output component is multiply realizable, when combined with the object structure, the designer ties a function to a design which all and only members of the kind will share. Any change in either the function or the structure (and thus also a change in the system of interaction), will entail a change in artifact kind (2009b, 198-199). As a result, the kind *car*, say, is too coarse grained to count as a genuine, real, artifact kind – it's just a functional kind determined by an input-output function. The real artifact kinds that Soavi's account countenances are kinds like the Eames 1957 desk chair (Elder's example), the 1969 Plymouth Valiant 100 (Millikan's example), or the Pasha Seatimer grand modèle automatique Cartier

watch (Franssen and Kroes' example). Instead of seeing this as a vice of her account, Soavi (2009b, 200) takes herself to have accomplished two important things: first, to have made room for at least some real artifact kinds, even if they aren't the kinds in ordinary discourse, and second, to have explained why our familiar everyday artifact kinds like *chair* and *car* appear to be merely nominal or antireal kinds – they group heterogeneous entities together based on the input-output function, and thereby have no shared essence. We just don't typically use (or even know) the kind terms for the real kinds that her account identifies.²⁰

A second, similar, account is advanced by Maarten Franssen and Peter Kroes (2014). In order for artifact kinds to be relevantly similar to natural kinds and thereby be appropriately 'real', Franssen and Kroes take artifact kinds to be structural kinds that are partly individuated by their blueprints or designs (2014, 75ff.). While such a structure is mind-independent (in a constitutive sense), Franssen and Kroes worry that a mere appeal to structural features will collapse the artifact/natural kind distinction. Thus, they construe artifact kinds as *structural-historical* kinds. That is, an artifact kind K is determined by its blueprint/design and was produced to perform a particular function (and is reproduced because of its success at performing that function – Millikan's account of proper function): “the artefact kind ‘Pasha Seatimer grand modèle automatique Cartier watch’ then consists of those things that have all the structural characteristics of a Pasha Seatimer grand modèle automatique Cartier watch and that additionally have been designed and made to have this structure. To such things, their history – their having been designed and made for some specific use – is by definition essential” (2014, 78). Again, such a view entails no constitutive mind-dependence that is considered at odds with “real ontological status” (ibid.) because the historical design property only institutes the history of

²⁰ In addition to offering a realist account of artifact kinds, Soavi also argues against antirealist views of artifact kinds in her (2009a).

production; in principle, such structures, as expressed by the blueprint or design, are mind-independent.

Finally, Crawford Elder (1989, 2004, 2007, 2014) offers the most developed realist account of artifact kinds, which he calls ‘copied kinds’.²¹ Natural kinds need not be determined by a single property, but by some cluster of properties that uniquely hang together, e.g. water is essentially hydrogen and oxygen related in *this* particular way. Elder wants to say the same for copied kinds (2007, 34-35), generally. He takes their natures to be determined by three primary properties around which other distinctive properties will cluster (2007, 38ff., 2014, 31-33). The three primary properties are

- (1) a particular qualitative make-up or shape,
- (2) a proper function, and
- (3) a historically proper placement.

For example, screwdrivers have a particular shape that’s relatively steady over time, consisting in a handle ideal for gripping and a long metal shaft whose end is shaped for a particular kind of screw. Elder borrows Millikan’s notion of proper function; screwdrivers are for fastening things together with screws by applying a particular kind of force – a function that previous screwdrivers successfully performed for which they were reproduced. Finally, screwdrivers are historically situated, i.e. they performed their proper function because of the availability of other copied kinds e.g. suitably shaped screws and opposable thumbs, that allowed them to do so. In this sense, such properties are mind-independent, even though they cluster together because humans did something which *causally* contributed to their existence.

²¹ Elder’s early versions of the account focus on mind-independence (the ontological thesis) as the primary component of realism. However, his later discussion (2014, 36) shifts focus to the epistemic thesis – realism may involve mind-dependent entities but what’s crucial for Elder is that we aren’t in a privileged epistemic position about their natures. See also Reydon (2014) for discussion of epistemological approaches to artifact kinds.

Three other general sorts of properties will tend to cluster around (1)-(3) (2007, 40-43):

- (i) entities will be made of the right sort of stuff or material composition
- (ii) members of a kind will embody a particular design solution or structure that allows them to perform their proper function more or less well, and
- (iii) some copied kinds will have a propensity to shift in their qualitative make-up or have actually done so, that will coincide with changes in their historically proper placement.

Take the case of screwdrivers: screwdrivers must be made from a sufficiently hard and durable material in order to turn screws and not bend; screwdrivers embody a particular design solution, e.g. slotted or crossed in order to turn screws without slipping out, etc.; and finally screwdrivers will change their shape as their historically proper placement changes, e.g. new types of screws will introduce a new shaped end on screwdrivers.

Like the other accounts, Elder's view entails that not all artifact kinds picked out by a sortal, e.g. 'chair', 'mayonnaise', are genuine copied kinds and thus real kinds. Copied kinds will tend to be much more specific than this, e.g. the Eames 1957 desk chair, as opposed to, say, *desk chair* or *chair*. In turn, *furniture*, doesn't appear to be a copied kind. The more specific kinds won't be the only copied kinds; sometimes they will just have richer clusters of properties associated with them. While *furniture* and *chair* are not copied kinds because they are vastly multiply realizable, *desk chair* may be, and certainly *Eames 1957 desk chair* is (2007, 46-47).²²

These three accounts – Soavi, Franssen and Kroes, and Elder – all individuate artifact kinds in roughly the same way. Artifacts are functional-historical kinds that result from a particular history of production that was initiated and proliferated because of the success of things of that kind at performing a certain function. They all share Millikan's notion of proper

²² Elder's account applies to biological entities as well, such as double-lensed eyes in eagles or the mating dances of fish. They exhibit the same cluster of essential properties as artifacts and thus all of them are copied kinds.

function and individuate kinds partly by their shape/qualitative make-up/structural design feature. Similarly, Soavi's system of interaction and Elder's historically proper placement boil down to the same thing (while Franssen and Kroes fold it into their notion of the history of production): the circumstances the object should be used in in order for it to properly perform its function.

It may be objected that there is residual mind-dependence involved in such accounts, since they all make reference to the history of production of the artifacts, which is initiated and proliferated intentionally. While this is true (both for the history of production and the initial introduction of the prototype), the mind-dependence involved is causal, not constitutive. Intentional states may have initiated the production of an artifact by causing certain things to happen or be created, but the nature of the kind itself isn't constituted by such intentions.²³ Elder describes the requirement as follows: "Realism must maintain . . . for no real kind *K* is there some individual *i* or some group *g* such that *i*'s thinking (or *g*'s thinking) that *K*s persist across such-and-such changes or are to be found in such-and-such locations, is *constitutive* of *K*s existing in those contexts. Realism, I suggest, is a negative ontological claim about what grounds the existences of the world's objects and the possession, by those objects, of their properties" (2014, 36). So long as any mind-dependence (thoughts, beliefs, intentions) is merely a causal ground for the existence of any artifact kinds, those kinds can be appropriately real.

A further objection might be that as stated, these accounts aren't providing essential natures for artifact kinds because the properties specified are partly *extrinsic*. Some versions of the realist ontological thesis take the requirement to involve an *intrinsic* mind-independent essence, such as *being H₂O*. All three of the essential properties are extrinsic to some extent:

²³ See Elder (2014, 33-36) for extensive discussion of the way that histories of production in capitalist economies are often unintentional.

proper function makes reference to a history of production, historically proper placement/the system of interaction involve the object's interaction with agents or other objects, and at least on Franssen and Kroes' version, the structural features are determined by the blueprint or design. Despite the common assumption that essence needs to be intrinsic, Franssen and Kroes (2014, 81) argue that the inclusion of a historical criterion in the essence of artifact kinds is not inimical to realism, since species kinds, typically touted as paradigmatically natural kinds, are individuated by both their historical, evolutionary origin *and* by the structure of the organism, i.e. relations between organs ultimately governed by DNA. Species kinds are thus determined by both intrinsic and extrinsic features. Similarly, Baker (2007, 63) argues that many natural kinds lack an *intrinsic* essence, including wings, mountains and planets, i.e. mountains are geological features that come about through the impact of tectonic plates. Having an essence is what's important to realism, not whether that essence is intrinsic.

2.3.2 Lowe's Nomological Account

An alternative realist mind-independence approach is advanced by E. J. Lowe (2014), although he approaches the question of realism by the fourth and fifth realist theses I mentioned above: nomological robustness and determinacy.

Lowe takes a class of entities to be real if the domain of entities has a determinate cardinality. Following Quine's slogan 'no entity without identity', Lowe takes the existence of some kind of entity to require determinate identity conditions (and thus determinate persistence and existence conditions) which are determined by the sortal the object falls under (2014, 18-19). For example, the kind *electron* provides identity and persistence conditions for objects that fall

under it.²⁴ If a class of entities is indeterminate, then the existence of the class is immediately open to doubt.²⁵ The question for Lowe, then, is whether the sortal *artifact* as well as subkinds of artifacts like *car* or *laptop*, can yield determine identity and persistence conditions.²⁶

Many artifacts don't appear to have determinate identity and persistence conditions. Lowe considers as an example the 2005 Turner Prize winner, *Shedboatshed* by Simon Starling. Starling built a shed which he then disassembled and made a boat from its parts, loaded it with the remaining parts of the shed, sailed it down the Rhine to a museum in Basel, disassembled the boat and built a shed in the museum. How many artifacts are involved in this case? One, the artwork *Shedboatshed*; two, the boat and a shed; three, a boat, a shed, and another shed? Should we consider *artwork* as a distinct artifact kind applicable to this case? Further, does the boat cease to exist when it's a shed, or vice versa?²⁷ Any of the above answers seem arbitrary and seem to invite indeterminacy in the identity of the artifact and its persistence conditions (2014, 18).²⁸

Like the function essentialist realists, Lowe adopts a moderate, rather than exuberant, realism about artifact kinds in that he takes some ordinary artifacts to be real kinds and others not (2014, 25). Lowe takes 'artifact' to denote an ontological category, which divides into two subcategories, those of *utensil* and *machine* (ibid., 23-25). *Utensils* are things like chairs, hammers, paperweights and running shoes, whereas *machines* are entities like cellphones,

²⁴ In virtue of the nature of electrons. Thus, Lowe is also concerned about essences of artifacts, but he approaches the issue from an oblique angle.

²⁵ Interestingly, here Lowe explicitly cashes out realism in terms of *existence*, suggesting that those kinds that aren't real don't actually exist.

²⁶ Carrara, Gaio, and Soavi (2014) also try to give determinate identity conditions for artifacts that are 'ontologically respectable' and so would count as realists about artifacts from the Determinacy thesis.

²⁷ See Grandy (2007) for discussion of identity and assembly and disassembly of artifacts.

²⁸ Similar concerns arise in the Ship of Theseus case, even though only a single artifact sortal, *boat*, is involved. *Shedboatshed* is just an extreme illustration of the plasticity of artifacts. For discussion of the Ship of Theseus see Dauer (1972), Smart (1973), Burke (1980), Scaltsas (1980, 1981), and Lowe (1983).

combustion engines, and mechanical clocks. Lowe rejects the reality of utensils, since he claims that determinate identity and persistence conditions can't be found for them. Rather, he thinks that when a bit of metal is attached to a bit of wood, no new object – a hammer – is brought into existence; the furniture of the world is merely rearranged.²⁹

However, he argues that machines are real because they have mind-independent, determinate identity and persistence conditions that are nomologically governed, specifically by laws of engineering. Lowe has a Lockean view of machines: they are governed by a unifying principle of activity, much like living organisms are unified by a continuous life. An example would be the principle governing the centrifugal governor in a steam engine or the law governing the pendulum (2014, 24). In either case, there is a law governing the function of a machine or a component thereof in how it is supposed to operate. Despite these laws being laws of *engineering* they still are objective: “But in another broader sense, of course, these sortal-specific engineering laws are still undoubtedly *natural* laws, where such laws are to be contrasted, for instance, with mere human customs or conventions, and have an objective foundation in mind-independent reality” (2014, 24). They thereby yield determinate, mind-independent and non-arbitrary identity and persistence conditions for machine artifacts. That is, machines have a mind-independent nature that's governed by laws of engineering, which in turn specify what those things *do*, even though Lowe recognizes that such artifacts are causally (but not constitutively) mind-dependent (ibid., 25).

Lowe takes machines to do something on their own accord, while utensils don't – a hammer does nothing, *we* do something with it. A mechanical clock can function ‘on its own’ just in virtue of the laws of engineering that govern its function. While both are subject *to* natural

²⁹ See van Inwagen (1990) for similar discussion.

laws (like gravity) only machines are subjects *of* natural laws. There are special science principles for these kinds of entities, but no special science of tables or hammers. Thus, some artifacts – machines – are real in the same sense as electrons and tigers,³⁰ while others – utensils – are antireal in a similar sense as fictional characters. The unifying principle of activity is similar in kind to those that govern biological entities. When such a unifying principle is permanently interrupted, the entity ceases to exist. Tables can break, but when it ceases to be a table seems to be ‘up to us’ in some robust sense (2014, 25).

The above might suggest that Lowe’s account, while focused on nomological and determinacy concerns, is nevertheless a function-based account, given that machines are ultimately functional kinds. Lowe’s talk of their ‘characteristic manner of working’, especially suggests this. However, Lowe doesn’t take this view, since he allows that *artworks* can be real in the same sense as machines: “it seems plausible to say that what so easily persuades some people to regard the exhibit *Shedboatshed* as being a *single* object persisting through a series of radical transformations is that, in doing so, they are conceiving of it as being a unique work of art, rather than an artefact that has any essential practical utility or function, or any characteristic manner of *working*” (2014, 26). Thus, Lowe appears to adopt the view that in the *Shedboatshed* case there is only a single object of the kind *artwork*, which has determinate sortal-specific identity and persistence conditions that derive from its status as a unique work of art. But he says nothing about what the unifying principle of activity is for such entities.³¹

³⁰ Oddly, Lowe (2014, 25) takes a mark of such a real entity to be talk of *malfunction*: because it makes sense to talk about the malfunction of a piston engine or of a heart, such entities are real. Such malfunction causes a disruption in the continued existence of the whole because it interrupts the laws of engineering or biology that unify its existence. Utensils can be broken, but not, apparently, in the same way as machines.

³¹ Indeed, his description in the above quotation seems to suggest that its status as a single entity is due to our conceiving of it that way, which suggests constitutive mind-dependence.

2.4 Why Care About Mind-Independence?

We've seen that realists are motivated by an array of conditions, including a mind-independence essence, a lack of epistemic privilege, externalism about reference, reliable and projectible inductive generalizations, determinacy, existence, and fundamentality. I've argued that most of these realist conditions ultimately reduce to a concern about a mind-independent essence – that is, the ontological thesis – and we've seen four realist accounts of artifacts motivated by such a concern. Soavi, Franssen and Kroes, and Elder all take the avoidance of constitutive mind-dependence to be crucial for ontological respectability. For a kind to be *real*, its essence can't involve any constitutive mind-dependence, otherwise it's a merely nominal or antireal kind – a mere projection of a concept by us onto the world that doesn't pick out some fundamental division in nature. As Thomasson puts it, “according to some formulations of realism, any metaphysical dependence on human intentionality vitiates a purported entity's claim to reality” (2007, 70). While Lowe approaches the realism question via issues of determinacy and nomological robustness, ultimately his account is driven by a need to posit objective, mind-independent laws of engineering which determine the nature of artifact kind (his machines). Thus, the crux of realism is mind-independence.

The ontological thesis takes real kinds to have mind-independent essences. The semantic thesis takes reference to those kinds to be determined by those mind-independent essences rather than any description we associate with the term. If reference worked by description, then the thought is that the nature of the kind is in some sense determined by us. Similarly, the epistemic thesis is just the claim that those mind-independent essences, in virtue of being determined by 'the world' instead of by us, aren't knowable *a priori*; we must discover real kinds and we can in principle be wrong about their natures. The determinacy thesis is likewise taken to follow from a

mind-independent essence since the nature of the kind will yield determinate identity, existence, and persistence conditions, although this assumes that all fundamental or real joints in the world are determinate. As we saw with Lowe, the essence of a kind is supposed to provide determinate identity and existence conditions, and the sum total of all real kinds would thus yield a determinate structure of the world. Similarly, on the assumption that that structure is nomologically governed, those real kinds will be the subjects of natural laws in virtue of having essential natures that are reliably projectible. Thus, the root of the realist position is the idea that to be ‘real’ is to be (constitutively) mind-independent; mere causal mind-dependence isn’t ontologically problematic for the realist.

The realist question is also sometimes cast as a matter of existence or fundamentality. To be real is to exist, yet some things exist that the realists don’t think are real, so the technical concept of *realism* doesn’t cover just any kind of existence. For example, no one would deny that money or marriage *exists* given the panoply of observable effects those things have on our lives. Specifically, the realist concept of existence gets cashed out in terms of (constitutive) *mind-independent* existence. (put in terms of ‘joint-carving’ amounts to the same thing – nature’s joints must be mind-independent). An alternative, but far less common, characterization is to construe realism as a question about *fundamentality*. The real kinds are the fundamental kinds. Few, if any, philosophers would want to say that minds are fundamental, so anything depending on minds or mental states such as money or marriage or cellphones aren’t fundamental either. Real kinds would be, perhaps, whatever subatomic particles are the fundamental building blocks of the universe. As a result, any mind-dependent kind fails to be a real kind.

It looks like the root of realism is just that to be real is to be mind-independent. But this raises the following question, which seems to go unappreciated and unexamined by the realists:

Why should we care about mind-independence? The worry that entities like money or marriage are not ontologically respectable because their nature is in some sense ‘up to us’ relies on the assumption that minds and mental states are in some sense ‘special’ entities that occupy a privileged place in our ontology. Minds are able to bring things into existence merely by thought alone, and for some reason whatever results from this process isn’t a real denizen of the world. But notice that this appears to assume some kind of dualism, not necessarily between mind and body, but between minds and everything else. The alleged ontological distinction between mind-independence and mind-dependence is a holdover from Enlightenment-era thinking. The Rationalists thought that the mind was separate from nature in a fundamental way, so was ontologically privileged. Freedom, at least, was something that only minds had. Nature, by contrast, was mechanistic and determinate. While the Rationalists thought that the mind was privileged and was, perhaps, more important than nature (certainly Kant took the mind to be fundamental and in a very robust way had it determine the content of the world, at least as we experience it),³² the metaphysical realists denigrate the mind and its products, relegating mentally dependent phenomena to second-class ontological status.

What the realists don’t ask is what the status of the mind itself is. Minds and mental states are, trivially, dependent on minds and mental states (they reflexively depend on themselves). Yet I doubt that the realists want to say that minds aren’t *real* or that mental states like *pain*, *belief*, and *knowledge* aren’t real. The realist view also relegates dreams, afterimages, experiences, and language itself to second-class ontological status, along with money, marriage, and as we’ve seen, most of our ordinary artifact kinds (Baker 2007, 11-13). Indeed, anything constitutively mind-dependent isn’t granted real ontological status. But as Baker points out, the majority of our

³² Especially in Kant’s *Critique of Pure Reason* (1933).

everyday phenomena are intention-dependent (what she calls ID phenomena), so the realists must reject much of ordinary interest:

The portion of reality that is *excluded* from the “in-itself reality independent of our minds and even of our existence” contains much of what we interact with: e.g., artifacts, artworks, economic items (certificates of deposit, credit cards), consumer goods, documents. It also excludes such varied properties as being philanthropic, being in debt, being employed, being drunk, being conscientious, having a banking system, breaking a treaty, suspending habeas corpus, and on and on (2007, 19-20).

The mind-independent/mind-dependent distinction puts chairs and afterimages, marriage contracts and languages, and property laws, rotary engines, and experiences in the same ontological category – the nonreal – and electrons, quasars, palm trees, and molybdenum in another – the real. This seems unmotivated. If we adopt a general naturalist worldview, minds are just as natural and genuine parts of the world as subatomic particles. Taking artifacts seriously doesn’t require naturalism, however.³³ Even without a philosophical commitment to naturalism, realism offers no reason why we shouldn’t investigate the nature of the social world and its attendant, indeed constitutive, relations of mind-dependence. There are multiple sciences studying the mind (neuroscience, cognitive psychological, social psychology) and there are multiple special sciences studying the products of the mind (anthropology, archaeology, history, technology studies, sociology, linguistics, evolutionary psychology, engineering). Unless we are of the view that *only* empirical disciplines have anything legitimate to say about mental phenomena, we have good reason to pursue philosophical inquiry into these kinds.

The recent philosophical pivot towards social ontology and normativity eschews the realist insistence that only the mind-independent “objective” world is philosophically important. Even if the realists were to retreat to one of the other theses expressing realism, we’ve seen that

³³ And one shouldn’t think artifacts are incompatible with naturalism because they’re taken to be ‘non-natural’ by definition – this would be a flagrant equivocation of what it is to be *natural*.

minds, mental states, and anything depending on them, still don't count as real kinds. Mind-dependent phenomena aren't fundamental, we may have privileged epistemic access to their nature, and their existence and identity conditions may sometimes be vague, yet none of this offers a reason for why we shouldn't pursue metaphysical inquiry into mind-dependent phenomena. Moreover, some paradigmatic natural kinds like species and some geological kinds don't satisfy the determinacy thesis, while *very* few kinds satisfy the fundamentality thesis. By contrast, the plethora of special sciences that study the mind mind-dependent phenomena are in the same business as the natural sciences: they aim to give reliable and projectible inductive generalizations about the kinds they're investigating. As a result, minds and mind-dependent phenomena can satisfy the nomological robustness thesis. Minds and their products exist, so we should figure out what they're like, both empirically and philosophically. While we can certainly make a mind-independence/mind-dependence distinction, and while we can distinguish different kinds of mind-dependence, it doesn't look like a sound basis for metaphysics.

Further, as Thomasson (2007, 69-73) has argued, the realist seems to be conflating conditions for being a *natural* kind with conditions for being a *real* kind. The realist theses are all appropriate for something being a natural kind (mind-independence, nomological robustness, determinacy, etc.), but just because artifacts and artifact kinds don't meet these conditions doesn't show that they aren't real, just that they're not what we normally think of as natural kinds. But who would have denied this? We usually contrast natural kinds like gold or zebras with artifact or institutional kinds like chairs and marriage. As Thomasson, addressing Elder's view, puts it: "those who seek to defend the existence of artifacts and artifactual kinds sometimes valiantly attempt to do so precisely by accepting criteria for 'real' existence suitable for members of natural kinds, and trying to show that at least certain artifactual kinds meet those criteria and

so should be part of our ontological inventory” (2007, 69). We’ve already seen that the realists provide no reason for privileging the mind-independent world. If we accept that there are mind-dependent phenomena and we can meaningfully talk about the many real effects of those phenomena on us and the world, then we have good reason to engage in metaphysical inquiry about them. Modelling such *social* phenomena after the kinds investigated by the *natural* sciences misconstrues the nature of the kinds investigated by the social sciences and, increasingly, by social ontology. Such a misconstrual “comes from borrowing an idea suitable for realism about natural objects and kinds and assuming it must apply wholesale” (Thomasson 2007, 72). Different kinds, different conditions for being such a kind.³⁴

Another response to the realist is to point out that technological advances are increasingly blurring the distinction between mind-independent and mind-dependent phenomena (Baker 2004, 2007, Grandy 2007, Gould 2007, Sperber 2007, and Khalidi 2016). Square watermelons, seedless grapes, bacterial batteries, cybernetics, dredged rivers, in vitro fertilization, uranium-235, stainless steel, decaffeinated coffee, beaver dams, and countless other things are products of the mind but are also mind-independent in important ways, e.g. being stainless steel is to have a certain mind-independent internal molecular structure but stainless steel is the result of intentional activity. There are many relevant distinctions to be made regarding these kinds of cases, but I’ll leave them aside. Emphasis on the distinction between mind-dependent and mind-independent phenomena may not be as clear-cut as the realists would like; fuzzy or overlapping boundaries between these categories threatens to collapse the distinction between real and nonreal kinds. The point is merely that the mind-independence/mind-dependence distinction,

³⁴ Things are confounded further by inconsistent terminological use by realists. For example, Soavi, uses ‘natural kinds’ to refer to the epistemological formulation of realism and ‘real kinds’ to refer to the metaphysical formulation of realism, corresponding to the epistemic and ontological thesis, respectively. She contrasts these categories with ‘artificial’ and ‘nominal’ kinds (2009b, 185-186).

even in its constitutive form, isn't ontologically significant. As I've been stressing, the distinction leaves open the nature of artifact and institutional kinds and leaves unanswered the many interesting philosophical questions there are about them. I propose a methodological alternative in the next section.

2.5 A Methodological Alternative

Realism focuses on a pre-established set of metaphysical principles which determine whether a kind or entity counts as *real*, in particular on constitutive mind-independence. Some realists, assuming this set of metaphysical principles, attempt to make artifacts and artifact kinds fit these realist conditions. Instead, I propose we go the other way. I started with recognizing that artifacts are everywhere and they play a central and ubiquitous role in our everyday lives. Our lived experience is almost entirely determined by artifacts, from the forceps that help us out of the womb to the coffin that we're buried in. Such things that we encounter daily – chairs, cellphones, cars, pencils, door handles, blankets, hearing aides, light bulbs, buildings – raise a number of interesting and important philosophical questions. Our practices surrounding artifacts are as equally varied as the artifacts themselves. We make and create artifacts, we use them, repair and maintain them, recycle them, misuse and abuse them, reuse them, own them, evaluate them, appreciate them, and dispose of them. Most artifacts are made for a given purpose and have an intended user base (i.e. they're *for* a particular group), and their use is intended for particular contexts. As a result of artifacts being embedded in our lives, there are numerous social norms governing their creation, use, and appreciation. As such, we want to know what *these things* involved in *those practices* are like. From such practices we can try and extract and describe a coherent account of what artifacts and artifact kinds are. So, such everyday things

which are at the center of various social practices governing their creation, use and appreciation, are our starting point, and figuring out what their nature is, our goal. Where the realists start with a set of metaphysical principles that entities and kinds must satisfy, I suggest we start with our ordinary conceptions of artifacts and artifact kinds and the attendant practices in which they figure, and posit a metaphysical account of their nature.

In reversing the order of inquiry in this way, I am already assuming something rather uncontentious: artifacts exist. I take this to be uncontentious for both practical and theoretical reasons. On the practical side, I'm sitting on a chair right now or you drive your car to work. If I stub my toe on a door frame, I'll justifiably be irritated. We have ample evidence that artifacts exist. On the theoretical side, artifacts exist trivially because we existentially quantify over them all the time, e.g. there are four Ikea chairs that I want for the dining room. We're ontologically committed to artifacts, i.e. we should believe in them or admit them into our ontology because we existentially quantify over them.³⁵ But ontological commitment doesn't tell us what the nature of those entities we're quantifying over is like, so while we are committed to the existence of artifacts there's a subsequent (and substantial) metaphysical project of determining their natures. My approach to that project starts with our practices and ordinary beliefs, and tries to provide an account consistent with those practices.³⁶

By starting from our artifact practices, it may be thought that I'm offering a *descriptive* method for a metaphysics of artifacts. Descriptivism aims to describe our ordinary beliefs and practices about some kind or entity and describe an account which is *implicit* in our practices. In

³⁵ Nonetheless, there are many philosophers who reject the existence of various kinds of entities by explaining or paraphrasing away any putative existential quantification. Others reject artifacts specifically for theoretical reasons, as van Inwagen (1990) does. I'm not addressing those views here.

³⁶ I am assuming that all artifacts belong to an artifact kind. There are no bare artifacts which aren't chairs or hammers or trucks or ball bearings or whatever. Moreover, I'm assuming that every member of a subkind such as chair or truck is an artifact.

one sense, my approach is descriptive. I aim to describe our practices and extract and posit an account of artifacts which is consonant with them. Descriptivism is usually contrasted with *revisionism*, which is the view that our ordinary beliefs and practices may be fundamentally mistaken about the nature of the kind in question and thus our beliefs and practices may require substantial theoretical *revision* in response to metaphysical requirements. This is the approach the realists adopt in offering accounts of artifact kinds which satisfy the realist conditions, namely, mind-independent accounts of artifacts. Revisionism, or metaphysical realism, maintains that our beliefs and practices don't contain a coherent concept of a given kind or entity so they are in need of ontological revision. The folk on the streets just don't know what they're talking about when it comes to the nature of various entities, even ones they encounter in daily life. In principle, our practices can be *radically* revised.³⁷

I propose a middle ground between these two extreme metaontological approaches. My general methodology is primarily descriptive: describe what artifacts are like by taking our practices as (defeasible) evidence and derive an account of artifacts from there. While this project can perhaps be understood as a work of conceptual analysis, it ultimately isn't about the concept of *artifact*, but about *artifacts themselves*. Moving between talk of the concept and talk of the thing the concept applies to is, in most cases, harmless. In some cases, revisionism may be called for, either because our practices are inconsistent or silent on some aspect of the nature of artifacts. While such revisionism (or *prescriptive* conceptual analysis) is in principle possible, it won't be as extreme as the realist proposals because our practices are still the benchmark – we can't *radically* depart from the initial starting point of our inquiry.

³⁷ For various descriptivist approaches see Thomasson (2003b, 2005, 2006, 2007a, 2007b, 2008, 2009, 2014, 2015, 2020), Baker (2007), Preston (2013, 2014), and Kerr (2014). In addition to the realists, Dodd (2007, 2012, 2013) is a prominent proponent of revisionism or metaphysical realism.

The scope of inquiry includes our artifact practices. It also includes our ordinary beliefs and intuitions about those practices. However, it isn't just our ordinary beliefs and practices about artifacts that are relevant, but the various special sciences that study and describe those practices. Thus, empirical literature about artifacts can and should inform any philosophical account. This includes work in anthropology, archaeology, psychology and cognitive science, sociology, art theory and history, evolutionary biology, engineering, technology studies, and the history of technology. These disciplines investigate different aspects of artifacts, so a general account of the nature of artifacts should be responsible to, and at a minimum consistent with, the findings of these disciplines. At the same time, empirical work doesn't exhaust what there is to say about artifacts, so there is still a substantive project for philosophy.³⁸

Since I'm adopting a middle ground between descriptivism and revisionism, a question naturally arises about how to deal with conflicts between our principles. That is, if some of our beliefs or some aspect of our practices conflicts with some antecedent metaphysical principle, how do we adjudicate such a dispute? When do we revise our practices and when do we take them at face value? Our practices aren't sacrosanct but they still anchor our area of inquiry, so they can't be revised *wholesale*; they can be revised piece-meal where such conflicts occur. We certainly don't want a willy-nilly approach that isn't guided by any sort of general principle – we need a non-arbitrary way to adjudicate disputes. Thankfully, such a principle has already been formulated and defended in the philosophy of art – what David Davies (2004) calls the *pragmatic constraint* on the ontology of art and what Guy Rohrbaugh (2012) calls *ontological pragmatism* about art.³⁹ Davies' formulation is more perspicuous than Rohrbaugh's, so I will

³⁸ This is largely in line with Baker's (2007, 15-20) practical (as opposed to metaphysical) realism.

³⁹ This approach is quite widespread in the philosophy of art, adopted by, among others, Irvin (2008), Kania (2008), Predelli (2009), and Stecker (2009), in addition to Davies and Rohrbaugh.

focus on it, though they have basically the same view.⁴⁰ This approach can be applied, *mutatis mutandis*, to the domain of artifacts, generally.

The pragmatic constraint on the ontology of art states that

Artworks must be entities that can bear the sorts of properties rightly ascribed to what are termed ‘works’ in our reflective and critical and appreciative practice; that are individuated in the way such ‘works’ are or would be individuated, and that have the modal properties that are reasonably ascribed to ‘works’, in that practice. (Davies 2004, 18)

This principle is not merely descriptive, it also has a normative element. That is, the ontology of art is not accountable to the norms that *actually* govern artistic practice, but those that would govern it after “rational reflection”. We don’t just describe our practices and come up with an ontology that fits them, we must also reflect on those practices and determine what norms should govern them, and then propose an ontology that fits those norms. But the proposed norms are weighed against our practices, and are to be jettisoned if they require revisions to our practice that we would not be willing to accept after rational reflection. The pragmatic constraint thereby involves ‘reflective equilibrium’ between our actual practices and any proposed revisions to that practice, either to its norms or to a proposed ontology of art that entails revision of those norms or the objects they govern.⁴¹ We weigh each and decide what we are willing to give up and what we aren’t. In cases of conflict we must decide which *should* take precedence – our metaphysical principles or our practices. As Davies puts it, when we are engaging in such a balancing act, we

measure our actual practice against a set of principles offered as a model of right practice, and assess our willingness to revise either our practice or the principles in the face of incompatibilities between the two. In making such assessments, we rely heavily on our intuitions as to what is or is not acceptable to us. (2004, 22)

⁴⁰ See also Davies (2009 and 2017). In many ways, this approach is similar to the Canberra Plan, which aims to define a functional role for a concept from the true sentences in some domain and then posit part of the world (the metaphysical side of things) that could fill that functional role and maintain the truth of the relevant sentences. See Braddon-Mitchell and Nola (2008).

⁴¹ Or alternatively a codification of our practice that clarifies that practice (Davies, 2017).

As a result, our practice isn't sacrosanct, but it is the principal starting point for any inquiry. Our practices (and intuitions about them) are *defeasible* constraints on our theorizing.⁴² Again, if we are pursuing philosophical questions about what *these things* are (be they artworks or artifacts or institutions or groups or whatever), then we can't revise our practices too much without changing the subject. But nor can we just uncritically accept those practices at face value, since they may be internally inconsistent or simply silent on some seemingly important questions, and we should at least leave room for the possibility that we can be wrong about our own practices.

For example, our literary practices appear to treat authors as *creating* the works and characters they write about. This seems to be a central feature of our critical and appreciative literary practices – we appreciate the creative acts of authors and the novel entities they bring into existence, extoll their imagination, and criticize them for their derivativeness and unoriginality. Nonetheless, upon reflection we may conclude that taking authors to be literal creators of new entities isn't central or shouldn't be central to our literary practices. This would require overhauling the norms surrounding appreciation of authors' creative acts, but it makes room for an ontological view of what works and characters are, namely, eternally and mind-independently existing abstracta. The crucial point then, is whether upon reflection we decide that literal creation by authors is a feature of our practice that we are willing to give up (and thus whether our ontology of art should include abstracta) or whether we should treat literal creation as central and find an alternative ontology that coheres with that feature of our practice.⁴³

The pragmatic constraint can be extended straightforwardly to the case of artifacts. We have well developed practices surrounding them – making, using, evaluating, appreciating,

⁴² *Prima facie*, I'm treating intuitions as evidence. As it happens, I don't think they are evidence, but that would take us too far afield. For ease of discussion I will treat them as evidence here. For a good discussion of their defeasibility, see Kornblith (1998) which is situated in a broadly naturalistic framework.

⁴³ This is Dodd's (2007) view of musical works. See Grafton-Cardwell (2020) for discussion.

maintaining, reusing, recycling – which are already governed by norms. The question then, is whether these norms will survive rational reflection on our practices and what ontology would best describe the objects governed by those norms after such rational reflection. As with the case of artworks, our practices ascribe properties to, and individuate, artifacts in certain ways, so the goal is to come up with an account of artifacts that can bear those properties (both actual and modal) *rightly* ascribed to artifacts in our practices. Our artifact practices anchor our inquiry, so cannot be revised wholesale for the sake of some metaphysical principle or other, but they can be locally revised in the face of tension. Deciding whether the principles or the practices should be retained in the event of such tension will involve reflecting on our principles and practices and deciding which we are willing to give up. Again, these practices are to be construed broadly, including our beliefs about artifacts and artifact kinds, as well empirical work in various special sciences that deal with artifacts.⁴⁴

A final remark on method. While our practices are our starting point, the theoretical virtues (internal and external coherence, fruitfulness and explanatory scope, parsimony) will still play an important role. However, I take coherence and scope to be far more important than parsimony. In this sense, I go against the grain of much of contemporary metaphysics, which has an unhealthy obsession with simplicity and reduction. Our practices are so varied that I take a central goal to be to give an account that best explains them and has potential for further explanatory upshots, including evolving practices and novel technological developments, rather than give an account that is the most ontologically sparse. In a sense, the issue of parsimony is orthogonal to this project, since we're already recognizing that artifacts exist, and are now just

⁴⁴ There are important differences between artworks and other artifacts, but most of this involves differences in the particular practices governing them, rather than with the metaphysics of the respective kinds, although some argue that artworks are *sui generis* kinds of artifacts (Levinson 2007) or that not all artworks are artifacts (Weitz 1956, Davies 1991).

trying to determine their nature. Parsimony is more of an issue for giving a complete inventory of the world and its contents. Whatever else *that* project ultimately includes in its inventory, I think it had better at least include artifacts.

2.6 Desiderata for a Theory of Artifacts

Given the methodology I previously laid out, we can come up with some general desiderata for a theory of artifacts by extracting certain central features of our practices. Such a list isn't meant to be exhaustive and no single entry is unrevisable, but they are a useful starting point for any theory of artifacts and artifact kinds.

The first, arguably most central feature of artifacts and artifact kinds is their dependence on minds and mental states, in particular on intentions. Artifacts are things we intentionally make and at least *prima facie* they aren't things that exist in nature, absent minds or mental states. Thus, any theory of artifacts should give an account of such mind-dependence and *only* revise it under extreme explanatory pressure.⁴⁵ The realists eschewed constitutive mind-dependence in their accounts of artifacts, but as I've argued, the realist theses aren't sufficiently important to warrant such revision.

A second central feature of our artifact practices is the emphasis on *function*. While artifacts are things we intentionally make, we seem to make them for some reason or purpose, making a particular kind of artifact for a particular purpose, e.g. I want to sit comfortably on my deck and read in the sun, so I make a wooden rocking chair. There are multiple different

⁴⁵ For some discussion of mind- and intention-dependence see Eaton (1969), Hilpinen (1992), Bloom (1996), Thomasson (2003), Grandy (2007), Mag Uidhir (2013), and Evnine (2016).

accounts of function, mostly developed in the literature on biological kinds.⁴⁶ It's an open question about what account of artifact function is appropriate; whether any of the extant theories are sufficient or if artifacts have unique properties such that one can't simply extend biological theories of function to the artifact case. Our practices leave open what exactly the scope of artifact function is; many accounts take function to be essential. At a minimum, a theory of artifacts needs to explain why function plays such a central role, even if it isn't essential.⁴⁷

Third, any theory of artifacts should offer an account of artifact kinds. This has two components. First, we ordinarily distinguish between artifacts or human-made things and everything else, such as mountains, stars, ore deposits, and manatees. However, we also distinguish between artifacts and institutional kinds like marriage contracts, courts of law, wars, recessions, racism, and residency permits. A theory of artifacts should give an explanation of what distinguishes artifacts from natural kinds on one hand and institutional kinds, on the other. Second, we categorize artifacts by kind: this thing I'm sitting on is a *chair*, the thing I'm typing on is a *laptop*, and so on. A theory of artifacts also needs to provide an account that distinguishes *between* artifact kinds. That is, what makes something a chair or a laptop or a lithium ion battery or whatever? We need a theory that specifies not only membership conditions in the kind *artifact* but also membership conditions for *subkinds* of artifacts. A corollary of giving membership conditions for *artifact* and artifact *subkinds* will be giving existence, identity, and persistence conditions for such things. This will also involve addressing whether artifacts can fall under multiple, distinct, artifact kinds or if an artifact can change the kind to which it belongs, e.g. whether a screwdriver can 'become' a paint can opener. Further, in giving an account of artifact

⁴⁶ See e.g. Wright (1973), Millikan (1984, 1999), Cummins (1975), Preston (1998), Searle (1995), McLaughlin (2001), Griffiths (1993), and Vermaas and Houkes (2003) for different accounts of function.

⁴⁷ Preston (2009) offers a comprehensive discussion of the state of the artifact function literature.

kinds, a theory needs to address the relation between artworks and other artifacts. Our practices tend to treat artworks as artifacts but some cases of artworks may not be artifacts, depending on the theory offered. Regardless of the specifics, some explanation of the relation between the two is called for, given the central role of art in our daily lives.⁴⁸

This leaves open the possibility that there is overlap or no sharp distinction between these kinds. Some entities may undermine the exclusivity of these categories. These include things like seedless grapes, children that result from IVF, various biotechnologies, dredged lakes, and uranium-235, which suggest overlap between artifacts and natural kinds. At the same time, some kinds like thrones may suggest overlap between artifacts and institutional kinds. Finally, cases of ‘found’ objects like an unaltered rock that props open a door may call into question both the distinction between artifacts and natural kinds and the intention-dependence of artifacts. It’s an open question whether such appropriated objects are genuine artifacts.⁴⁹

A related desideratum is to provide success conditions for artifact creation. Artifacts clearly come into existence by being made. I can scrape some clay into a pile but not succeed in making a car. What is required for such an attempt to be the successful creation of a new artifact?⁵⁰ Relatedly, we want an account of the introduction of novel artifact kinds. For example, how did the Wright brothers create the first fixed-wing aircraft? I don’t mean the general historical and psychological facts involved in their invention, I mean the more general question of how novel and prototype artifact kinds come into existence at all.

⁴⁸ For discussion of artworks and artifacts see Iseminger (1973), Davies (1991), Dipert (1993), Levinson (2007), Mag Uidhir (2013), Thomasson (2014), and Evnine (2016).

⁴⁹ See Hilpinen (1992), Scheele (2006), Thomasson (2007), Evnine (2013), and Hick (2019) for discussion of appropriation.

⁵⁰ For discussion of creation attempts see Mag Uidhir (2013).

Finally, because artifacts have success conditions and are, at least for the most part, functional objects, they are inherently *normative*.⁵¹ A theory of artifacts requires an account of how attempts to create an artifact can fail or go awry, as well as what counts as a proper and improper use of an artifact and an explanation of artifact malfunction. Moreover, artifact kinds have intended audiences and intended contexts of use: drinking champagne out of a tin camping mug is in some sense an improper use of champagne. An explanation of proper use, audience and context, is needed. Finally, we also evaluate artifacts on both aesthetic and moral grounds – a car can be more or less ergonomic or stylish and facial recognition software can exhibit racial biases – so analyses of these normative dimensions are called for.

These are some desiderata for a theory of artifacts. Presumably other, perhaps more specific, aspects of our practices are also in need of explanation.⁵² I take the above desiderata to be central and thus they take priority in any theory of artifacts.⁵³ Again, they aren't unrevisable but they can't be jettisoned *en mass* without abandoning our artifact practices. With a methodological alternative and a list of desiderata in hand, we can now evaluate the specific realist accounts of artifact kinds.

2.7 Problems with Realism about Artifact Kinds

We've so far seen what realism involves, both generally and as applied to artifacts, and why the focus on constitutive mind-independence is wrongheaded. I've also offered an

⁵¹ Franssen (2006) and Thomasson (2014) offer extensive discussion of artifact normativity.

⁵² An additional desideratum may be an account of composition, i.e. the relation between artifacts and their matter. While this issue doesn't seem particularly central to our ordinary practices, there is ample metaphysical literature addressing it. It's not clear to me how important this mereological literature is to an account of *artifacts*.

⁵³ In addition to metaphysics, questions about the epistemology of artifacts and the semantics of artifact kind terms are also in need of explanation. The realists tend to assume views about both in virtue of the semantic and epistemic conditions realism requires.

alternative methodology for exploring the nature of artifacts – the pragmatic constraint or ontological pragmatism – and a list of desiderata for a theory of artifacts. Now we can apply that alternative method to the realist accounts of artifacts – those of Soavi, Franssen and Kroes, Elder, and Lowe. There are two general problems with the realist accounts. First, they are far too revisionary. That is, they depart quite radically from our artifact practices and ordinary beliefs about artifacts. Second, the revisionary nature of their proposals is an attempt to satisfy the conditions for real kinds, but they fail to meet their own standards for realism. In order to do so they would need to become *even more revisionary*. Thus, with neither method – realism nor the pragmatic approach – do these accounts succeed.

2.7.1 Problems for the Mind-Independence Accounts

The views of Soavi, Franssen and Kroes, and Elder are all directly motivated by a desire to avoid constitutive mind-dependence in the essence of artifact kinds. Interestingly, these accounts entail both far fewer and far more artifact kinds than we ordinarily countenance. On one hand, our ordinary artifact kinds like *pencil*, *chair*, *cellphone*, *car*, etc. aren't real kinds. But on the other hand, there are *many* real artifact kinds that we don't normally consider, such as the Plymouth Valiant 100, the Eames 1957 desk chair, and so on, which are distinct kinds from other members of the coarse-grained functional kind (e.g. *car*). For Franssen and Kroes, any individual blueprint whose design has been successfully produced will be a distinct artifact kind. For Elder, any distinct cluster of (1)-(3) properties, in conjunction with the further (i)-(iii) properties, will be a distinct kind. For example, *corkscrew* is not a real kind, but the pull-up corkscrew, the 'winged' corkscrew, and electronic corkscrews are all distinct real artifact kinds because they all have distinct clusters of essential properties (even though they share a proper function).

Part of the motivation of positing such natures is avoiding multiple realizability. The thought is that, for a kind to have an *essence* is for it to have something common to all its members *in virtue of which* they are members of that kind. Multiply realizable kinds don't necessarily all share such an essence. For example, *jade* isn't a real kind because it's the disjunction of jadeite and nephrite, which are distinct real kinds in virtue of their respective molecular structures. Because jade is the disjunction of those molecular structures, not all members of the kind jade will have a shared essence. The same problem arises for multiply realizable kinds. Soavi (2009b, 187) puts the problem as follows:

Generally speaking, "*o* has the function F" means roughly that *o* is used for or is produced for F. This interpretation plus the widely accepted principle that functions are multiply realizable leads to the consequence that objects of the same functional kind may have very different structures and be composed of different materials. Identity of function does not therefore guarantee any identity of nature. . . .Artifact kinds, such that *watch*, *chair*, and *pen* are kinds of this type that collect objects with no common inner structure, for this reason cannot be considered real kinds.

Thus, the realists propose more narrowly individuated artifact kinds which tie function to other properties, such as structure, material constitution, and historical development, in order to avoid multiple realizability and still maintain a constitutive mind-independent nature. Take Elder's account, according to which the 2012 Honda Accord is a real artifact kind. The 2012 Honda Accord has (1) a particular shape, (2) a proper function, and (3) a historically proper placement, the combination of which are unique to the 2012 Honda Accord. A 2002 Honda Accord has a different shape and a different historically proper placement (however slight), so is a distinct kind, despite sharing a proper function.⁵⁴ The shape, proper function, and historically proper placement were all developed together as the result of the success of some prototype, and thus

⁵⁴ For example, even in the intervening ten years emissions standards have become more of a concern, which has caused a concomitant change in emissions control systems.

nothing could be a 2012 Honda Accord if it didn't share all three. Putative cases of multiple realizability, such as between the 2002 and 2012 Honda Accord models, are in fact different kinds. With respect to mind-independence, each of these kinds are *causally* dependent on mental states insofar as they are the result of intentional action. But they could, at least in principle, exist without minds and mental states. The three properties which cluster together to constitute the essence of the kind are constitutively mind-independent. The same holds, *mutatis mutandis*, for the other realist accounts.⁵⁵

Amie Thomasson (2007, 70-71) offers two arguments against such realist accounts. While her concerns are specifically targeted at Elder's view, they also apply to Soavi's and Franssen and Kroes. Thomasson argues that Elder's account (a) can't accommodate cases of coincident making and (b) can't establish an essential nature for artifact kinds.

Regarding coincident making, Thomasson argues that Elder's account can't accommodate the possibility that two distinct but isolated cultures can both produce the same artifact kind, *knives*, say, because they don't share a history of production and they have different historically proper placements. This is true for Elder's account, although his copied kinds are typically more specific than *knife*. Nonetheless, two distinct, isolated cultures cannot, on Elder's view, both produce the 2002 Honda Accord LX sedan.⁵⁶ While the realists need to simply bite the bullet on this, the possibility of coincident making only makes sense at the level of generic kinds like *car* or *knife*, but these aren't genuinely *real* artifact kinds for the realists.

⁵⁵ Elder (2014, 36) retreats slightly from the mind-independence criterion, but still maintains that such kinds are real because they satisfy the epistemic thesis. See also Reydon (2014) for an epistemological approach to artifact kinds.

⁵⁶ Although only Honda could produce the *Honda Accord LX sedan*. In the case of two isolated cultures, Elder must accept that they both couldn't produce winged corkscrews because the historically proper placement of the two would be different.

Thomasson's second concern is related to the first. She points out that artifact kinds like *corkscrew* have members that share a proper function but have different shapes or morphologies, e.g. winged, pull-up, and electronic corkscrews. This is basically a concern about multiple realizability. That is, corkscrews are too heterogeneous to be a genuine real kind. But Elder (2014, 37-40) maintains that no *two* such essential properties will occur in distinct copied kinds. While winged and pull-up corkscrews share a function, they have different shapes and different historically proper placements. Winged corkscrews developed in response to weak-armed or lazy individuals (still lazier individuals caused the invention of electronic corkscrews, while a global shortage of cork caused an increase use of twist-off caps). While we use the sortal 'corkscrew' for all three, they in fact belong to distinct artifact kinds. That is, Elder individuates artifact kinds very narrowly, as do Soavi and Franssen and Kroes, and in so doing appears to avoid this worry.

What Thomasson appears to actually be objecting to on these accounts is that they are too revisionary. If the motivation is to save the reality of our everyday artifact kinds, then Elder and friends have failed – they freely admit that they cannot secure realism for kinds like *chair*, *car*, *pencil* or *necklace*, but only highly specific kinds like the *Eames 1957 desk chair*. As a result, *chair* isn't a real kind. Yet, and this seems to be the thrust of Thomasson's concern, if we come up with an account that can only accommodate such highly specific and esoteric kinds, then some other account must be preferable, even at the price of abandoning realism.⁵⁷

However, it's worth pointing out that Soavi has a response to Thomasson's concern, or at least a way of explaining away the intuition behind it. Soavi (2009b, 200) takes one merit of her account to be that she shows how generic kinds like *chair* come about. There are multiple different notions of function, and the way we group artifacts is frequently by using the input-

⁵⁷ Although Thomasson rejects all of the theses that are often used to characterize realism she doesn't thereby accept that artifact kinds aren't real. Rather, she disagrees about what constitutes realism.

output notion. This roughly corresponds to Elder's first property of copied kinds, Millikan's proper function. Our everyday artifact sortals like 'corkscrew' classify kinds based on their input-output function. *Real* kinds are those copied kinds individuated by unique clusters of the (1)-(3) properties that Elder identified or the other accounts offered by Soavi or Franssen and Kroes. It just often happens that we lack a sortal term for the real artifact kinds; functional kinds for which we have a sortal are usually sufficient for our practical purposes. Thus, the worry over multiple realization is illusory. Everyday artifact kinds are actually mere functional kinds that do, in fact, lack an essential nature, so some revisionism is required in order to secure realism for artifact kinds.

Despite the realist responses to Thomasson's concerns, multiple realizability crops up further down the kind hierarchy. If a kind is multiply realizable, then there's nothing essential to the members of the kind except that they can play some functional role. It can't be objected that the functional role itself is their nature since multiple, distinct functional roles may be satisfied by different artifact kinds, e.g. *a device for comfortably seating a single person* describes a functional role for chairs, stools, thrones, cushions, and small ottomans. We normally treat these as distinct artifact kinds, so trying to save our generic artifact kinds by taking a functional role to be essential itself ends up being revisionary.

Instead the realists individuate artifact kinds very narrowly by taking them to be structural-functional-historical kinds. The Pasha sealtimer grand modèle automatique Cartier watch is the product of a particular blueprint that specifies certain structural features in virtue of which it can perform a particular function (the blueprint will also usually specify the materials required in order for the function to be performed by those structural features). By tying the function to the history and structure of the artifact, we get a neat little package of properties that

all and only members of the kind have. Thus, such properties are invariant within the kind, so the kind isn't multiply realizable (e.g. a different blueprint or function would result in a different kind).⁵⁸

The realists claim that the properties which determine the nature of artifact kinds are invariant and therefore unchanging (across time) and fixed (across possible worlds). However, the kinds identified by the realists are still multiply realizable in both ways: their properties are both *modally* and *temporally* flexible.⁵⁹ Take the 2010 Honda Accord. This is a real artifact kind on the above accounts. It derives from a blueprint, presumably designed and housed at Honda's R&D office in Tokyo. The blueprint specifies the structural and material features of the 2010 Honda Accord. In fact, it specifies such features for multiple years, the eighth generation of the Accord (2008-2012).⁶⁰ Any Accord built from those blueprints is a member of the kind, because it will share the structural, historical and functional features specified by the design – or will it? There is great variation among Accords produced for different markets, even among the eighth generation. The Japanese and European Accords share one body design, modelled after the Acura TSX, while the North American Accords have a distinct body. Interestingly, what's marketed as an Accord in Europe and Japan is sold as the Acura TSX in North America, while the North American Accord is sold in Japan as the Honda Inspire, and is not available in Europe. The respective bodies are sufficiently different that the larger North American Accord is classified as a full-sized sedan (because it has increased interior cubic footage) while the Japanese and European versions are not. Further differences include the engines available for the

⁵⁸ Interestingly, one result of this is that the kind *artifact* doesn't appear to be a real kind since it is itself vastly multiply realizable. Though the realists could take the relationship between *artifact* and the various artifact kinds they countenance to be one of determinate/determinable. However, Lowe explicitly treats artifact as an ontological category rather than a kind.

⁵⁹ See Dodd (2007, 53-56) and Grafton-Cardwell (2020) for a discussion of modal and temporal inflexibility.

⁶⁰ These are the years when new models went on sale, not necessarily when they were built.

model (2.4 Liter 4-cylinder on the base models, 3.5 Liter V6 on the luxury versions, and a diesel version available in Europe), as well as 5- or 6-speed manual or automatic transmissions. Even within the different models of the Accord marketed in a single region (LX, SE, EX, coupe, Sports trim, gas-electric hybrid, etc.) the variations are significant. The chassis differs depending on the engine, as do the headlights, presence of fog lights, exterior chrome accents, heated seats, leather upholstery, hubcaps or full rims, etc., to say nothing of the mechanical features.

Why is any of this relevant? The structural features within a single putative kind are multiply realizable, both in their form and function, and in their material constitution. These result from variations on a single blueprint, often because a blueprint underdetermines some features of the kind. These are differences within extant cars, developed between different production years and for different markets. In this sense, the features of the kind are temporally flexible: they can (and do) change over time. Sometimes these changes are in response to production or design defects, sometimes they are to increase performance (input-output function) or safety (system of interaction) or to initiate a new marketing strategy in response to previous sales volume and customer feedback. Thus, members of the eighth-generation Honda Accord (whether considered as the worldwide version or the North American version) have structural and functional components that are multiply realizable, thereby violating the requirement for a common essence. Such features are also *modally* flexible: the Accord could have had different structural or functional features than it in fact has. For example, all models could have been available with diesel or hybrid engines, or they could have only been sedans, not coupes, or used only a single chassis across all versions. Moreover, it's undeniable that a particular car, say, *must* have a specific material constitution. However, the realists tie function, structure, and history to particular material properties. But the Accord could have a body made out of resin rather than

plexiglass or metal or rubber could be replaced by some other material for the tires or indeed gasoline need not be the substance that the engine runs on. So modally speaking, the material components of the Accord are variable.⁶¹ But when we look at the history of research and development and take into consideration the constancy of technological development, material components are also variable across time. Indeed, the shift from the internal combustion engine to hybrids to fully battery powered motors is just one example. Similarly, advances in polymer science are constantly leading to the use of new substances across all technologies. The material constitution that the Accord has *now* isn't necessary, it's multiply realizable. So again, the features that are supposed to cluster together uniquely and provide an essential nature to the kind *Eighth-Generation Honda Accord (2008-2012)* are variable between members, both at a time, across time, and in counterfactual cases.

One initial response on behalf of the realists doesn't seem promising. Because the blueprints underdetermine features of the kind, one could say that only those features explicitly specified in the design are essential structural features.⁶² The variations I've been pointing to are contingent features of the kind. But what structural features are invariant? If even the engine and chassis and drive-train can vary between cars of the same kind, it looks like you'd have to retreat to very generic structural features like *having an engine and chassis*. But this isn't much better than saying that a Honda Accord is a four-wheeled vehicular transport; such features aren't unique to the kind, so won't be essential to it. Neither can you take the disjunction of, say, all available engine designs, since this just pushes the multiple realizability back a step. The Eighth-

⁶¹ Multiple realizability of material components is denied by Kripke (1980, 113-114) who maintained that a particular table couldn't have been made of anything other than the wood it's actually made of, such as ice. The example of ice is an interesting rhetorical choice, since it may affect our intuitions – how often do we encounter ice tables unless we're at an ice festival. But intuitions may be very different if we consider that a carpenter, in the process of making a table may have selected one block of wood rather than another for her table.

⁶² A structurally parallel problem arises for the identity of musical works since musical scores underdetermine the sonic and instrumental properties of a work.

Generation Honda Accord is just one example – similar considerations hold for the Eames 1957 desk chair, the Pasha seafarer grand modèle Cartier watch, the Plymouth Valiant 100, and other putative real kinds.

There's an obvious alternative response available to Elder and friends. Like the case of corkscrews, the realists could retreat and individuate the kinds even more narrowly, just as Elder maintained that *corkscrew* isn't a genuine kind, but *pull-up corkscrew* is. The *Eighth-Generation Honda Accord* isn't a real artifact kind, but the 2010 Honda Accord LX sedan with the 2.4 Liter 4-cylinder DOHC i-VTEC I4 gasoline engine and automatic transmission *is* a real kind. That is, the realists can find some level of individuation that will have invariant structural, material, and functional features across the kind. Each of the above models and combinations of structural, functional, and material features is a distinct kind of artifact that share an essential structural-historical-material-functional nature. Any future change, however minor, in such features results in a new artifact kind.

While this yields temporal *inflexibility*, it doesn't address modal flexibility. It still seems that the 2010 Honda Accord LX sedan with the 2.4 Liter 4-cylinder DOHC i-VTEC I4 gasoline engine and automatic transmission *could* have had different features, say, a 6- rather than 4-cylinder engine. The actual features it has wouldn't be *essential* to it. Of course, the realists are just going to deny this possibility; such a model of the Accord with a 6- rather than 4-cylinder engine (or any other change) would be a distinct kind. But why should we grant such a claim? The real artifact kinds are now individuated so narrowly that we've practically abandoned ordinary discourse since we normally treat the different models of a given generation of car as members of the same kind. At this point the realist is just stomping their foot and denying that kinds are temporally or modally flexible. That is, insisting that the real kind is this very specific

kind that is both modally and temporally inflexible done by pure definitional fiat all with the goal of meeting the realist conditions. It's really just a stipulation that the kind has a functional, structural, and material profile that is invariant. Yet intuitions clearly point in the other direction, and in fact given that the design process is so often a result of trial and error, designers may *in fact* have altered the properties in the blueprint during the design phase.⁶³ It seems like we should grant that *that* very kind of thing could have had different properties and may have different properties in the future.

It doesn't seem like the realists have gained any explanatory advantage by individuating the kinds so finely. The motivations for the realist view are for allegedly independently desirable metaphysical principles, but if we want to account for how we actually categorize artifacts, then the realist view is explanatorily impotent. It just seems to be at odds with our ordinary thoughts, beliefs and practices about the things that we interact with in our daily lives. Buying the V6 engine option in the 2012 luxury sedan version of the Accord rather than the base model with the V4 engine can be the result of multiple considerations. Price is an obvious factor, but so is performance. One interesting fact about luxury goods is one of their main functions is often as status markers; we buy them to show how wealthy or cultured we are. The Accord, as a Honda car model, may be seen as too middle-class, and thus one may opt to buy a *different kind of car* such as the Acura RLX (or, since Acura is often billed as 'affordable luxury', perhaps opting for a Lexus or BMW). There are surely multiple uses of 'kind' in ordinary language that can denote different kind levels, but there appears to be little reason to privilege some given level, e.g. the 2012 LX Accord sedan with V6 engine, as a *real* kind while dismissing the others as somehow

⁶³ See Basalla (1989), Petroski (1992), and Arthur (2009) for discussion of the history and development of new technologies and novel solutions to engineering problems of the kinds I'm alluding to here. All three paint a largely evolutionary picture of technological development.

antireal or not *really* real or whatever. The counterintuitive nature and *ad hocness* of the realist proposals strongly militates against adopting them.

If the realists take the above route then they can avoid multiple realizability and thus their proposals do in fact involve constitutively mind-independent essences. However, at this point we've all but given up on our ordinary beliefs and practices about artifacts and artifact kinds. Not only do we not secure the reality of kinds like *chair* or *corkscrew* but we don't even get the reality of *Honda Accord* or even *Eight Generation Honda Accord*. None of our ordinary artifact kind terms or sortal concepts track real kinds. This runs afoul of the pragmatic constraint. Moreover, the realists fail to address many of the desiderata of theory of artifacts, with the notable exception of artifact function.⁶⁴ The first of the desideratum for a theory of artifacts is their mind-dependence and I've already argued that the realist dismissal of this aspect of artifacts is unjustified. That feature of our practices trumps any realist demand on kindhood. However, in order for the realists to meet those very demands they've set themselves, they have to further revise our practices by jettisoning pretty much all of our familiar artifact categories. Realism about artifacts is now realism without artifacts and this isn't a price worth paying.

2.7.2 Problems for Lowe's Nomological Account

Lowe's view sidesteps worries about multiple realizability while maintaining the importance of constitutive mind-independence. Like the other realists, Lowe's view runs counter to our ordinary practices surrounding artifacts, which make no strong distinction in kind or status

⁶⁴ Franssen (2006) also has an extended treatment of artifact normativity. The other desiderata are largely left implicit. For example, the realists offer accounts of artifact kinds with the implicit assumption that this distinguishes them from institutional and natural kinds. They also implicitly reject appropriated objects since they don't satisfy the realist accounts and they say little about success conditions and virtually nothing about artworks.

between hammers and cellphones (although they seem to mark the difference as one of degree of complexity). His account, while interesting, draws an unprincipled distinction between machines and utensils. This distinction, which makes machines real and utensils nonreal, relies on two main claims: (1) machines are subjects of natural laws, specifically laws of engineering, while utensils are not, and as a corollary (2) the identity and existence conditions for machines are determinate, while those of utensils are not. (1) is, I'll argue, false, while (2) is questionable at best and potentially involves constitutive mind-dependence at worst.

Machines are allegedly real because they're subjects of laws of engineering. Lowe gives the example of the pendulum. There are certainly laws of engineering governing it, as well as other more complex machines like a rotary engine or a nuclear reactor. But utensils do seem to be subjects of special science laws. Anthropology, archaeology and history study tool use in different cultures and make inductive generalizations about such artifacts, e.g. the introduction of flaked stone tools in a culture tends to lead to larger populations because of increased hunting success. If we understand laws as (at least) counterfactual supporting generalizations, then such generalizations are clearly laws, albeit of a special science. But laws of engineering are similarly special science laws. It can't be argued that special science laws of, say, anthropology, are 'mere' *ceterus paribus* laws, since the laws of engineering likewise contain *ceterus paribus* clauses. The laws governing the pendulum hold, so long as there is no friction or air resistance. Claiming that anthropological laws involve *too many ceterus paribus* clauses will surely not help, since this will be a matter of degree and thus not provide a principled distinction between generalizations about pendulums and those about flaked stone tools.

A further problem with (1) is that some things that are clearly not *machines* in Lowe's sense are subjects of engineering laws. Consider guardrails along a highway. First, for such

artifacts to perform their function, *we* don't have to do anything. If they successfully stop a car from going off the road, then they're functioning properly. The performance of that function is the result of an array of research, experiments, and application of physical laws. The velocity of the object, its mass, the durability and resistance of the guardrail, how deep the posts need to be buried, all need to be taken into account when designing such an artifact, and this is the result of engineering laws and their application. Lowe could, of course, claim that a guardrail is a machine in his sense (he claims that his use of 'utensil' and 'machine' are not to be taken in their ordinary senses), but it's hard to see what its unifying principle of activity is. If he claims that it's the guardrail's ability to stop a car, and that the guardrail exists as long as it's capable of performing that function, then it looks like similar things could be said about hammers, chairs, and doorstops, thereby collapsing the utensil/machine distinction.

This brings us to (2) the identity and existence conditions for machines are determinate, while those of utensils are not. Having a unifying principle of activity that is governed by natural laws allegedly yields determinate identity and persistence conditions. According to Lowe, this is because a *permanent* interruption in the machine's characteristic manner of working (i.e. an interruption of its unifying principle of activity) entails the machine has ceased to exist. But permanence is a modal notion, and we need to ask what its scope is.

Consider a watch in need of repair. It has ceased working but we don't normally think that the watch has ceased to exist – we take it to a repair person and they disassemble it, replace a part and reassemble it. We think it's the same watch, *our* watch, as the watch we had before disassembly. Clearly the discontinuity in the watch's characteristic manner of working was not permanent; it could be repaired. But there are various different scenarios which show that determinate identity conditions are hard to pin down. If the part needed to repair the watch is no

longer manufactured, then the watch will remain broken, but intuitively it's still a *watch* and *my* watch. By contrast, consider a case where the watch breaks and there are many parts available to repair it but all intelligent life on the planet dies. Again, it seems to be the same watch, but its unifying principle of activity has in some sense been *permanently* interrupted.

Lowe could claim that the notion of 'permanence' is physical possibility – so long as it's physically possible to repair the watch, then it still exists. This won't do, though, since it's physically possible to repair pretty much every machine, no matter how damaged it is. I could smash the clock into dust and yet it's still *physically* possible (albeit practically *impossible* with current methods) to reconstitute it into a working watch. In this case, we clearly have the intuition that once smashed to dust, the watch ceases to exist. It looks to be indeterminate when the watch ceases to exist. In general, 'broken beyond repair' is a highly contextual notion that is often determined by our practical interests. In cases where the artifact has sentimental or historical value we tend to think it can persist through greater damage than an artifact that we don't really care about. Historically valuable buildings like the Parthenon can be in a state of great decay yet still persist⁶⁵ (it's unclear whether buildings are machines for Lowe, but I think that he must say they are) whereas generic buildings in a similar state are thought to be destroyed or run down to the point that they're not a building anymore. The existence and identity conditions of such artifacts look increasingly 'up to us' in a constitutive sense of mind-dependence. Lowe can't maintain a principled distinction between machines and utensils nor does he succeed in avoiding constitutive mind-dependence. As a result, his view fails to be principled and fails to meet his own standards for realism.

⁶⁵ See Dauer (1972).

2.8 Conclusion

Realism has a long history and realist views have been offered in many different domains. The foundation of realism is the idea that for an entity or kind to be real it must be (constitutively) mind-independent. That is, its nature must be ‘objective’ in that it can’t depend on minds or mental states or otherwise be ‘up to us’. Realist views about artifacts and artifact kinds are widespread in the literature. I canvassed four such views – those of Soavi, Franssen and Kroes, Elder, and Lowe – all of which individuate the real artifact kinds very narrowly or otherwise reject many of our ordinary artifact kinds.

But we need to ask why the mind-dependence of some kind is metaphysically problematic. There are many mind-dependent kinds which very clearly *exist* and have profound effects on our lives and the world. Thus, it’s *prima facie* reasonable to investigate the nature of such kinds, whether they’re artifacts, institutional kinds, language or mental states. To do so in the case of artifacts, we should take our practices and ordinary beliefs about artifacts as the starting point of our inquiry. Artifacts just are things that we intentionally make. From here, we can offer a theory of artifacts which attributes properties to artifacts that we normally ascribe to them in our practices, including their function, normativity, categorization, and relations to other kinds. However, sometimes those practices may be in need of revision in the face of conflicts with metaphysical principles. As a result, we can revise aspects of our practices, however this can’t be done wholesale without abandoning the very subject we intended to pursue in the first place. Yet this is precisely what realist accounts of artifacts do – they individuate artifact kinds in ways that jettisons their mind-dependence, arguably the most central aspect of our artifact practices. Whatever merits realism has in other domains, it’s the wrong approach for artifacts and

artifact kinds. Instead we need to describe our ordinary beliefs and practices about artifacts and devise an account from there. This is what I propose to do in what follows.

CHAPTER 3: ARTIFACTS AND MIND-DEPENDENCE

3.1 Introduction⁶⁶

The metametaphysical strategy I laid out in the previous chapter enjoins us to start with our practices involving, and pre-theoretic beliefs about, artifacts and attempt to extract an account of what artifacts are from there. Where those practices and beliefs turn out to be inconsistent or silent, or we have intuitions in tension that pull us in opposite directions, we may need to revise or reorient our practices and beliefs. Thus, what I'm engaged in is a balance between prescriptive and descriptive conceptual analysis.

There are a number of features of artifacts that we can extract from our practices and beliefs. This chapter will examine one main one, namely whether and to what extent artifacts are mind-dependent. The realists all assumed that in order for artifacts and artifact kinds to have essences, they must be *mind-independent*. I argued that this assumption was mistaken and that the realists couldn't maintain a realist essence even by their own lights. Indeed, we tend to pre-theoretically conceptualize artifacts as 'things made by humans' which suggests that they are *mind-dependent*. As a purely descriptive claim, I thereby take our practices and beliefs to construe artifacts as mind-dependent. As the pragmatic constraint tells us, this feature of our practices and beliefs shouldn't be revised unless it's in tension with other aspects of our practices or beliefs which we are unwilling to revise after rational reflection.

What exactly does our pre-theoretical commitment amount to? I think at least the following two conditions are implicit (or even explicit) in our practices:

⁶⁶ Much of this chapter follows Juvshik (2021a, 2021b).

(a) Artifacts (such as tables, pencils, and curling irons) are things made by *beings like us*, i.e. entities with minds and mental states.

(b) Artifacts are things that we make *intentionally*.

If artifacts are intention-dependent, then they are mind-dependent, since intention-dependence just is a kind of mind-dependence. Artifacts come into existence by the intentional acts of their creators. Desk chairs, computers and handsaws are all products of intentional action – someone intentionally did something to bring them into existence. Absent humans, or perhaps other entities with intentionality, it doesn't seem like there would be any reinforced concrete supertall skyscrapers or Toshiba copy machines or hybrid electric-gasoline motors. The existence of these entities seems to clearly depend on the intentional actions of their creators, designers, and perhaps in some cases even users. Of course, not everything that results from intentional activity is an artifact. To borrow Stephen Davies' (1991, 131) example, if I intentionally cut off your arm, I've artifactualized neither you nor your arm. Thus, a natural necessary, but not sufficient, condition on being an artifact is being intention-dependent, and so mind-dependent. I take this commitment to be inherent in our beliefs and practices.

The intention-dependence of artifacts is very widely accepted.⁶⁷ But what exactly do we mean when we say artifacts like chairs are intention-dependent? It can't merely be that they are causally dependent on some intention or other somewhere in the chain of causes that led to their existence – this would be a trivial condition that wouldn't tie intention-dependence to artifactuality in any obviously relevant or essential way. Rather, it seems that to be an artifact, say a chair, then it must be the product of an *intention to make a chair*. Chairs, curling irons, and violins are all things that satisfy such a condition. When an artisan makes a violin, it is because

⁶⁷ For example, Eaton (1969), Dipert (1993), Davies (1991), Hilpinen (1992), Bloom (1996), Thomasson (2003), and Levinson (2007).

she intended to make one of those kinds of things – not some other kind of artifact nor some non-artifact like a tree – but a violin. All of the artifacts around us *prima facie* result from an intention to make that kind of thing. It seems the intention-dependence condition (so *ipso facto* the mind-dependence condition) is that artifacts are *the products of an intention to make that kind of thing*, where ‘that kind of thing’ is an artifact kind.⁶⁸

Following Christy Mag Uidhir (2013, ch. 1), we can note the close relation between *intending to make an artifact* and *an attempt to make an artifact*.⁶⁹ For artifacts to be intention-dependent is for them to be the successful products of an attempt to make such a thing. That is, attempting to Φ entails intending to Φ but not vice versa.⁷⁰ Since such attempts can fail, merely intending to make an artifact isn’t sufficient to make one; one must attempt to make an artifact and that attempt must be successful. It’s an open question what’s required for such attempts to be successful, but for now we’re just concerned with the intention-dependence condition.⁷¹ So, for something to be a chair, it needs to be the successful product of an intention, and hence an attempt, to make a chair. We can formulate the general condition as follows:

Intention-dependence of artifacts (IDA): x is an artifact only if x is the successful product of an attempt to make an artifact.

Since intentions are mental states that are always had by someone, it follows from (IDA) that artifacts have *makers*. I take (IDA) to be directly extractable from our actual practices of making

⁶⁸ It is an open and very difficult question to say what makes a kind an artifact kind. This will have to be left as intuitive for now.

⁶⁹ Mag Uidhir’s attempt condition is actually a condition on artworks, but it transfers straightforwardly to artifacts. As Mag Uidhir (2013, 41) points out, adding an artifact condition in addition to the attempt condition on artworks is trivial, since he takes the attempt condition on artworks to entail that it’s an attempt to make an artifact of a particular kind.

⁷⁰ One can intend to Φ without ever attempting to Φ , e.g. I intend to exercise regularly but never make any attempt to do so.

⁷¹ I will address further essential constitutive features of artifacts in subsequent chapters.

artifacts and most people will take something like it to be definitional of being an artifact. Therefore, our practices seem to be committed to something like (IDA) and so given the pragmatic constraint, we should accept (IDA) unless rational reflection gives reason to revise our practices.

When discussing the realist positions in the previous chapter, it emerged that the kind of mind-dependence needed as an essential constituent of artifacts is *constitutive* rather than *causal* mind-dependence. It's not enough for shoelaces and paper clips to be effects of mental states or intentional activity, mental states or intentional activity need to (partly) *constitute* such entities as an essential feature. Therefore, when I say that our practices and beliefs commit us to the claim that artifacts are necessarily mind-dependent and intention-dependent, I mean that mind- and intention-dependence is an essential constitutive feature of being an artifact.

Despite the initial plausibility of (IDA), it may seem like our practices *should* be revised given various other considerations. One could reject the above condition on artifacts by either arguing that it's too weak or too strong. One natural and widespread assumption is that artifacts are things that result from humans modifying and manipulating the physical world – artifacts are things like desk chairs, electric toothbrushes, and handsaws which were made by modifying and combining various physical objects or materials. A hammer is fashioned by cutting, sanding, and varnishing wood, casting a hunk of metal, and attaching the two together. As a result, the above condition is too weak. It might be thought that a very particular kind of intention-dependence required for being an artifact is that they are the result of intentional *physical modification*.

Despite the above natural (and seemingly pre-theoretic) condition on artifactuality, one may think that while *most* artifacts happen to be mind-dependent and perhaps even intention-dependent, this is only a common, but not necessary, feature of artifacts. Such a view is more

common among philosophers than laypersons because it's the result of what you might think of as far-flung modal reasoning: we can imagine a possible world that is empty except for a single object that is intrinsically identical to my 2006 Honda Civic. Alternatively, one may appeal to so-called swamp cases: it's possible, however unlikely, that swamp gases could coalesce into an object that is intrinsically identical to my 2006 Honda Civic. Some philosophers have the intuition that in both cases these are genuine artifacts, which shows that even general mind-dependence isn't a necessary condition on being an artifact. Note that this motivation against a mind-dependence condition is unrelated to the realists' motivation for mind-independence in the previous chapter.⁷²

An intermediate position would take artifacts to be mind-dependent but not necessarily *intention-dependent*. Such a view can be motivated by cases of what seem like accidental creation, i.e. I don't intend to make a loaf of bread but through sheer clumsiness I do, cases of automated and mass production where the artifact is made by machines, and cases of unintended but anticipated by-product creation, such as pollution.

We thus have four possible claims about the relation between being an artifact and mind-dependence:

- (1) Artifacts aren't *necessarily* mind-dependent, but most of the artifacts around us happen to be.
- (2) Artifacts are necessarily mind-dependent, and specifically necessarily *intention-dependent*.
- (3) Artifacts are necessarily mind-dependent, specifically necessarily intention-dependent, but they also must result from intentional *physical modification*.

⁷² Although I suspect that they would accept these kinds of cases as compatible with their own views. However, Elder (2014) appears to reject these kinds of cases and thus walks back his commitment to mind-independence.

(4) Artifacts are necessarily mind-dependent, but don't need to be intention-dependent or result from physical modification.

I take (2) to be both the default view and the correct view of what mind-dependence condition there is on artifacts and it expresses the general idea behind (IDA). Thus, I'll argue against (1), (3), and (4). While (1)-(3) are in decreasing order of generality, I won't discuss them in that order. I will first consider (3), then consider (1) and finally (4). While this might seem dialectically counterintuitive, it will become clear later that considerations around (3) will allow certain explanatory advantages with respect to (1) and (4). Since I take (2) to be the default view as a result of our pre-theoretic commitments and practices, showing (1), (3), and (4) to be false leaves (2) as the only plausible mind-dependence condition on artifacts.

The chapter is structured as follows. In section 2 I argue against the physical modification requirement by showing that it is both difficult to precisely formulate and that even in its strongest formulation it is incompatible with cases which are intuitively artifacts but didn't result from physical modification. If we reject such a requirement, we see that artifacts can come into existence through appropriational means, such as taking a rock from the garden to prop open your door – under the right circumstances and with the right intention this can make the rock into a doorstep. In section 3 I consider two kinds of counterexamples to the mind-dependence condition, modal cases and swamp cases. I argue that our intuitions in these cases are unreliable given how much of a departure they are from ordinary artifacts and thus what we say about such putative counterexamples are best left as spoils to the victor. Despite taking this approach, I also offer three potential error theories for explaining why someone might have the intuition in the first place, even though the content of the intuition is false. Finally, in section 4 I argue against a mind-dependence condition without intention-dependence. I consider three alleged

counterexamples to intention-dependence, accidental creation, automated production, and predictable but unintended by-products, and show how the first two involve an intention to create an artifact, just not where we might initially expect it to be, while the third should be rejected as a case of genuine artifacts.

3.2 Artifacts and Physical Modification

Many philosophers hold the intuitive view that artifacts are the result of physically modifying some object or objects.⁷³ Despite being widespread, no one has given a full defense of physical modification as a condition on artifactuality, let alone formulated it precisely. I argue that this intuitive view of artifacts is false and, as a result, that we can retain another intuitive view, namely that artworks are necessarily artifacts. This second assumption is strongly held amongst philosophers of art and aestheticians. The assumption that artworks are necessarily artifacts seemed highly plausible prior to the advent of contemporary art movements: artworks were things like statues, paintings, and novels. With the rise of artistic movements in the early to mid-twentieth century like Dadaism, conceptual art, and found art, the artifact condition began to look implausible. These new kinds of artworks were increasingly alien to the artistic traditions that preceded them, and despite initial hostility to their place in galleries and concert halls, such pieces, like Duchamp's ready-mades and John Cage's aleatoric music, have been accepted as art. Thus, 'art' became increasingly hard to define; the works that fell under the concept were so heterogeneous that it seemed that absolutely *anything* could be art.

⁷³ Philosophers that explicitly adopt this assumption include Stephen Davies (1991, ch. 5), Randall Dipert (1993, 23ff.) and Dan Korman (2015, 155-156), while Edward Sankowski (1980), Berys Gaut (2000) and Maarten Franssen (2006, 43) all implicitly adopt it. Christy Mag Uidhir (2013, 99-100, n7) and Risto Hilpinen (1992) seem to endorse it, but their commitments aren't entirely clear.

Previous attempts to define art, such as Clive Bell's (1914) formalism, proved inadequate in the face of such developments. As a result, Morris Weitz (1956), inspired by Wittgenstein's discussion of the family resemblance of games, defended *anti-essentialism* about art: art cannot be defined. Weitz defended this claim with his 'open' concept argument. Open concepts are concepts that could have cases where we would need to decide to either extend the concept to cover such cases or 'close' the concept and come up with a new concept to cover the new cases. According to Weitz, all open concepts are indefinable. Closing the concept of art to exclude cases like Duchamp's ready-mades would undermine the inherent creativity of art. Weitz concluded that art cannot be defined.

In claiming that 'art' was indefinable, Weitz meant that there were no individually necessary and jointly sufficient conditions for something to be art. This includes all the standardly invoked necessary conditions for art: representation, being made by human skill, ingenuity, or imagination, being expressive of emotion, instantiating some aesthetic properties, being in or relating to some established artistic tradition, or being an artifact. Weitz alleged that counterexamples can be found for all of these conditions. For example, Rothko's paintings are not representational, Robert Barry's *All the Things I Know but of Which I am Not at the Moment Thinking: 1:36; June 15, 1969* instantiates no aesthetic properties, Duchamp's *Bottle Rack* is not expressive of emotion, and most outsider art isn't in an established artistic tradition.

With respect to being an artifact, Weitz (1956, 34) cites cases of found art that allegedly show the artifactuality condition to be false: a piece of driftwood can be moved from a beach to an art gallery and thereby become art without becoming an artifact. An enormous literature appeared in the decades following Weitz's paper, spawning both multiple attempts to define 'art' as well as various responses to Weitz's rejection of the artifactuality condition. Concerns about

the latter issue have died down recently, but discussions of how to define ‘art’ are alive and well (e.g. Gaut 2005, Abell 2012, Lopes 2013). However, given the recent surge of interest outside of the philosophy of art around the nature of *artifacts*, revisiting Weitz’s counterexample to the artifactuality condition seems germane.

The literature responding to Weitz’s driftwood argument has tended to focus on specific examples, but it has largely ignored the details of Weitz’s main assumption, namely that artifactuality requires *physical modification*. In cases of found art, objects are appropriated as artworks without being physically modified except by being moved. Weitz assumes that to be *an artifact* an object must not be merely moved but be modified, such as sculpting a lump of clay or painting a canvas. As far as I know, no one has evaluated the prospects for such a condition. Weitz doesn’t develop or defend this assumption, so I develop it on his behalf. I call this the *physical modification condition* (PMC). After developing PMC, I reject it, defending the view that artworks are necessarily artifacts from Weitz’s driftwood argument and thus that artifacts need not be the result of physical modification

3.2.1 Weitz on the Artifactuality Condition

Weitz doesn’t formulate a robust argument against the artifactuality condition (see Weitz 1956, 33-4), however, Stephen Davies (1991, 122-3) reconstructs Weitz’s argument more formally as follows:

- (P1) A piece of driftwood can become an artwork without its being modified in any way beyond its removal to an art gallery.
- (P2) The piece of driftwood is not artifactualized in the course of its achieving art status (because it is not worked on).

(C) Therefore, the artifactuality condition fails to hold.

The motivation for (P1) is an appeal to the appreciative practices of the artworld. Since Duchamp's *Fountain*, found objects have been accepted as artworks when placed in galleries and displayed in exhibitions. In addition to *Fountain*, Duchamp's readymades include *Bottle Rack*, a normal, unmodified bottle rack, and *In Advance of the Broken Arm*, a snow shovel. While there was initial resistance to Duchamp's works, these objects, and readymades generally, eventually became accepted by artists, art critics and art theorists as genuine artworks.⁷⁴ As far as I'm aware, Weitz isn't considering an actual piece of driftwood moved to a gallery, but it seems that such a case could (and perhaps has) happened. It seems plausible that such an object would be treated as an artwork, given the current practices of the artworld public.

The motivation for (P2) is more complicated. Weitz says little enough about the argument, so the bracketed part of (P2), "because it is not worked on", is added by Davies. Nevertheless, I think it's fairly uncontroversial what Weitz had in mind. He seems to be assuming that because the driftwood isn't physically modified when it's moved from the beach to a gallery, it hasn't become an artifact. That is, to be an artifact requires physical modification, what I call the physical modification theory (PMC). PMC is an intuitive (but I think naïve) view of artifacts: artifacts are objects like cars, sweaters, and desk chairs. Indeed, the vast majority of the objects around us will tend to have been the result of physical modification. The driftwood, while intentionally placed in a gallery, did not result from any (intentional) physical modification (except being moved to the gallery), so is an artwork but not an artifact. From (P1) and (P2) it follows that (C) the artifactuality condition is false.

⁷⁴ See Evnine (2013) for discussion of the history of *Fountain*.

Since Weitz doesn't give a robust formulation of PMC, I consider various formulations with the aim of developing the strongest and most plausible version. Only then can we be in a position to evaluate PMC as a condition on artifacts. First, note that PMC only seems plausible as a *necessary* condition on artifactuality. Using Davies' (1991, 131) example again, cutting off your arm artifactualizes neither you nor your arm. Thus, physical modification isn't *sufficient* for artifactuality.⁷⁵ As a first stab, consider the following:

PMC₁: If x is an artifact, then x has undergone some physical modification.

While this generic formulation seems to express the idea behind PMC, it doesn't specify that the modification must be *intentional*. Lava that cools and solidifies into volcanic rock undergoes physical modification, but is obviously not an artifact. Thus, we should include an explicit reference to intentions:

PMC₂: If x is an artifact, then x is the result of intentional physical modification by some agent(s).

Intentions are always had by some agent, and since some artifacts are the products of multiple agents (skyscrapers, automobiles), the relevant agent can be plural.

The relevant physical modification is not to the *artifact* but to some pre-existing material objects from which the artifact is the *result*. A lump of clay is moulded to make a statue, rubber is used to make a tire, which in turn is used along with a chassis, engine, carburetor and other artifacts to make a car, pieces of wood are sanded and varnished and nailed or glued together to form a table, and so on. We therefore get the following:

PMC₃: If x is an artifact, then x is the result of intentional physical modification of some pre-existing material object(s) by some agent(s).

⁷⁵ See also Iseminger (1973).

Following Davies (1991,133), we can call the pre-existing material object(s) that make up the artifact its *progenitors*. It's an open question what the relationship is between an artifact and its progenitors. Two salient options in the literature are that the progenitors are *identical* to the artifact or that they compose or constitute the artifact but are *distinct* from it.⁷⁶ It will be recalled from Chapter 2 that such mereological concerns are beyond the scope of this project, and besides, nothing particularly hangs on this. PMC only requires that the artifact *results* from modification to its progenitors; whether the resulting artifact is identical to the progenitor can be left unaddressed for now.⁷⁷

While PMC₃ seems like a robust characterization of Weitz's view of artifactuality, it doesn't say anything about the kind of modification required. The driftwood did undergo some physical modification – a change in place – but Weitz and others who endorse PMC obviously don't take this to be the relevant kind of physical change. A change in location is only a change in the driftwood's *extrinsic* properties. To make an artifact in the sense relevant to PMC, it seems that there must be a change in the *intrinsic* properties of the object. On the standard view of the intrinsic/extrinsic distinction, an intrinsic property is one which an object has solely in virtue of itself, whereas an extrinsic property is one which an object has partly or wholly in virtue of something besides itself.⁷⁸ *Being an uncle* is an extrinsic property, while an object's *mass* is an intrinsic property.⁷⁹

⁷⁶ Davies (1991, 133), Dipert (1993, 121-125), and Mag Uidhir (2013, 99) all opt for the second option. See the papers in Baxter and Cotnoir (2014) for general discussion of this issue.

⁷⁷ My preferred view is that artifacts are phase sortals of material objects, but I won't defend that view here.

⁷⁸ Alternatively, Lewis (1999, 111-112) characterizes the distinction in terms of qualitative duplicates, although he also uses the characterization I've given.

⁷⁹ Other intrinsic properties may include being made of a particular material, internal structure, and charge. A highly contentious example is an object's shape. Intrinsic properties are sometimes contrasted with *relational* properties, as Davies (1991, 136) does. However, the intrinsic/extrinsic distinction doesn't always or even often track the monadic/relational distinction. There are intrinsic relational properties like *having longer legs than arms*, and extrinsic monadic properties like *weighing 7kg*.

According to Weitz, to make the driftwood into an artifact, an agent would have had to change at least one of its intrinsic properties by, say, sanding it and adding varnish or removing parts of wet wood or whatever. Including the intrinsic condition, we get:

PMC₄: If x is an artifact then x is the result of intentional intrinsic physical modification by some agent(s) of some pre-existing material object(s).

This seems to adequately capture the condition motivating Weitz's second premise in the driftwood argument. The driftwood isn't an artifact because it doesn't meet PMC₄: it merely underwent a change in its extrinsic properties.

Crucially, PMC₄ requires that an artifact results from *intrinsic* physical modification, but as formulated it might suggest intrinsic modification of the progenitors' *monadic* properties. However, there are clear cases of artifact creation that result from mere *combination* of some pre-existing material objects and combination doesn't require change to the progenitors' monadic properties. Here are three such cases:

Coffee table: a table can be made by placing a pane of glass atop an old propeller, where the weight of the glass holds itself in place.

Fire pit: a depression in sand or dirt on a beach or backyard can be lined with a ring of stones to create a fire pit with available materials.

Rock garden: a common ornamental practice is arranging rocks and other objects on your lawn to make a rock garden.

All of these cases involve several material objects being rearranged or combined to form something new – an artifact – but without their combination involving change to their intrinsic monadic properties. Contrast this with a case where there is combination with intrinsic modification: various parts are manufactured to make a car (chassis, tires, carburetor, gas tank, etc.) and these parts are themselves artifacts. When combined to make the car they undergo changes in their intrinsic monadic properties, such as being welded or riveted together.

The combination cases may look like putative counterexamples to PMC₄. However, intrinsic change can occur between the relational properties of a plurality (i.e. a change in relations between parts). For example, if I'm in a car crash and my spleen gets pushed up against my diaphragm, then my parts underwent an intrinsic change in their relational properties. Consider the propeller table: a plurality of material objects (propeller and pane of glass) underwent an intrinsic change in their relational properties when they were combined. The resulting table thereby satisfies PMC₄ because its progenitors underwent intrinsic relational modification.⁸⁰ Cases of combination aren't counterexamples to PMC, but we can reformulate PMC₄ using plural quantification to make this more perspicuous:

PMC₅: For all x, if x is an artifact, then there exist some pre-existing material object(s) yy such that x is the result of intentional intrinsic physical modification of yy by some agent(s).

Since there are clear cases of artifact creation by combination, recognizing that as part of a necessary condition on artifactuality is appropriate. I therefore take PMC₅ to express the principal commitment of PMC.

3.2.2 Cases of Unmodified Artifacts

PMC₅ looks *prima facie* adequate at capturing the idea behind Weitz's argument and seems plausible as a necessary condition on artifactuality. However, below are a number of cases which are intuitively artifacts but don't satisfy PMC₅. I consider five cases, but such examples can be multiplied *ad nauseum*.

⁸⁰ Note that 'the folk' quantify over pluralities, so treating the plurality of the propeller and glass as the progenitor of the table shouldn't be controversial.

Driftwood wine rack: A piece of driftwood is taken from a beach and, without being modified, is placed in a kitchen to hold bottles of wine. It holds wine bottles as well as a manufactured wine rack.⁸¹

Skull paperweight: the skull of a crow from an old museum exhibit is used by the curator as a paperweight on her desk at work. The skull is an effective paperweight and a great conversation starter.

Rock doorstep: an aesthetically pleasing rock from a garden is moved into a house to function as a doorstep. The rock is never modified nor is it ever returned to the garden, and it keeps the door open quite well.

Wooden club: a fallen branch is picked up by a farmer and used as a club to fend off wolves from her livestock. The farmer doesn't modify the branch, yet it's an effective weapon.

Belaying Device: a 'figure-eight' device was cast from a hunk of metal as an abseiling (descending) device for climbers. However, it was later used as a belaying (ascending) device and the manufacturer then started marketing the figure-eight as both a belaying and abseiling device. The abseiling device underwent no physical modification to become a belaying device.⁸²

First, note that plural variables (xx, yy) can be satisfied by a single object as a limiting case of a plurality, so these are genuine counterexamples to PMC₅. If artifactuality doesn't require physical modification, then these are cases of genuine artifacts. But what reason is there for Weitz and others who endorse PMC to deny that they're artifacts other than the question-begging claim that they aren't modified? I see no salient difference between a manufactured wine rack and the driftwood on the beach appropriated as a wine rack that would prevent the latter from being an artifact. Intentional use of the driftwood as a wine rack seems sufficient, at least in some cases, for artifactuality.⁸³

These aren't isolated cases, either. Objects are appropriated as new artifacts in all sorts of contexts. For example, in addition to the figure-eight device, above, Scheele also offers the

⁸¹ This example is from Lynne Rudder Baker (2007, 53n8).

⁸² This example is from Marcel Scheele (2006, 59).

⁸³ See Marcia Eaton (1969) and George Dickie (1984) for discussion of this point.

example of the Pieterskerk in Leiden, The Netherlands: a fifteenth century gothic church that was acquired by a private foundation and turned into a rentable public venue for concerts, conferences and even dinner parties without modification to the existing structure (Scheele 2006, 28-29).⁸⁴ It ceased being a church and became a venue for semi-public events all on the basis of an intentional transfer of ownership. Thus, it isn't only natural objects that can be appropriated as new artifacts. Thomasson (2014, 53-4, fn9) offers a hypothetical case: all trade between China and the United States is restricted to the Americans buying large quantities of chopsticks from the Chinese. In China, they are made and used as utensils but in the U.S. they are imported for the sole purpose of being bought and sold as hair ornaments. In such a case, Thomasson takes the Americans to be engaged in a kind of minimal 'making' by appropriating the utensils as hair pieces.

One could object that cases like the figure-eight device, the Pieterskerk, and Thomasson's hair ornaments aren't counterexamples to PMC₅ because it expresses a condition on *being an artifact*, not *being a new artifact*. That is, all those objects already are artifacts – an abseiling device, a church, and chopsticks, respectively – so appropriating them as a new artifact kind – belaying device, conference venue, and hair ornament, respectively – is irrelevant to PMC₅ because they already satisfy the artifactuality condition it expresses in virtue of being the result of physical modification to their progenitors. One can appropriate an artifact as a new artifact without modifying it and the result is trivially an artifact because it already was one. That's compatible with PMC₅, so one could reject all such cases as problematic for PMC.

Note two things about this objection. First, the first four appropriation cases are still counterexamples to PMC₅ so even if we accept the objection PMC₅ still fails. That is, the objects

⁸⁴ See Parsons and Carlson (2008) for further cases like this.

appropriated as artifacts weren't previously artifacts but natural objects, so the act of appropriation which results in their artifactuality shows PMC₅ to be false because they weren't modified. Second, PMC₅ has the bizarre consequence that two qualitatively indistinguishable objects, both subject to intrinsically identical intentional acts of appropriation, will result in objects of *different* kinds. Consider a variation on Thomasson's hair ornaments: Americans appropriate Chinese chopsticks as hair ornaments and in virtue of the chopsticks being the result of physical modification when some wood was made into chopsticks, the hair ornaments are artifacts. But imagine we find some sticks that are qualitatively identical (however, unlikely) to a pair of chopsticks and we appropriate them as hair ornaments. According to PMC₅, the result of this second, intrinsically identical act of appropriation is not an artifact, but a natural object – a pair of sticks. This seems unprincipled, especially since the first case of physical modification that resulted in the hair ornaments being artifacts was not undertaken by the same agent that made them into hair ornaments but rather by whoever was the maker of the chopsticks. The two cases are similar in all relevant respects except that the chopsticks were the result of intentional physical modification of some pre-existing stuff while the sticks weren't. While PMC₅ is thus compatible with cases of artifacts being appropriated as other artifacts, it's not at all clear what explanatory advantage it has given the above consequence.

'Artifact' is also used in various contexts in the special sciences, particularly anthropology, archeology, and evolutionary biology, for various unmodified objects. Some of what anthropologists and archeologists call 'artifacts' are unmodified objects that were clearly used for some purpose or other. These include stone slabs for grinding plants (Mithen 2007, 289-9), rocks used as hammers for opening fruit, grinding food, or working on other rocks to create flaked tools (Schnurrenberger and Bryan 1985), and stones or bones used as decorations or

totems.⁸⁵ Like the quotidian cases above, such objects all seem like clear examples of artifacts.⁸⁶ Further, many non-human animals are known to use objects towards specific ends that biologists regard as tool use, like higher primates.⁸⁷ There are documented cases of apes using rocks to open fruit or sticks to spear fish or pry termites out of a log, while elephants have been known to pick up brooms with their trunks and use them as back-scratchers. Cephalopods will use debris on the sea floor, including using the shell of a discarded coconut as mobile armor, as well as broken seashells as portable houses.⁸⁸

Researchers in the special sciences regard these various unmodified objects used by humans and animals as artifacts. Claiming scientists are wrong about these objects would be unjustifiably revisionary. Granted, it may be argued that this is just a technical, and thereby stipulated, use of ‘artifact’, so on its own shows nothing about artifactuality. This might be so, but scientists include in the extension of ‘artifact’ those objects that we normally take to be paradigmatic cases, namely modified and mass produced artifacts (including the instruments they use). This suggests that they take the modified and unmodified objects to be of the same *kind*.

However, Oswalt (1976, 18ff.) adopts PMC and reserves the term ‘naturefact’ for those objects that are appropriated but not modified by humans. But this seems to be more for epistemic than metaphysical reasons. Anthropologists face difficulties in distinguishing between found objects that were used for some purpose or other and those that were not. Thus, in terms of *kind* Oswalt’s naturefacts can be seen as a subspecies of artifact. Regardless, I think that folk

⁸⁵ But see also Barham (2013) on the transition to modified objects.

⁸⁶ Dickie (1984, 45) also appeals to anthropological usage to defend the artifactuality condition.

⁸⁷ Meanwhile, spiders and termites produce sophisticated domiciles. The relevant difference between them and primates, say, is that the former seem to lack intentionality, so their behaviour is a result of genetic dispositions and stimulus-response systems. See Gould (2007) for discussion. Whether any particular animal construction is a result of intentionality or mere stimulus response is an empirical matter for the relevant experts to determine. See Thomasson (2007, 67) for discussion.

⁸⁸ There are also instances of animals modifying objects. For example, primates stripping branches off a stick or the case of a New Caledonian crow bending a piece of wire to solve a puzzle (Hilpinen, 2011).

intuitions are sufficiently strong in the appropriation cases that they can be regarded as artifacts. Even without appeal to scientific usage, the appropriation cases are intuitively artifacts and thus genuine counterexamples to PMC₅. Therefore, artifactuality doesn't require physical modification, *contra* PMC.

3.2.3 No Abstract Artifacts

While I take the above objection to be decisive against PMC, we should note a further problem with the view. An increasingly common view, especially in the ontology of art literature, is that there are abstract artifacts. However, PMC entails that no abstract objects can be artifacts because they can't be physically modified since they are, *ex hypothesi*, not physical objects. There are two general views in the literature, Platonism and Creationism. Platonism takes repeatable artworks like music, literature and film to be abstract objects which exist necessarily and are creatively discovered (e.g. Dodd 2007). The appeal to Platonism is to explain the repeatability of such entities. Since musical works, literature, and film seem to be clear cases of artifacts, if we reject PMC then the Platonist can easily accommodate their artifactuality. That is, such abstract objects can be treated in the same manner as the appropriation cases: an agent appropriates a pre-existing object like a piece of driftwood or an abstract type of sound sequence as a new artifact, such as a wine rack or piece of music, respectively.⁸⁹

For the Creationist, by contrast, such works exist contingently and are created and come into existence by the concrete acts of their makers (e.g. Thomasson 1999, Friedell 2016). A composer writes a score, an author writes a manuscript, and an abstract artifact, the musical work or novel, comes into existence. Creationism has become widespread in the literature and is being

⁸⁹ Levinson's (1980) account of music as indicated types can be understood in this way.

used to explain all sorts of entities, including words (Irmak 2018), software (Irmak 2012), and even internet memes (Evnine 2018). However, if PMC is true, then on neither view are the works themselves artifacts, since abstract objects are not physical objects. *The Brothers Karamazov* isn't an artifact, but copies of it are. This seems counterintuitive because novels and musical works seem like paradigm cases of artifacts since they appear to be the products of intentional action.

However, Stephen Davies (1991, 139-141), one of the main proponents of PMC, doesn't take the prohibition against abstract artifacts to be a problem, since artifacts are still involved in the creation and dissemination of such works and he rejects the artifactuality condition on artworks. That is, Davies is content to recognize that concrete instances of novels and films are artifacts, but not their corresponding abstracta.

Nonetheless, one could argue that the Creationist's abstract artifacts do satisfy PMC. That is, PMC₅ takes x to be an artifact if it's the *result* of physical modification of some pre-existing objects. For the Creationist, creators do modify physical objects and this results in the creation of an abstract artifact: J. K. Rowling wrote a manuscript and as a result Severus Snape came into existence. PMC₅ doesn't include any condition that the artifact *itself* be physical. But this also means that the following case results in an artifact: someone just thinks up a story in their head and since some physical modification went on in their brain, an artifact was created. Thus, Creationism seems to satisfy the letter, but not the spirit, of PMC₅. This kind of 'modification' surely isn't what people like Weitz had in mind with the modification condition on artifacts.⁹⁰ So while PMC and abstract artifacts aren't strictly contradictory, there is a tension between them. Of course, we could always modify PMC₅ to specify that the resulting artifact must be physical but

⁹⁰ It may also entail unintentional artifact creation, as Zvolenszky (2016) has argued.

this seems *ad hoc* (although I think it's in the spirit of what Weitz had in mind). Rather, we should just admit that abstract artifacts don't sit well with the initial motivations of the theory.⁹¹

Both abstract artifacts and PMC are popular views. I'm not committing myself to the existence of abstract artifacts, but their popularity does place constraints on theorizing. What's important to note is that accepting genuine artifact creation by appropriation allows us to accommodate them more easily than PMC. While I don't take the problem of abstract artifacts to be decisive against PMC, given that Creationism in particular is quickly becoming the de facto position in the literature and is being extended to all sorts of entities, from fictional characters and stories to games, words, software, flags, and institutional kinds, a theory of artifacts that isn't in tension with it is in a *prima facie* better explanatory position.

3.2.4 Objection: Being a K vs. Being Used as a K

The appropriation cases in §2.2 might be rejected as genuine cases of artifact creation. Rather, they are cases of pre-existing objects being *used as* some artifactual kind. Ordinary language marks a distinction between the following, where 'K' is any artifact kind:

- (a) Being a K
- (b) Being used as a K

We intuitively think that using a teapot as a paperweight doesn't make it a paperweight. Similarly, taking a rock out of the garden and propping open a door with it isn't a case of *making* a doorstep, but is simply a case of *using a rock as a doorstep*. Such cases are rampant in our interactions with the built world. We use screwdrivers to open paint cans, coffee mugs to secure

⁹¹ Note also that many artworks are performances. For all artworks to necessarily be artifacts, performances would need to be artifacts, too. While defending such a claim is beyond the scope of this chapter, Evnine (2016) has recently defended the claim that all actions, of which performances are a subset, are artifacts, so I will defer to his argument.

papers, palm trees as parasols, and even paperclips as earrings. Thus, these cases, as well as those discussed in §2.2, might be rejected as genuine artifacts on this basis.

This sort of argument has been deployed by Dipert (1993, 26-27),⁹² and more recently by Simon Evnine (2016, 86, 132-133). In responding to Weitz, Marcia Eaton (1969) appears to accept the view that any amount of use, however one-off, is sufficient to make an x into a K. While I grant that there is such a distinction, unlike Eaton I share the intuition that a one-off use of a teapot as a paperweight doesn't make it a paperweight.⁹³ However, I think there are at least some cases where using x as a K for long enough or with broad communal recognition is sufficient to make x a K. Where exactly to draw the line is certainly vague, but there are cases where this does happen. A one-off use of a teapot as a paperweight doesn't make it a paperweight, but I think intuitions are different in a case of a rock that is brought in to be used as a doorstop, it's never brought outside again, and it's used as a doorstop by all members of the household. This seems to make it into a doorstop.

One could argue that this only succeeds in cases where the appropriated object is fully natural – the teapot is already an artifact. However, Scheele's (2006, 29-31) examples of the Pieterskerk and the figure-eight abseiling device appropriated and used as a belaying device shows that with sufficient communal uptake an artifact can, without being modified, become a member of a new artifact kind (in the latter case it is both an abseiling and belaying device).

Therefore, there are clear cases where continued and entrenched use of an unmodified object, be it natural or artefactual, results in the creation of a new artifact. What seems to matter is whether new norms of use, including norms of who the proper audience/users are, what the

⁹² Dipert (1993, 26) gives the example of using a stone to step across a river.

⁹³ See Soavi (2009b, 192-4) for objections to this sort of view. Soavi takes the linguistic distinction to suggest that views like Eaton's must be false.

proper context of use is, and what the function of the object is, develop around the practice of using the object as a K (if it's a new kind of artifact) or whether the norms of use governing Ks (if Ks already exist) become applied to the new object. Context of use is particularly important: left on the beach, the driftwood won't become an artwork, no matter how much one intends it to become one. Similarly, appropriating a rock as a doorstop can genuinely make it into a doorstop if the use is consistent and in line with our general norms governing doorstops and it's placed in a building, near a door (see Thomasson 2014 for development and discussion of this view). Therefore, there are clear cases where unmodified objects genuinely *become a K*.⁹⁴

There's a related worry that the *being a K/being used as a K* distinction overgeneralizes and thereby undermines the driftwood intuition. That is, we could equally argue that the driftwood doesn't *become an artwork* when it's placed in the gallery but is merely *used as an artwork* when placed in a gallery. This doesn't entail a functionalist account of artworks. An object can be used or treated as an artwork without claiming that all art has a function (aesthetic expression, say). One can use the driftwood as art simply by placing it in a gallery for viewing by an artworld public. There appears to be nothing distinguishing between such a case and the case of the teapot used as a paperweight except that communal acceptance renders the driftwood an artwork, in which case there's nothing stopping us from saying the same thing about non-art artifact cases. That is, if broad communal acceptance and entrenched use can make an unmodified object into an artwork, then it seems the same can occur with a non-art artifact. Indeed, the first appropriation case involves a piece of driftwood becoming a wine rack. If driftwood can become an artwork through sufficient intentional use, then there doesn't appear to be a principled reason for denying that driftwood can become a wine rack in the same manner.

⁹⁴ Peter McLaughlin (2001, 54, *passim*) calls these cases of 'virtual assembly'.

As a result, while there is a genuine distinction between *being a K* and *being used as a K*, it doesn't track physical modification.

3.2.5 Objection: Swamp Cases⁹⁵

A second way to resist the appropriation cases is to deny that the inference from 'x is a doorstop' to 'x is an artifact' is valid. Something could be a chair or doorstop or camera or whatever but not an artifact. This maintains that the appropriation cases fall under their respective kinds (wine rack, paperweight, doorstop, club, and belaying device) but denies that they're artifacts.

In the context of defending intention-dependence as a condition on artworks and artifacts, Christy Mag Uidhir (2013, 99-100) takes this approach when considering swamp cases. Imagine lightning strikes a log in a swamp and the atoms of the log get rearranged so they're an intrinsic duplicate of a camera. Mag Uidhir argues that this is, in fact, a *camera*, but isn't an *artifact*. Mag Uidhir's reasoning is that the swamp camera can function just like regular cameras. As a result, *camera* is a purely functional kind (ibid. 108). According to Mag Uidhir, since the swamp camera isn't intention-dependent, it's not an *artifact*, but since it can function as cameras typically function, it is, intuitively, a *camera*. This doesn't seem particular to *cameras*, so one could extend it to all putative artifact subkinds like *chair*, *doorstop*, and *wine rack*. Mag Uidhir's view seems to have a lot going for it. It would preserve both the intuition that the rock is a doorstop and the intuition that artifacts are essentially things modified by humans. The idea is that putative subkinds of artifacts are purely functional kinds, so I can make a doorstop or chair by appropriation but I can't make an artifact without physically modifying it.

⁹⁵ This section follows Juvshik (2021b).

Despite the attractiveness of this position it faces an overwhelming problem. If such kinds are functional kinds, then what account of function could accommodate Mag Uidhir's claim that the swamp camera is a camera? Let's say that the function of (non-digital) cameras is roughly to imprint an image onto a photosensitive surface. There are two main accounts of function, Ruth Millikan's (1984) proper functions and the actual causal powers view.⁹⁶ An object's proper function is what that thing is *for*, which is determined by its history of selection and reproduction (e.g. my car is *for* transportation *because* previous cars were successful as modes of transportation and were *reproduced* because of that success).⁹⁷ Proper functions are clearly inadequate because *this* particular camera wasn't created by a process of selection *because* previous cameras successfully performed their function. That is, the swamp camera came into existence by a freak lightning strike, so there's no history of production and reproduction, nor any selection or copying mechanism, so *ipso facto* it can't have the function of normal cameras.

That leaves the actual causal powers view, according to which my car has the function of transportation *because* it has the actual causal capacities to transport goods and people from one place to another. The swamp camera is a camera *because* of the causal powers that enable it to function as cameras normally function. This seems to be what Mag Uidhir has in mind in claiming that the swamp camera can function in this way.⁹⁸

This view has two main problems, one with the view itself and the other with Mag Uidhir's position, specifically. First, malfunction is widely regarded as a desideratum for any

⁹⁶ See Thomasson (2007, 57-58) for discussion of the actual causal powers view.

⁹⁷ Novel prototypes have 'derived' proper functions that derive from the intentions of their makers. See Millikan (1984, 13-14).

⁹⁸ The actual causal powers view also appears in Cummins's (1975) account of system functions, whereby we understand something's function in terms of its actual causal role in a system. Since system functions inherit the problems of the actual causal powers view, I don't consider them separately.

theory of function: a camera can fail to work properly.⁹⁹ Intuitively, a broken camera still has the function of taking pictures. The actual causal powers view entails not that it's malfunctioning but that it doesn't have that function *at all* in virtue of lacking the requisite causal powers. Mag Uidhir would have to say that an otherwise intrinsic duplicate swamp camera that can't take pictures isn't a camera and that when actual cameras break they simply cease having the function of taking pictures and perhaps cease to be cameras at all. The latter is especially unintuitive and clearly in tension with our actual practices.

Second, Mag Uidhir's view entails that any object that has the causal powers to perform some function *F* falls under the functional kind associated with *F*. Cars are typically regarded as modes of transportation but they can also make orange juice by running over oranges. The actual causal powers view would say that cars are *juicers* in virtue of their causal powers. Not only are swamp cameras genuine cameras and cars juicers, but swamp toothpicks are toothpicks. It's not restricted to swamp cases. Shards of glass are shivs, logs are benches, a piece of driftwood is a wine rack, rocks on Mars are doorstops, not *potentially* but *actually*. Mag Uidhir's view has the consequence that any given object actually falls under a myriad of functional kinds simply in virtue of its causal powers, even if it's never used to perform that function nor if any agents ever interact with it.¹⁰⁰ The rock on Mars that no one ever sits on is not a chair. Maybe if a weary astronaut takes a seat on it in the future she makes it into a chair or at the least *uses it as* a chair, but it isn't a chair *now* merely because it *can* seat a single person.

With respect to the appropriation cases, if one reasons that they are doorstops, wine racks or whatever but not artifacts on the basis that they can (1) function as such kinds function but (2) weren't physically modified, then it seems we have to say that all sorts of things are chairs and

⁹⁹ See Preston (2009) for a discussion of artifact malfunction.

¹⁰⁰ See also Khalidi (2016, 232) for discussion of similar cases.

doorstops and wine racks because they *can* function as such things normally function. This vastly overgenerates the number of chairs, doorstops, and wine racks in the universe. There's no account of function that will make room for swamp cameras being cameras without considerable theoretical baggage.¹⁰¹

As a result, we should accept the validity of the inference from 'x is a chair' to 'x is an artifact' and further accept that artifacts don't need to be the result of physical modification but can be made through acts of appropriation. Indeed, recognizing appropriational making of artifacts can easily account for these intuitions. Mag Uidhir and others who deny the inference from subkind to artifact find themselves in an impoverished explanatory position which is simultaneously extensionally inadequate. I doubt Mag Uidhir has the intuition that a swamp toothpick is a *toothpick* simply because it can function as toothpicks function. By choosing cameras as an example, intuitions may be swayed by apparent technical complexity. There may be an implicit attribution of intentional design that's tracking the perceived complexity of the swamp camera that's absent in the case of a swamp toothpick. By accepting artifact creation by appropriation, we can maintain that the swamp camera isn't a camera when it's first created but it can be *appropriated* as one by some agent.

Therefore, we can reject (3) artifacts are necessarily mind-dependent, specifically necessarily intention-dependent, but they also must result from intentional *physical modification*. So far I haven't established the truth or falsity of the first two conjuncts in (3), but I have argued that artifacts aren't essentially the result of physically modifying some material objects because PMC is false. While most of the objects around us are artifacts that *have* resulted from physical modification, this isn't necessary for artifactuality. We should be careful not to conflate a

¹⁰¹ Goodman (2020, 7-8) recognizes this consequence, albeit in a different context, and opts to simply bite the bullet and recognize way more things as chairs and tables and juicers and cameras and whatever than we normally do.

stereotypical feature of artifacts with an essential one, paving the way for recognizing genuine artifact creation via appropriation. As we'll see in what follows, this yields a significant explanatory upshot. But first it will be helpful to spell out in more detail conditions for successful appropriation.

3.2.6 Conditions for Successful Appropriation¹⁰²

In response to the *being a K/being used as a K* distinction, I suggested that not any passing use will turn the latter into the former. We need to further specify what successful appropriation involves.

First, since it seems that I can't just look at a branch and think it into a walking stick, some *act* or *attempt* seems necessary. A mere intention isn't sufficient;¹⁰³ I at least need to pick the branch up and use it as a walking stick or brush it off or bring it home and tell others that it's my new walking stick.¹⁰⁴ Since there seems to be a genuine distinction between using something as a *K* and being a *K*, this presumably involves different intentions. To use something as a *K*, I intend that the use be temporary and in some sense the content of my intention isn't 'transformative' – I don't intend to appropriate. By contrast, becoming a *K* through appropriation requires an intention to do so; the appropriational act isn't intended to be temporary and this can be reinforced through repeated use. For example, I may use my teapot as a temporary paperweight, not intending that it remain on my desk for this purpose in perpetuity. However, I

¹⁰² See Juvshik (2021b) for expanded discussion of the content of this section.

¹⁰³ Mag Uidhir (2013) similarly argues that a mere intention isn't enough to make an artwork but that there must be an *attempt*. Since attempts are intentional, an attempt to ϕ entails an intention to ϕ but not vice versa since I can intend to ϕ without doing anything else, in which case I would fail to execute my intention. See also Xhignesse (2020a) for discussion.

¹⁰⁴ Borgo and View (2009) seem to think that merely thinking of a branch as a walking stick is sufficient to make it a walking stick.

can appropriate a chunk of granite as a paperweight with the intention that this be permanent; the granite remains on my desk, and I routinely use it as a paperweight and tell others that this is what it is. Of course, the line between being a *K* and being used as a *K* is certainly vague. Repeated use seems important in many cases, but there doesn't seem to be a definitive amount of use that is sufficient for becoming a *K*. If I use the teapot as a paperweight only once it doesn't become a paperweight. If I intend that my teapot become a paperweight and only use it as a paperweight for my entire life, it seems to genuinely become one. But things are less clear if I use it twenty consecutive times as a paperweight. Perhaps the content of my intention may itself be vague in such cases. The requisite amount of use will likely vary by context and the particular artifact kind in question.

An individual's intention to appropriate will generally be easier for natural objects, such as the chunk of granite. The teapot resists appropriation, even through repeated use, because it's already an artifact. As a kind of artifact, it was intended to function in a certain way relevant to its kind. The intended function of an artifact takes precedence over the imposition of a new artifact kind on the object. One thing that can overrule a maker's intention is social pressure or communal acceptance, as in Thomasson's (2014, 53-54) example of Chinese chopsticks being used exclusively in the United States as hair ornaments.¹⁰⁵

This leads to the second feature of successful appropriation. Acceptance of successful appropriation by the relevant community or social group often seems to play a central role in determining whether any appropriational act is successful. Consider Weitz's driftwood sculpture: moving it to an art gallery and having it accepted as art (and a sculpture, specifically) by the relevant group of art users and appreciators – the artworld public – seems sufficient for

¹⁰⁵ I think it's indeterminate whether they're just hair ornaments or both utensils and hair ornaments.

appropriating the driftwood as a sculpture. Similarly, in the case of my rock doorstep, if my entire family accepts it and treats it as a doorstep, then my intention to appropriate the rock as a doorstep appears to be successful. The rock doorstep thereby becomes subject to norms of use, treatment, and regard common to doorstops: it is to be used and treated in a certain way and it's to be regarded as a doorstep. Arranging it alongside other rocks in a rock garden is, in some sense, to misuse it, while moving it outside is mistreating it.¹⁰⁶

Communal acceptance thereby plays a crucial role in many cases of appropriation. Of course, I can also appropriate the rock as a doorstep 'privately' if I live alone and no one else interacts with it, so long as I have the relevant intention. What's unclear is whether communal acceptance is alone sufficient or if the intention to appropriate is necessary. For example, if I only intend to use the driftwood as a sculpture but the artworld public accepts it as a sculpture (not just temporarily, but as an act of genuine artistic appropriation), it's not clear whether it has become a sculpture. I'm inclined to think it has become a sculpture, despite my intention towards mere use. Something similar could happen with the rock doorstep: if I only intend to use it temporarily as a doorstep but my family accepts it and treats it as a doorstep, then it seems to genuinely become a doorstep. There are two ways one could go here. First, makers may be wrong about their intentions. Perhaps I only intend to use the rock as a doorstep but the relevant social group accepts my intentional action as successful doorstep appropriation. In this case, I was mistaken about what my intention brought about or what my intention actually was. Second, we could view the communal acceptance as a sort of distinct intention to appropriate. Thus, while I only intended to use the rock as a doorstep, my family members's intention to appropriate it as a doorstep by intending to treat it and use it as one is the real act of

¹⁰⁶ See Franssen (2006) for discussion of various normative dimensions of artifacts.

appropriation. My intention of mere use was thereby overruled by my social group. I'm not sure which explanation is better for these sorts of cases but the matter need not get settled here.

A corollary of the preceding remarks involves the scope of appropriation that individuals and communities are capable of. Consider Scheele's (2006, 59) example of the figure-eight device that was manufactured as an abseiling device but which was appropriated *by the climbing community* as a belaying device. Here we have a case where the entire artifact kind, *figure-eight device*, is eventually appropriated as a distinct artifact kind. This sort of kind-level appropriation seems to require the acceptance of the relevant community. A lone individual can appropriate an individual artifact as a distinct kind of artifact, but not, presumably, appropriate the entire kind. Appropriation of the kind requires that new norms of use, treatment, and regard are accepted and instituted by the relevant social group, although this will be initiated by an individual's act of appropriation.

The third feature on successful appropriation is that, regardless of whether an act of appropriation only involves an individual or also involves their social group or other relevant community, successful appropriation seems to require that the object appropriated is actually *physically capable* of performing the function it is being appropriated to perform. A teapot or a hunk of granite can be appropriated as a paperweight because they're capable of performing the function of paperweights – they have sufficient mass to hold down papers.¹⁰⁷ But trying to appropriate a toothpick or a feather as a paperweight seems doomed to fail: no matter how strong my intention to make a paperweight out of these objects, they're simply too light to be paperweights. It's unclear whether communal acceptance can prevail here: maybe if the entire culture routinely treated feathers as paperweights even though they can't perform that function,

¹⁰⁷ I don't mean to suggest that paperweights are essentially for holding down papers, as paradoxical as that may sound.

then this would make them paperweights.¹⁰⁸ I'm not sure what to say about such a case, but again, it doesn't need to be settled here.

What's important to note is that the actual causal powers of an object place strong constraints on what can be appropriated as what. Since many artifacts are enormously complex, such as cellphones or airplanes or microwaves, it's simply unlikely that any object would occur naturally that could be appropriated as these kinds of artifacts. Philosophers are fond of swamp cases, so of course a swamp-cellphone could be appropriated as a cellphone, but my point is merely how unlikely a swamp-cellphone is in the first place. The scope of successful appropriation is far wider when we consider appropriating pre-existing artifacts as members of new artifact kinds. In fact, the function of many artifacts shifts over time in a way similar to appropriation. Sports Utility Vehicles (SUVs) were intended to be used for transporting sports equipment during outdoor excursions, but now are predominantly used by suburban families for everyday driving because of their expansive seating and cargo capacity.¹⁰⁹ Whether this particular example is a case of appropriation or of a shift in function doesn't matter – they're two sides of the same coin – the point is that manufactured artifacts are often more technically complex so have a broader range of appropriational possibilities. A rock can't be appropriated as a space shuttle engine but a V6 rocket can.¹¹⁰

This last point also suggests why PMC is so appealing. We're now in a position to see is that the physical modification is just a quick way of getting at intention-dependence. Our goals are often complex and there are many means to achieving them. If I want to attach a nail to the

¹⁰⁸ This could be a case of what Preston (2009, 217-218) calls *phantom functions* – functions that the artifact kind is reproduced to serve even though it's physically impossible for it to perform that function (e.g. the beaked plague masks of the seventeenth century).

¹⁰⁹ This example is from Elder (2014, 35).

¹¹⁰ In another sense, a rock can be used for far more than a V6 rocket, such as a paperweight, hammer, weapon, decoration, etc. The technical complexity of a V6 that allows it to be a rocket engine simultaneously limits its (appropriate) uses.

wall so I can hang a picture, one way is to hammer it in with a rock from the garden. However, this hammering will be easier if I flatten the rock and attach it to a wooden handle so I have better leverage. Both appropriating a rock as a hammer and constructing a hammer out of various objects will allow me to achieve my goal (as will buying a hammer made by someone else), but one will do so more efficiently (as well as providing me with a hammer for future use). If an artifact is physically modified, it's a clear indication that it depends on its maker's intentions and that it was made with some goal or purpose in mind. Intention-dependence and function are less obvious in the case of an appropriated artifact, often because they lack physical markers of their maker's intentions which we rely on as evidence of the kind of thing that they are. We see the modification that took place and infer that it resulted intentionally and for some purpose.¹¹¹ We don't see this with a mere rock or piece of driftwood *until* it's placed in the right context (beside a door or in a gallery) or we are given testimonial evidence of appropriation by, say, the maker telling us that she intended to appropriate the rock or driftwood in a certain way. This epistemic feature of artifacts deceives us into thinking that physical modification is a metaphysical (read: *essential*) feature of artifactuality.

There are thus fairly strong constraints on successful appropriation. We can't just think about an object in passing for it to become an artifact. I pointed to three general conditions on appropriation:

1. An act or attempt
2. Social acceptance
3. Physical capability

¹¹¹ Of course, we can also be mistaken about apparent intelligent design. If we came across the swamp-cellphone we'd assume it was built by someone. It would take very strong evidence for us to accept that coalescing swamp gases are responsible for such an object.

The first and third conditions are presumably necessary while the second is arguably sufficient. As a result, we have fairly strong conditions on successful appropriation. With an understanding of appropriation in hand, we can continue with our evaluation of mind-dependence.

3.3 Artifacts and Mind-Independence

The rejection of physical modification shows that a particular kind of mind-dependence isn't necessary for something to be an artifact, namely, artifacts don't need to be the result of intentional physical modification of some material objects. However, one might move to the opposite extreme and suggest that artifacts aren't necessarily mind-dependent. That is, while most of the artifacts we encounter are clearly the result of intentional activity, they need not have been – the exact same object could have come into existence in some other way.

There are two kinds of cases that are sometimes taken to show the possible (at least in principle) mind-independence of artifacts. First, are so-called swamp cases, first introduced by Davidson (1987) but not about artifacts, and second are modal cases involving far-flung possible worlds devoid of minds and mental states. Both cases elicit some intuitions that the objects described are artifacts but no minds are involved, hence artifacts aren't mind-dependent.

Consider the following pair of cases:

Swamp Car: A tree in a swamp is struck by lightning and its broken down into its component atoms which then coalesce into an object that is intrinsically identical to a 2006 Honda Civic.

Isolated Car: In a remote possible world there exists nothing, including no minds or mental states, except a single object that is intrinsically identical to a 2006 Honda Civic.

Both cases are logically coherent – as described, they contain nothing contradictory, however unlikely they may be from the point of view of the actual world. Both cases also involve an

object that is qualitatively identical to a certain kind of artifact, namely a 2006 Honda Civic, though the exact kind of artifact is irrelevant. The question is whether these objects are artifacts. Some philosophers¹¹² have the intuition that they are. Since the existence of the putative artifact in no way depends on minds or mental states, then these cases are taken to show that artifacts aren't necessarily mind-dependent. This is compatible with acknowledging that many if not most of the artifacts we interact with are the result of human minds and mental states. If artifacts aren't necessarily mind-dependent, then what *is* necessary to be an artifact is a further question. For now, I want to consider whether Swamp Car and Isolated Car are genuinely cases of artifacts.

Similar cases can be constructed for species kinds. For example, an object that is intrinsically identical to a gazelle results from lightning-struck swamp gas or is present in an otherwise empty possible world. Since species kinds are typically individuated by their evolutionary ancestry, these creatures wouldn't be gazelles since they don't have a common evolutionary origin, despite being intrinsically identical (i.e. they have the same DNA).¹¹³ Similarly, in Davidson's original case of Swampman, Davidson is standing in a swamp and happens to be destroyed by lightning at the same time that a nearby tree is struck by lightning and coalesces into an exact atom-for-atom duplicate of Davidson himself. The question in the Swampman case is whether Swampman has memories and other propositional attitudes given that he's intrinsically identical to Davidson. The Swampman case is taken to be an objection to teleological or externalist theories of mental content. Unlike Davidson, Swampman's mental states didn't come about in the right way. In Putnam's Twin Earth case,¹¹⁴ the question is whether 'water_E' and 'water_{TE}' refer to the same kind of liquid, while in the Swampman case, the

¹¹² E.g. Phil Bricker, personal correspondence.

¹¹³ Burgess and Rosen (1997, 21) make this point, though in a different context.

¹¹⁴ There are, of course, important differences between Swampman and Twin Earth, but an important commonality is that they both show that superficial similarity doesn't entail sameness of kind.

question is whether Swampman even has, say, the belief that water is wet, or if he can even be ascribed memories or other propositional attitudes.

My concern isn't with Swampman or species kinds, but with artifacts. In Swamp Car and Isolated Car, some philosophers have the intuition that these objects are genuine artifacts despite the fact that they don't depend on minds or mental states. I don't share this intuition, and think these objects aren't artifacts. What could adjudicate this clash of intuitions? As philosophers, we're almost certainly subject to theoretic bias. From some brief reports of folk intuitions and from philosophers who have not thought about such issues, intuitions are similarly mixed. The role of intuitions in philosophy is complicated and it's unclear to what extent we should weigh them in such cases. I consider two approaches to handling this dispute of intuitions. First, these cases can be treated as 'spoils to the victor'. While I prefer this approach, I also sketch a series of error theories that aim to explain why someone would have the intuition that the objects in the two cases are artifacts despite the fact that they're not artifacts, thereby defending my intuition in these cases. As it happens, the two approaches are compatible with one another.

3.3.1 Spoils to the Victor

One way to adjudicate this clash of intuitions is to treat it as a case of 'spoils to the victor'. That is, what we should say about Swamp Car and Isolated Car is whatever our preferred theories say about them. If I have a theory that says these objects aren't artifacts, then that's all I need to say about such cases. The motivation for this approach is that the cases themselves are so fringe or far afield compared to other cases involving artifacts that intuitions aren't reliable so whatever theory turns out to be the best theory will entail an answer about Swamp Car and Isolated Car.

David Lewis (1986, 194) appeals to similar considerations in the context of causation, crediting David Armstrong with the phrase ‘spoils to the victor’:

When common sense delivers a firm and uncontroversial answer about a not-too-far-fetched case, theory had better agree. If an analysis of causation does not deliver the common-sense answer, that is bad trouble. But when common sense falls into indecision or controversy, or when it is reasonable to suspect that far-fetched cases are being judged by false analogy to commonplace ones, then theory may safely say what it likes. Such cases can be left as spoils to the victor, in D. M. Armstrong’s phrase.

What Lewis is saying is that we should treat common sense intuitions as reliable if they yield a clear pronouncement in what we might call ‘ordinary’ cases. However, if a case is so far-fetched then we might suspect that our intuitions are no longer reliable. We may be tacitly comparing the far-fetched case to ordinary cases and due to perhaps superficial similarities between the two, treating them as analogous. Given such a far-fetched case, whatever pronouncements a theory has about it is good enough.

This is my preferred approach to these cases since I don’t see what else could decide them. Isolated Car is, by stipulation, impossible for us to encounter, while Swamp Car is so fantastically unlikely that there’s no reason to think our intuitions about it would be reliable. Thus, after competing theories about the nature of artifacts give way to a clear *best* theory, whatever that theory says about such cases is what we should accept. Hence, such cases are best treated as spoils to be won by our best theory.

For the purposes of this work, I’m inclined to conditionally treat my theory as the victor and thus to view Swamp Car and Isolated Car as non-artifacts. Indeed, the view I defend throughout this project is obviously the theory I think is best. As a result, counterexamples to the necessary mind-dependence of artifacts can be resisted and so we can retain the intuitive idea that artifacts are (perhaps even by definition) mind-dependent objects. Despite this being my preferred approach to these cases, I also want to offer three potential error theories that explain

why someone might have the intuition that Swamp Car and Isolated Car involve artifacts when they do not.

3.3.2 Three Error Theories

While I'm content to treat Swamp Car and Isolated Car as spoils to the victor, not everyone may be satisfied with this approach. Alternatively, I'll offer three potential error theories for why some philosophers have the intuition that the objects in Swamp Car and Isolated Car are artifacts. By 'error theory' I don't mean the notion associated with J. L. Mackie, whereby an entire domain of discourse is systematically false, but rather an explanation for a particular intuition the content of which is false. That is, we may have the intuition that P yet P is false, so an error theory explains why we have the intuition that P despite P's falsity. For example, in the Müller-Lyer illusion, we all have the perceptual intuition that the lines are of unequal length. An error theory would explain why we have that perceptual intuition despite its content being false – the lines are the same length.¹¹⁵ The three error theories below aren't mutually exclusive; someone's intuition may be influenced by one or more of them.¹¹⁶

First Error Theory

Following Paul Bloom (1996, 21) we can say that intuitions may be swayed by superficial features such as form and function. Because the objects in Swamp Car and Isolated Car are stipulated to have the exact same shape and other properties, including an ability to perform the function characteristic of a 2006 Honda Civic, we might think this indicates that

¹¹⁵ Such an explanation could appeal to, say, depth cues that our brains pick up on.

¹¹⁶ An additional factor influencing intuitions may be how the cases are described. Using the term 'car' in the names of the cases may suggest that it is a car.

these objects *are* 2006 Honda Civics (or at least cars, if one thinks Honda's must be made by Honda), so *ipso facto* artifacts. Lay people often take form and function to be essential features of a given kind, so to be a 2006 Honda Civic is to have *this* form and *this* function. In the previous chapter, I already raised some concerns about form and multiple realizability. In the next chapter I will argue that the form and function view is mistaken and that neither form nor function are essential features of artifacts or artifact kinds. At present though, it's enough to say that such superficial features can lead to erroneous intuitions of kind membership.

This is similar to how we may erroneously categorize certain natural kinds prior to more sophisticated scientific understanding about them. If we were presented with Putnam's Twin Earth case prior to 1750, then we would probably have the intuition that XYZ is of the same kind of stuff as H₂O. In the same vein, jadeite and nephrite were taken to be of the same mineral kind in virtue of their shared superficial features like colour, texture, and durability, but once we discovered that they had very different molecular structures we realized our error.¹¹⁷ In the case of artifacts, I haven't given extensive arguments against form and function, but I'll issue a promissory note that I'll show that they don't constitute the essence of artifacts and artifact kinds. Until we do discover the essence of artifacts (and I'll make a proposal in later chapters of what this is), we can still be swayed into categorizing them by their superficial features. This isn't surprising, since we usually identify artifacts by their form and function, i.e. I know this is a car because it looks and functions like stereotypical cars do. Thus, in Swamp Car and Isolated Car we are swayed by form and potential function into categorizing these objects as artifacts when they in fact aren't.

¹¹⁷ Interestingly, the official stance of the Chinese government denies that they're different mineral kinds in order to preserve the central role of jade in Chinese history and culture.

Second Error Theory

A second, related explanation is that we are swayed by apparent complexity, seeming non-randomness, and appearance of intelligent design into tacitly attributing intentional creation despite it being explicitly stated in the cases that none is involved. That is, such objects *look* like they were intentionally made because they look exactly like cars that we're familiar with and know are intentionally made. Such a complex object is unlikely to have come into existence naturally so we may be assuming some kind of intention-dependence. Again, this may influence our intuitions such that we implicitly think that there is some intention involved despite the cases stipulating that there are no minds or mental states that the objects depend on.

Bloom (1996, 21-22) also suggests this explanation. Intuitions may differ depending on the complexity of the object described. Intuitions that Swamp Car is a car may be very strong because the object is highly complex and thus more likely to have been *created*. But if we replaced Swamp Car with Swamp Toothpick intuitions will probably be weaker. A toothpick doesn't have the same degree of complexity and so an object is more likely to non-intentionally resemble a toothpick than a car. This is similar to the Argument from Design: we assume that nature must have a designer because it appears to be so complex and non-random, like a watch, thus we posit a deity as its maker.¹¹⁸ In Swamp Car and Isolated Car we are doing something similar: the objects are described as resembling genuine cars, which are very technically complicated, so we implicitly assume that they have makers even though the cases stipulate that they don't.

Third Error Theory

¹¹⁸ See William Paley (1802/1963) for one of the original formulations of this kind of argument.

A third error theory of such intuitions is that they are in fact cases of tacit or potential *appropriation*. We can now see why the discussion of physical modification came first: there I established that appropriation does occur, so artifacts don't require physical modification. A rock can genuinely become a doorstep with the right intentions, use, and communal acceptance. Having established the genuine occurrence of appropriation we can use it to explain other phenomena, including explaining away intuitions in Swamp Car and Isolated Car. That is, such objects are intrinsically like a car, so in imagining them we imagine interacting with them as we would with an actual car and they function just like one. Thus, we are tacitly projecting what Wybo Houkes and Pieter Vermaas (2004, 57ff.) call 'use plans', which are "a goal-directed series of considered actions, a use plan of an object x is a series of such actions in which manipulations of x are included as contributions to realizing the given goal". In wondering whether Swamp Car and Isolated Car are artifacts despite not having makers, we imagine using them as we would any other car; we could open the 'door', turn the 'key' and drive out of the swamp, etc. Because they can be so used (in virtue of their intrinsic properties) we develop the intuition that they are artifacts. This is similar to assuming function essentialism about artifacts and tacitly being swayed by superficial features. Thus, we are conflating the potential use of such objects with their being artifacts. Both cases are stipulated to not involve any minds or mental states and in Isolated Car it's stipulated that that world doesn't even contain any. However, in imagining the cases we're projecting an intentional perspective – our own – on those worlds and thereby undermining the stipulation. We can't help but imagine ourselves in relation to those objects, e.g. sitting behind the 'wheel'.

Sure, such objects can *become* artifacts if the conditions are appropriate, but merely imagining the cases isn't sufficient for such appropriation. We already saw how there are no

strict necessary and sufficient conditions for successful appropriation, but I did identify some relevant factors: recurrent and entrenched use, social acceptance, context of appropriation, relevant intention, and so on. If I came across Swamp Car and put gas in it and drove it out of the swamp, then this might be enough to make it a car (or perhaps some amount of acceptance of it as a car by my social group would also be required). But merely having the potential to be appropriated as a car doesn't make Swamp Car a car from the moment it comes into existence. Thus, in imagining the cases we can't help imagining how we would interact with the object, perhaps *using it as a car* at least initially, even though it isn't a car.

All three of these explanations may be operative in swaying people's intuitions towards the view that Swamp Car and Isolated Car are genuine artifacts. While I find all three plausible, I'm not ultimately concerned with defending them since I'm content with the spoils to the victor approach. Therefore, we can safely set these cases aside as counterexamples to a general mind-dependence condition on artifacts. In the absence of other counterexamples, we can accept that artifacts are *at least* (necessarily) mind-dependent.

3.4 Artifacts and Intention-Dependence

So far, we've seen strong reasons for rejecting the physical modification requirement and the putative counterexamples to general mind-dependence. However, there's conceptual space for the view that artifacts are *mind-dependent* without being *intention-dependent*. Intention-dependence, it will be recalled, seems to be a central feature of our practices and beliefs about artifacts. Artifacts are things we make – not just anything we make, but things we *intend* to make. Commitment to the pragmatic constraint enjoins us to take intention-dependence seriously given its pre-theoretic place in our practices and beliefs surrounding artifacts and only to give it

up if after theoretical reflection we are willing to revise our practices accordingly in order to achieve reflective equilibrium.

Initially, it might seem that theoretical reflection doesn't yield any reason to reject intention-dependence. However, there are three general sorts of cases that have been raised in the literature that might suggest intention-dependence isn't a necessary condition for being an artifact. First, are cases of putative accidental making, second, cases of automated and mass production, and third, cases of predictable but unintended by-products. I discuss each in turn and argue that none of them constitutes a counterexample to intention-dependence because, in the case of the first two, intentions are present, just not where we might initially expect, and in the case of the latter, they're not artifacts.

3.4.1 Accidental Making¹¹⁹

The first kind of case are cases of putative accidental making. Some cases may appear to show that one can make an artifact *accidentally*, i.e. without intending to do so. There are two different kinds of cases of accidental making, which illustrate the same apparent phenomenon.

First, are historical cases of alleged accidental creation of some artifact or artifact kind:

Post-it Note Adhesive: Spencer Silver was intending to make a strong industrial adhesive but the result was an adhesive that couldn't physically attach things together in a permanent or reliable manner. However, the adhesive was trademarked and about ten years later Art Fry had the idea of applying it to the back of pieces of paper. The properties of the adhesive allowed the pieces of paper to be easily applied and removed repeatedly from hard surfaces. Thus, was born the post-it note.¹²⁰

¹¹⁹ This section follows Juvshik (2021a), though the following two subsections are expanded versions of the discussion.

¹²⁰ For details, see Petroski (1992, 84-86).

Since Silver intended to make an industrial-strength adhesive and not post-it note adhesive, it seems like he made post-it note adhesive without intending to do so. There are many other examples like this from the history of technology, such as slinkies, silly putty, and microwaves.

A second kind of example that suggests the same thing involves no intention to make anything, unlike the creator of post-it notes who intended to make an industrial-strength adhesive. Consider the following case:

Sophie the Clutz: Sophie, who is very clumsy, is walking through her garage when she bumps into a table, knocking a pile of wood to the floor and throwing a jar of wood glue into the air. Some of the wood glue lands on parts of the scattered wood and the wood falls such that various pieces are attached together by the glue. The result is an unlikely but sturdy structure resembling a standard dining room chair. Sophie, finally profiting from her clumsiness, takes herself to have accidentally made a chair, which she brings inside to sit on.

Like the historical cases, Sophie the Clutz seems to be a case of someone making an artifact without any intention to do so. In both cases, the resulting artifact (post-it note adhesive and a chair, respectively) are *mind*-dependent insofar as their existence depends on a mind and mental states but aren't *intention*-dependent insofar as the minds they depend on didn't intend to create them. In neither case does it appear that the creators have an intention to make that kind of thing, although they may have other intentions that ultimately causally contributed to the production of an artifact. These cases appear to be counterexamples to (IDA).¹²¹

3.4.1.1 Cases of Appropriation, Again

While these cases may appear to show that some artifacts can be made accidentally, i.e. unintentionally, I think both kinds of cases in fact involve intentions to create something, just not

¹²¹ Friedell (2016, 2017), Brock (2017), Cray (2017), and Goodman (2020) raise similar cases of accidental creation as counterexamples to (IDA).

where we'd normally expect. Take the case of post-it notes and other historical 'accidental' inventions. Silver intended to make a strong adhesive but his intention failed (or alternatively we could say he made a *very* bad industrial adhesive). However, the resulting product had the physical properties to perform some other function, namely, to easily be applied and reapplied to various surfaces. While Silver's initial intention failed, later, Fry had a distinct and quite different, intention to apply the adhesive to the back of paper in order to create post-it notes. This occurred a decade after the initial invention of the adhesive. But this distinct intention to make post-it notes (though not under that description) *was* successful. The adhesive was intentionally applied to the back of paper in order to perform a certain function and it could in fact perform that function. This later intention to make post-it notes was successful and post-it notes were thereby created. The initial intention to make a strong adhesive wasn't an intention to make post-it notes so is irrelevant to their existence (except insofar as the failed product of that intention allowed the invention of post-it note adhesive). The relevant intention is Fry's intention which occurred ten years later.

We can say the same thing in the case of Sophie the Clutz: Sophie had no intention to make anything, she was just moving through the garage. However, through various movements and coincidences, her actions led to various material objects coming to be shaped just like a standard chair, none of which was intended by her. However, later she realized that her clumsiness accidentally resulted in something chair-shaped and she intentionally decided to move it into the house and use it as a chair. It is this subsequent intention that resulted in the creation of a chair out of the mess that she made with her clumsiness. There wasn't any initial intention to arrange the wood and glue in such a chair-shaped way, but once it was so arranged, however it came about, Sophie intended to use the resulting object as a chair and moved it into

her house to do so. So again, there is a relevant intention involved, it's just not where we might expect it to be in normal cases of artifact creation.

Once we recognize what the relevant intention is that resulted in the creation of the artifact, we can see that such cases of 'accidental' creation are really cases of appropriation. Appropriation is taking a pre-existing object and making it into an artifact without modifying it. The adhesive and arrangement of wood and glue both had the potential to become post-it note adhesive and a chair, respectively, but when they initially came into existence they weren't members of those kinds. The subsequent intention to appropriate them (in this case through use) is what made them into artifacts.¹²²

The failed adhesive and the arrangement of wood and glue thus weren't post-it note adhesive and a chair, respectively, when they first came into existence. However, we may also want to sound a note of caution on whether the subsequent intention was sufficient to immediately make them into post-it notes and a chair. Earlier we saw that sometimes a mere one-off use isn't enough to make an x into a K, such as using a teapot as a paperweight. Ordinary English recognizes the distinction between 'being a K' and 'being used as a K'. In some contexts, though, perhaps such use is sufficient. It may depend on the content of the relevant intention, and certainly intuitions vary depending on the intentions of the original maker. That is, the maker's intention to make a teapot isn't overridden by a one-off intention to use it as a paperweight. But in the case of post-it note adhesive, the original intention to make a strong adhesive *failed*, and thus it seems appropriating the result as a distinct artifact is easier.¹²³ In the case of Sophie, the wood-and-glue arrangement wasn't an artifact yet so there was no original

¹²² Although note that if we say that Silver made a poor industrial adhesive, the the adhesive was already an artifact, namely, a poor industrial strength adhesive, which was then appropriated as a new artifact kind.

¹²³ It may also matter, at least in some cases, whether the subsequent act of appropriation is undertaken by the same agent or not.

intention that needed to be overridden by the appropriating intention. Thus, it seems that appropriating non-artifact objects as artifacts is easier, at least in most cases, than appropriating objects that are already artifacts.¹²⁴ If I use a teapot as a paperweight intending it to be temporary, then maybe this makes it just a case of *using as*. By contrast, if Sophie the Clutz intends to make the arrangement of wood into a chair, then perhaps that's sufficient to make it into one. Again, the conditions of successful appropriation are many, varied, and highly context-dependent. Nonetheless, even if the adhesive and wood arrangement weren't *initially* post-it note adhesive and a chair but merely used as such, they certainly *became* post-it note adhesive and a chair after entrenched use, communal acceptance, and so on. Indeed, in the case of post-it note adhesive we can take the presence of a copyright agreement as an indication that a new artifact kind was created. Therefore, we can resist these putative cases of accidental making.

3.4.1.2 Objection: Accidental and Incidental Creation

One may object to my interpretation of the above cases as cases of appropriation by appealing to a distinction made by Dominic Lopes. In the context of the possibility of tribal or non-Western art, Lopes (2007) makes a distinction between *incidental* and *accidental* art-making. A common argument in the philosophy of art literature is that there cannot be tribal or non-Western art in communities which don't possess a concept of *art*. The idea is that an agent can't make art without having an intention to make *art*, where the content of the intention necessarily involves the concept *art*. This suggests a concept-dependence condition on being an artwork. Lopes argues against this widespread assumption about concept-dependence in art-

¹²⁴ Or rather than non-artifacts, perhaps we should say non-intention-dependent objects.

making by trying to show that one can make *art* without intending to make *art*, where this is *de dicto*, not *de re*.¹²⁵

Lopes defines accidental making as follows (2007, 8):

Accidental making: S accidentally makes an F just in case S intends to make a G, an F is not a G, S fails to make a G, and in failing to make a G, S makes an F.

For example, I try to make a loaf of bread, fail such that it's hard as a rock and inedible, but I've succeeded in making a doorstop. I didn't intend to make a doorstop, I intended to make bread, but I made a doorstop accidentally.

Lopes defines incidental making as (2007, 9):

Incidental making: S incidentally makes an F just in case S intends to make a G, S does not intend to make an F, S makes a G, and in making a G, S also makes an F.

For example, the Chinese intended to make black powder for fireworks but in so doing made gunpowder. The Chinese intended to make black powder, succeeded in making black powder, didn't intend to make gunpowder, but since black powder is gunpowder, they incidentally made gunpowder.

With respect to art, Lopes argues that a culture can make art incidentally, and indeed this may be a widespread practice. For example, imagine a member of an isolated Amazonian tribe carves a *religious idol* from a piece of wood. The tribesperson intended to make an idol, succeeded in making an idol, didn't intend to make an artwork, but let's assume that this particular idol is an artwork (in virtue of having certain constitutive features of being an artwork,

¹²⁵ That is, one needn't intend to make *art* (*de dicto*) but one can intend to make *something with such and such features* and if successful, thereby make *art* (*de re*). Intending, like believing, is an opaque context. If I intend to buy garbanzo beans and successfully do so, then I've bought chickpeas, but I didn't *intend to buy chickpeas*.

whatever those may be).¹²⁶ Thus, the tribesperson intentionally made an idol and incidentally made an artwork, i.e. made an artwork without intending to make an artwork.

The details of Lopes' argument against the concept-dependence of art and how they map onto the issue of tribal or 'primitive' art needn't concern us. What matters is that this distinction and the examples Lopes gives appear to constitute a counterexample to intention-dependence since it looks like a doorstep, gunpowder, and an artwork were made without an intention to do so.¹²⁷

It looks like the case of post-it notes satisfies Lopes' accidental making, as well. Silver intended to make an industrial-strength adhesive but his intention *failed*: the result wasn't an industrial-strength adhesive. However, it was an adhesive that could be applied and reapplied repeatedly with ease. Thus, the case of post-it note adhesive would seem to fall under Lopes' accidental making, since post-it note adhesive is not an industrial-strength adhesive.¹²⁸ With respect to incidental making, in addition to Lopes' example of gunpowder, the figure-eight belaying device discussed in §2 looks like such a case. There, the manufacturers intended to make a belaying device, succeeded in making one, but in making a belaying device also made an abseiling device. Since both incidental and accidental making involve the creation of an artifact without intending to create an artifact, we appear to have counterexamples to intention-dependence.

How can we respond? First, note that the case of Sophie the Clutz satisfies *neither* incidental nor accidental making. Since there was no initial intention to make anything, it doesn't

¹²⁶ As Lopes remarks, to deny the possibility of incidental art-making, one would have to have a *very* strong view of what the constitutive features of art are.

¹²⁷ As with many other claims, distinctions, and methods in the philosophy of art, Lopes' distinction can be straightforwardly carried over to the case of artifacts generally, as the examples above show. I take it to be uncontroversial that gunpowder, bread, and doorstops are artifacts.

¹²⁸ Or again, if we think Silver made a poor industrial adhesive, then it would fall under Lopes' incidental making.

look like it maps onto Lopes' distinctions, since both require an intention to make a G; Sophie didn't *intend* to make anything with her clumsiness. Perhaps Lopes could claim that Sophie's intentionally walking through the garage could be substituted for 'G', and thus there was an intention to do something. But this won't work because first, what results from the walking is the wood and glue arrangement which I argued is later appropriated as a chair. It's the wood and glue arrangement that should be substituted for 'G', not the walking. Second, Sophie's walking didn't fail – she successfully walked through the garage, if clumsily – so this wouldn't satisfy accidental making. But nor would it satisfy incidental making, since a walking is not a chair. Lopes' distinctions can't handle Sophie the Clutz; we should understand her creation of a chair as a case of appropriation.

What about the other cases? The problem with Lopes' formulations is that there's an implicit assumption that the failure/success to make a G happens *simultaneously* with the successful creation of an F. It seems highly counterintuitive to me that the failed bread is simultaneously a doorstep at the moment of the failure. Rather, as with the rock doorstep from §2, it is a subsequent intention to make a doorstep that makes the doorstep. This distinct intention may or may not occur simultaneously with the failure to make a loaf of bread. That is, perhaps the would-be bread maker immediately intended to use her failure as a doorstep but she needn't have done so.¹²⁹ Indeed, the vast majority of failed loaves of bread aren't doorstops; only in cases where there is an intention to make a doorstep out of a bad loaf of bread do we get a doorstep, in which case there's a clear intention involved.

This is clearly the case with post-it note adhesive. There, the failure to make an industrial strength adhesive didn't immediately result in the creation of *post-it note* adhesive. There was an

¹²⁹ It's also not obvious that bread and doorstops satisfies Lopes' accidental making because in some cases perhaps a successful loaf of bread can be a doorstep, hence the 'an F is not a G' condition isn't always satisfied.

adhesive created at the moment of failure but post-it notes and post-it note adhesive wasn't created until a decade or so later when Fry had the intention to apply it in *this sort of way* for *this kind of use*. Indeed, we don't think post-it notes came into existence until that time.

In case it may be objected that *post-it note adhesive* came into existence at the moment of failure, note two things. First, while the adhesive was patented at the time of failure (or shortly thereafter), if all intelligent life on the planet immediately ceased to exist we wouldn't say that post-it notes had been invented. Second, we can't claim that *this particular adhesive* is type-identical to *post-it note adhesive* because there are in fact multiple chemically distinct adhesives that are used in post-it notes that have similar properties. The particular pressure sensitive acrylate that was patented by 3M doesn't fix the reference of 'post-it note adhesive' because post-it note adhesive is multiply realizable.¹³⁰ So, there is a distinct intention to make post-it notes and doorstops and whatever, and it may or may not occur simultaneously with the failure to make something else. As a result, these cases are better understood as cases of appropriation.

In the cases of incidental making – gunpowder, the belaying device, and the idol/artwork – Lopes again seems to assume that the creation of an F is simultaneous with the creation of a G. That is, at the same time that black powder, an abseiling device, and an idol are created, gunpowder, a belaying device, and an artwork are created. The case of artworks is more difficult, so I'll deal with them separately. But we can say similar things about gunpowder and belaying devices that we said about post-it notes and doorstops. That is, gunpowder and the belaying device only satisfy incidental making if they come into existence simultaneously with black powder and the abseiling device. But such simultaneous creation seems counterintuitive. The

¹³⁰ In case it's objected that 'Post-it notes' are copyrighted by 3M, note that that expression has become a common noun that refers to that artifact kind in the same way that 'kleenex' has come to refer to all facial tissues, not just those made by Kleenex.

Chinese invented black powder to be used in fireworks. It was a later intention to use it to propel projectiles for warfare – developed in conjunction with the creation of firearms and artillery – that resulted in the creation of gunpowder. The creation of black powder didn't immediately involve the incidental creation of gunpowder. Indeed, if black powder was invented and then all intelligent life died, it seems implausible to claim that gunpowder was invented, partly because gunpowder seems to depend on the simultaneous development of guns, without which there was no such thing as *gunpowder*. It was the subsequent intention to use black powder in warfare using these kinds of weapons, that resulted in the creation of gunpowder. Therefore, gunpowder is intention-dependent.¹³¹

The same thing can be said about the belaying device. The making of the figure-eight abseiling device wasn't simultaneously the creation of a belaying device. If the figure-eight was never used as a belaying device it wouldn't ever *be* a belaying device. It's the subsequent intentional use of the abseiling device that makes it into one and hence the creation of the belaying device is intention-dependent.¹³² Black powder and the abseiling device are better understood as cases of appropriation.¹³³

Can we plausibly maintain the same sort of explanation in the idol/artwork case? That is, can we say that the idol isn't an artwork at the time of its creation but is appropriated as one

¹³¹ Likewise, it can't be objected that gunpowder *just is* this particular chemical composition. First, there's no single ratio of sulfur, saltpeter, and charcoal; different ratios were used for different kinds of weapons by different nations over the past thousand years or so. Second, the original mix invented by the Chinese of sulfur, saltpeter and charcoal is not the only chemical mixture used in this way. Variations include various so-called brown powders (as opposed to smokeless black powder) which use different kinds of nitrates or are sulfur-free. Gunpowder is multiply realizable. See Kelly (2004) for the history of gunpowder and the National Research Council report (1998) on black and smokeless powders for their chemical composition.

¹³² It will be recalled that the climbing community later started using the abseiling device as a belaying device and this use became widespread. The manufacturer then started marketing the figure-eight as both kinds of device which led to a civil suit given its safety concerns as a belaying device. Such a suit wouldn't make sense when the abseiling device was first created.

¹³³ The implausibility of the simultaneity condition is best illustrated by the Pieterskerk. The building constructed in the fifteenth century was certainly not incidentally an event hall; it was appropriated as one in the 1970's.

later? Things are more complicated here for several reasons. In the case of tribal or so-called ‘primitive’ art of the kind under consideration, the makers of the idol don’t have a concept of *art* so can’t intend to appropriate their creation as *art*. Artifacts like the idol end up in museums and galleries around the world by being taken by anthropologists from cultural or archeological sites. As a result, it looks like we would have to credit the subsequent intention to appropriate the idol *as art* to either the museum curators or the anthropologists or perhaps the artworld public, generally, including the various artists, critics, theorists, philosophers, curators, and consumers who make it up. This looks to be in tension with our artworld practices, however: generally, we credit the maker of the idol as the artist, not anyone else.

Alternatively, we could deny that artworks are necessarily artifacts and thus the idol also being an artwork isn’t a counterexample to the intention-dependence condition because while the idol is an artifact, the artwork isn’t. This, of course, runs counter to the argument I gave in section 2, and is not an option I’m willing to countenance.

A third option is to deny that the idol is art. That is, art is concept-dependent, the Amazonian tribe that made the idol doesn’t have a concept of *art*, so they can’t make art. As a result, the anthropologists, curators, critics, and theorists that take the idol to be art and present it as such are simply *mistaken*. This is, at least to some extent, also in tension with our practices, since there are many exhibitions of tribal or ‘primitive’ art and we consume it and appreciate it as art. This would be to claim that our appreciative practices are systematically mistaken about a certain kind of art, attributing art status to various artifacts which aren’t actually art.

Since I’m not willing to go in for the second option, we either need to say that the creator of the *artwork* isn’t the same agent as the creator of the *idol* or we need to deny that the idol is an artwork. Both are controversial and revisionary. In either case, it seems we need to revise our

practices by applying the pragmatic constraint: which parts of our practice are we willing to revise after rational reflection and which aspects are we committed to preserving? For present purposes, I don't need to take a stand on this issue.¹³⁴ Either of the above live options will do, so long as we recognize that the creation of the idol isn't simultaneously the creation of an artwork.¹³⁵ Either option allows us to recognize this and thereby retain the intention-dependence condition on artifacts. As a result, we can reject Lopes' distinction between accidental and incidental making and thereby maintain the intention-dependence of artifacts. The cases of putative accidental making, properly understood, are cases of appropriational making.

3.4.2 Automated Production

The second kind of case that may suggest the intention-dependence condition is false are cases of automated production. The paradigm case of artifact creation is the lone artisan in her workshop weaving a basket or constructing a bedframe.¹³⁶ But these days the vast majority of artifacts around us are the result of mass production – huge factories employing hundreds or thousands of people in tightly controlled and delegated tasks. Increasingly, mass production is being automated. This is especially so where the artifact is extremely technical and complicated, such as automotive and aircraft production or computer chips or nanotechnology. However, even some simple products, such as commercially produced ice cream, is almost entirely automatized.

¹³⁴ For further discussion, see Stephen Davies (2000) and Denis Dutton (1995) on the idol being art and David Novitz (1998) and Gene Blocker (1991) on it not being art.

¹³⁵ Gover (2018, 42-43) develops a 'dual-intention' theory of authorship, which consists of two moments of intention. First, the generative moment in which the artist deliberately produces the work, and second the evaluative moment, in which she chooses to endorse it as her own creation or disavow it. This is in contrast to views of authorship which understand the work just in terms of what the artist has made. The tribesperson generated the work but given the absence of a concept of *art* couldn't perform the evaluative intention and endorse or disavow their product as their artwork. On this view of authorship, the tribesperson can't be the artist, thereby supporting the first option. This makes sense of the frequent occurrence of artist's disavowing what they generate as their work.

¹³⁶ This example of the craftsman making a bed goes back to Plato (*Republic* Bk. 10).

Automated production proceeds in a highly mechanized factory where various robotic parts are each programmed for some single task, typically with various conveyor belts to move the product from station to station as it is constructed. In such cases, it looks like an artifact is produced – a computer chip, say – but the producer is a collection of robotic components governed by a computer program which directs their function. Like the previous cases, this *prima facie* seems to present a counterexample to the intention-dependence condition.

Consider a relatively simple (and simplified) case: frozen yogurt. Commercially produced frozen yogurt typically consists of a mixture of milk fat, milk solids, sugar, gelatin, air, water, egg solids and yogurt culture, in addition to various flavour additives and preservatives (Goff and Hartel, 2013, 55ff.). First, liquid and dry ingredients are measured out and mixed separately. Then, liquid ingredients are heated in a vat and the dry ingredients are gradually combined; heating the mixture breaks down solids and incorporates the ingredients into a smooth consistency. The mixture is then pasteurized in order to destroy any bacteria dangerous to human health (done by rapidly raising the temperature for under a minute and then reducing it again) (ibid. 157-160), after which it is homogenized (decreasing the size of fat globules to make it a smooth consistency) (ibid. 161-167). It is then inoculated with yogurt culture and gradually cooled. Finally, any additional flavours or sweeteners are added at which point the mixture is then frozen and packaged and is ready for shipping.

In many factories, this process is mechanized and almost entirely automated.¹³⁷ Other than manually loading the ingredients into their holding chambers and loading them onto trucks

¹³⁷ As Goff and Hartel (2013, 8) report, the number of factories producing frozen dessert products in the U.S. dropped from 1628 in 1970 to 400 in 2000, while production has simultaneously *increased* dramatically between those years, mostly due to automation.

for shipping, the rest of the process can be completed automatically.¹³⁸ Ingredients are measured and moved through pipes to vats where they are mixed, then piped again to cooling chambers where additional ingredients are also added, and then the entire mixture is piped into a freezer, after which it is piped into the final package and moved via conveyor belt to the final freezer prior to shipping (Goff and Hartel 2013, 207ff.). This kind of mechanized process is governed by various programs that regulate, e.g. the ingredient quantities, timing of the packaging and conveyor speed, temperature of the vats and freezers, etc.¹³⁹ Thus, it looks like frozen yogurt can be created without any intention to do so. Frozen yogurt is certainly not an isolated case, just a relatively simple one. Most artifacts we're familiar with are created in a similar manner. As a result, the intention-dependence condition appears to be false since frozen yogurt can be created without an intention to do so.

3.4.2.1 Direct vs. Indirect Intentions

Automated production seems to present a counterexample to the intention-dependence condition because the proximate cause of the existence of the artifact, in the above example, frozen yogurt, isn't a human agent, but various robots governed by a computer program. However, we can handle such cases with a divide and conquer approach. There are two kinds of cases of automated production: first, those produced with sophisticated artificial intelligences (AIs) and second, those that are just governed by simple computer programs. In the case of AIs, if they're sufficiently sophisticated, then there is a *direct* intention to create frozen yogurt, or a

¹³⁸ There are, of course, still human quality testers and safety inspectors, but these aren't involved in the *production*, just whether the finished product should be released to the market. See Goff and Hartel (2013, ch. 14).

¹³⁹ For a detailed description of the production process of frozen yogurt and other semi-gelatinous frozen dessert products, see Goff and Hartel, *Ice Cream* (2013).

car or whatever. In the case where the programs aren't that sophisticated, then there's an *indirect* intention to create an artifact. Nothing in the intention-dependence condition requires that the intention be *direct*.

First consider the hypothetical, but increasingly likely case of advanced AIs. While our technology is not yet sophisticated enough in that field to produce AIs to whom we would attribute intentionality and other propositional attitudes, including an *intention to Φ* , major strides have been recently made and it seems likely that in the relatively near future such entities will be created.¹⁴⁰ In the event of their creation they'll likely be used initially for regulating various automated processes, including mass production lines. So imagine that we have an AI in charge of making frozen yogurt in an automated facility. If the AI is a genuine agent, as we are stipulating, then it has mental states and the capacity to intend to act, including the ability to *intend to make a K*, where 'K' is an artifact. *Ipsa facto*, there is a readily identifiable intention to produce the frozen yogurt, since the automated processes are directly governed by the AI. Thus, the frozen yogurt is the product of an intention to make frozen yogurt.

On the other hand, the intention may be indirect, which is the case with all current automated production. The intention-dependence condition doesn't require that the intention to make a K be direct, i.e. I do something which is the proximate cause of the existence of a K. In the case of automated production, the makers and designers of the frozen yogurt factory intend to make an automated frozen yogurt factory, and are thereby intentionally making frozen yogurt in virtue of intending (successfully) to make an automated factory that will make frozen yogurt. Thus, the designers directly intend to design such a factory, the makers directly intend to make

¹⁴⁰ I am, of course, not making any predictions about *Terminator* like scenarios. Who knows what the consequences to society will be of the introduction of such sophisticated artificial entities. My point is merely that their creation seems increasingly likely as our technology progresses.

such a factory, and the operators directly intend to operate such a factory. None of them directly intend to make frozen yogurt but all of them, or at least the operators, intentionally make frozen yogurt.

In general, we should emphasize the relation between *intentions*, *plans*, and *practical reasoning*, as Michael Bratman (1987) does. Bratman points out that intending to act plays a pivotal role in plans (hence the diachronic nature of intending) and practical reasoning. For example, intentions can serve as premises in a practical syllogism: ‘I ought to do A’, ‘Doing B is a means to achieve A’, ‘Therefore, I ought to do B’. Here we develop an intention to do B as a means to doing A. Something similar is going on in automated production. Makers of frozen yogurt want to make frozen yogurt. There are many ways to achieve this goal. One such way, which is especially fruitful given the desire to *mass produce* frozen yogurt, is to automate production. Thus, the makers of frozen yogurt see the various automated components of the production line as a means to an end, namely making frozen yogurt. The makers have an indirect intention to make frozen yogurt by having a direct intention to do various other things such as building a production line in this particular way, governed by these particular programs and components, all of which has the foreseeable and intended consequence of producing frozen yogurt. Therefore, we can identify an intention to make frozen yogurt, it’s just not governing the most immediate causally responsible event that produces the frozen yogurt. However, that intention is governing the many component activities that go into the production of the frozen yogurt. Indeed, automated production is so obviously intentionally and meticulously planned as a means to achieve some further goal that it almost seems silly to suggest the frozen yogurt isn’t produced intentionally.

As a result, automated production isn't a counterexample to the intention-dependence condition on artifactuality. The cases are such that there is either a direct intention to make a K (in the case of AIs) or an indirect intention to do such-and-such that will result in making a K (as in the case of current automated production).

3.4.2.2 Mass Production

It could be objected that much of our current mass production isn't fully automated, but involves a complicated mixed production process of human line workers and robotic components governed by computer programs. This can and often does involve situations like the following one described by Kornblith (2007, 145):

Consider the case of Harry, who works in the Acme Carabiner Factory. Harry stands at his machine, day after day, making carabiners. He is a maker of artifacts if anyone is. But Harry has no substantive concept of carabiners. If asked what it is he makes, Harry will say: 'I don't know what the devil carabiners are for. As far as I'm concerned, they're just something that puts food on the table.'

The case of Harry looks like a case where Harry doesn't have an intention to make *carabiners* – he can't have that intention because he doesn't know what carabiners are – yet Harry is making carabiners. It looks like the intention-dependence condition is false in cases of mass production with a mix of robotic and human makers.¹⁴¹

We can't just say the intention is indirect here, like we did for fully automated production. Harry is directly (partially) responsible for the making of carabiners in virtue of his role in the production line. Harry didn't intend to make carabiners indirectly by doing something

¹⁴¹ Note that Kornblith's concern isn't with the intention-dependence condition, but with whether, as Thomasson (2007, 66-67) claims, artifact makers have any degree of epistemic privilege with respect to their creations.

else, like welding these pieces of metal together, since Harry can't intend to make carabiners at all because he doesn't know what they are.

But Harry's role in the production line does give us a clue as to how to understand this kind of case. Harry is partially *causally* responsible for the production of carabiners in virtue of helping *assemble* them. But our talk of an artifact's 'maker' is ambiguous: it can mean either:

- (a) the person who designed the artifact
- (b) the person who assembled the artifact, or
- (c) the person who guided the assembly of the artifact according to the design plan¹⁴²

In the romanticized case of the lone artisan in her workshop, such as a carpenter, (a)-(c) will coincide. However, as artifacts have become increasingly more complicated and mass production has increased, (a)-(c) now often come apart. In the case of the artisan, she designs, guides assembly and directly assembles, the wooden bed frame. But in a case of the mass production of carabiners, the designer may never even set foot in the factory, but is stuck in the R&D department at company headquarters. There may be a production overseer who guides the production of carabiners, ensuring that assembly is guided by the design. Finally, the actual line workers are causally responsible for assembly, literally putting the pieces together into the finished product. This is the case of Harry: he's just an assembler. But that doesn't entail that carabiners aren't intention-dependent, only that the person assembling them need not be the person upon whose intention they depend. There is someone who intended to make a carabiner – the designer – they just didn't physically assemble them. In one sense, Harry is a maker of carabiners, but in another he's not *the maker* in the sense of being the origin of the intention to make carabiners.¹⁴³

¹⁴² Evnine (2016) also distinguishes between the maker in the sense of the efficient cause of an artifact and the maker in the sense of the formal cause. The latter is the (a) sense of maker, on Evnine's hylomorphic view.

¹⁴³ Harry does, of course, have intentions that are guiding his actions in assembling the carabiner.

It's worth noting that the intention-dependence condition doesn't entail a *single* maker, even in the sense of (a). Supertall skyscrapers and the Large Hadron Collider are too complicated for a single individual to design. In addition to the (a)-(c) senses of 'maker', the (a) sense, and the one with which the intention-dependence condition immediately concerns, can involve multiple agents with coordinated intentions.¹⁴⁴ The artifact, a skyscraper, say, still satisfies (IDA), there are just multiple agents who are collectively intending to make a skyscraper (or at least some part thereof in conjunction with the other makers/designers).

Distinguishing between the different senses of *maker*, we see that Harry is a maker of carabiners, but not in the sense that concerns (IDA). As a result, cases of mass production like Harry the line worker aren't counterexamples to the intention-dependence condition.¹⁴⁵

3.4.3 Anticipated but Unintended By-products

A final putative counterexample to the intention-dependence condition are cases of by-products of other intentional activity, where these products are not intended, directly or indirectly, but can be anticipated or expected as an effect of the intentional activity. It may be thought that such by-products are themselves artifacts, especially since we sometimes apply the term 'artifact' in this way, and thus artifacts aren't necessarily intention-dependent. Consider:

- (i) Pollution is an artifact of human industrial activity.

¹⁴⁴ See Houkes and Vermaas (2004) for discussion of coordinating intentions in this regard.

¹⁴⁵ Evnine (2016) also makes this point, but due to his hylomorphic view of artifacts, he puts it in terms of Aristotelian four causes. That is, Harry is the efficient cause of the carabiners, but not the formal cause, which is the designer. The material cause is metal the carabiner is made out of while the final cause is its function of securing ropes or attaching things with an easy but secure way of releasing them.

As a result of sentences like (i), it may be thought that our practices and beliefs straightforwardly construe such things as artifacts. Sawdust which results from carpentry would be another example of such a by-product, however, the following sentence sounds odd:

(ii) Sawdust is an artifact of furniture making.

The infelicity of (ii) may be merely because it isn't something we commonly say. Compare this with:

(iii) The presence of rabbits in Australia is an artifact of British colonial era policies.

These uses of 'artifact' appear in locutions of the form 'x is an artifact of y'. The appearance of 'artifact' in such locutions may suggest that pollution, sawdust, and the presence of rabbits in Australia are all *artifacts*. However, while I think some intuitions may pull towards pollution and sawdust being artifacts, it's highly counterintuitive to think of the *presence of rabbits in Australia* as an artifact, at the least because it's a state of affairs rather than an object.

If we are going to take the linguistic data on its face and treat (i) and (ii) as genuine cases of artifacts, then we should say the same thing about (iii), for unity's sake. However, this is deeply implausible since the state of affairs of rabbits being in Australia doesn't seem like an artifact (they could have easily arrived there by some natural means). Rather, I think we should treat this as a distinct sense of 'artifact'. Locutions of the form 'x is an artifact of y' are grammatically distinct from the more common 'x is an artifact', as in 'this stone tool is an artifact'. The locution 'x is an artifact of y' doesn't appear to impute intentionality to the 'artifact' but rather just recognizes it as a causal consequence of something else, typically something intentional. Given the stark grammatical difference and the undesirable consequence of accepting the presence of rabbits in Australia as an artifact, I think we should treat this as a distinct use of 'artifact', as Dipert (1993, 36) and Hilpinen (1992, 60) do. That is, pollution,

sawdust, and the like aren't really artifacts, so it doesn't matter if they're not intention-dependent, because they're not counterexamples.

Nonetheless, anthropologists and archeologists do use the more common locution 'x is an artifact' to describe detritus from past civilizations. Thus, social scientists treat midden heaps and garbage dumps as artifacts even if they only contain, say, rotten fruit peels. Garbage is similar to pollution or sawdust in that it is a predictable but unintentional causal consequence of other intentional activity, maybe involving artifacts (wrappers) or maybe just natural objects (fruit peels). When an archeologist says 'this pile of refuse near the Pyramids of Giza is an artifact', they're saying something with the same grammatical form as 'this chair is an artifact', which cannot be dismissed in the same way as (i)-(iii) as a distinct but nearby use of the term.

Despite this, I still don't think this is a genuine counterexample to the intention-dependence of artifacts. First, note that archeologists and anthropologists could just have easily said (and often do say) something like 'this pile of refuse near the Pyramids of Giza is an artifact *of the Ancient Egyptians*', which has the same grammatical form as (i)-(iii), so can be rejected on similar grounds. Second, we can treat such anthropological usage as a technical, and therefore as a stipulated, non-focal use of the term 'artifact'. Indeed, anthropologists and archeologists are interested in *any kind* of evidence of how past or present civilizations lived or live, not just the artifacts they left behind. While many of the things they refer to as artifacts are genuine artifacts of the sort I'm interested in (as I discussed in section 2.2), not all of them are.¹⁴⁶ Simply put, our

¹⁴⁶ It might seem that I'm being inconsistent. In 2.2 I said that some of what anthropologists call artifacts are counterexamples to PMC while here I'm saying some of what they're calling artifacts aren't counterexamples to IDA. Can I have it both ways? In 2.2 I recognized that that anthropological use of 'artifact' was perhaps indeterminate, since there's a debate about whether found objects should be labelled 'naturefacts' instead. However, the concern around naturefacts is epistemic: it's very difficult to tell whether a found object is a natural object or an artifact. But the concern with detritus is different: there's usually no doubt that some pile of refuse is the result of human activity, calling it an 'artifact' is because anthropologists call anything that is evidence of past/present cultures 'artifacts' – there isn't the same kind of epistemic uncertainty as is with, say, flaked rocks.

research goals are different, so we care about different things.¹⁴⁷ Thus, we can safely and plausibly set aside these cases of foreseeable but unintended by-products as genuine artifacts and recognize that the term ‘artifact’ can be used in distinct but derivative ways from its principal usage that is presently of interest to us.

3.5 Conclusion

I took the intention-dependence of artifacts to be a pre-theoretic condition on artifactuality which can be straightforwardly described based on our practices. (IDA) says that for something to be an artifact, it must be the successful result of an attempt to make an artifact of particular kind. Since attempts to make artifacts entail intentions to make artifacts, we get a dependence of artifacts on the intentions of their makers. This chapter considered three challenges to this condition. First, that not only are artifacts intention-dependent but, specifically, that intention can only succeed by physically modifying some material objects. Second, were putative cases of mind-independent artifacts, thereby rejecting not only intention-dependence but general mind-dependence entirely. Third, were cases that suggested general mind-dependence but without intention-dependence.

We saw clear counterexamples to the physical modification requirement. In the face of those counterexamples, it became clear that under certain conditions we can make an artifact through appropriation – the rock can genuinely become a doorstep. While it’s difficult to give

¹⁴⁷ Note that the natural sciences also use ‘artifact’ in this way, e.g. the water level rising in a thermometer which contains water as the measuring liquid when the temperature is dropping is an artifact of the measuring method. Again, this is a common use of ‘artifact’ in the sciences, it has the form ‘x is an artifact of y’, so can be set aside as a technical use of ‘artifact’. See Cummins (1998, 116-117) for an instructive discussion.

precise conditions for successful appropriation given shifting contextual factors, I identified three general conditions: an act or attempt, physical capability, and communal acceptance.

Swamp cases and remote modal cases were suggested as putative counterexamples to general mind-dependence. However, given how far from any quotidian cases they are we can safely treat them as spoils to the victor – they can be treated as non-artifacts because any intuitions to the contrary are probably unreliable. Indeed, I suggested three error theories that could explain why someone may have such an intuition.

Finally, we saw three kinds of cases that are alleged counterexamples to the intention-dependence condition while still maintaining mind-dependence. These were cases of accidental creation, cases of automated production, and cases of unintended by-products. The first case I argued was actually a case of appropriation, the second case did involve intentions, but they're usually indirect, and the third kind of case can be rejected as genuine artifacts. Therefore, we can maintain the default and perhaps definitional view accepted by almost everyone, be they layperson or philosopher, that artifacts are intention-dependent.

CHAPTER 4: FUNCTION ESSENTIALISM ABOUT ARTIFACTS

4.1 Introduction¹⁴⁸

Alongside intention-dependence, a prominent feature of artifacts that appears to essentially constitute artifacts and artifact kinds is the frequent observation that artifacts seem to be functional objects. That is, artifacts are created to serve some purpose, the doing of which seems to partly constitute what it is to be such a thing. This appears to be borne out by our practices: we make artifacts *for* something, we reuse them *for* something else, we throw them away or recycle them when they are no longer able to serve us in their intended way or when we have no more use for them, generally. We tend to group artifacts into kinds based on the purposes they are intended to serve. For example, chairs are for sitting, shoes are to protect one's feet when walking, knives are for cutting, slicing or stabbing, bicycles are intended as personal, individually powered transportation, cameras are for imprinting an image onto a photosensitive surface, and so on.

From intuitions about such practices, many people pre-theoretically hold a function essentialist view of artifacts and artifact kinds. That is, (1) artifacts are essentially functional objects and (2) membership in an artifact kind is determined by a particular, shared function. We can call these the artifact condition and the kind membership condition, respectively. As we saw in chapter 2, the realists all held some form of function essentialism. The aim of this chapter is to assess this common assumption by applying the pragmatic constraint to these features of our practices. First, however, an explicit formulation of the view is required. After which, we will see that from this application of the pragmatic constraint, both component theses of function

¹⁴⁸ Much of this chapter follows Juvshik (2021c).

essentialism should be rejected. Nonetheless, there is something alluring about function essentialism, since the vast majority of artifacts are undeniably functional objects. A goal of the next chapter will be to account for this fact.

The chapter is structured as follows. In section 2, I formulate the function essentialist view by explicitly formulating the two component commitments – the artifact condition and the kind membership condition – and consider what account of function could accommodate them. In section 3, I offer counterexamples to the artifact condition and consider a response from Randall Dipert. In section 4, I consider counterexamples to the kind membership condition and consider a response from Simon Evnine. In section 5, I consider an alternative response from Lynn Baker that involves restricting function essentialism to so-called technical artifacts, before concluding in section 6. The upshot is that, while most artifacts are functional objects and we often group artifact kinds by function, this isn't essential to either.

4.2 Formulating Function Essentialism

The general idea behind function essentialism is the intuitive idea that (1) artifacts are functional objects and (2) that artifact kinds are categorized by a shared function. These two theses can come apart since one could hold (1) but reject (2). However, if one holds (2) then (1) seems to follow since if all artifact kinds are determined by a shared function, then all members of all artifact kinds have a function. Assuming there are no artifacts that don't belong to a subkind, then all artifacts have a function. I will adopt this assumption throughout but it will become evident in later chapters that this assumption raises some serious and difficult questions.

Before evaluating these two theses, we should formulate them explicitly – something not typically done by those who adopt them.¹⁴⁹ I'll address (1) and (2) in turn. (1) claims that all artifacts are functional objects. I take it that what (1) is driving at is that all artifacts have some function or other, so that, to be an artifact, something must have a function. We can formulate (1) semi-formally as follows:

(1) *Artifact Condition*: Necessarily, for all x , if x is an artifact, then there's some function F such that x has F .

Thus, for anything that's an artifact, there's some function that it has. This is, of course, compatible with an artifact having multiple functions. The requirement is that artifacts have at least one function. For example, the chair I'm sitting on has the function of (somewhat) comfortably seating a single person. The function of my watch is to track and display the time. The function of my water bottle is to hold a liquid and disperse it for consumption. The function of my pad of sticky notes is to provide a surface for writing on that can be easily attached, detached, and reattached from other surfaces. And so on for every other artifact. Some artifacts, such as Swiss Army knives and cellphones, have multiple functions.

Giving a very generic functional description is easy for most artifacts, e.g. this car is for transporting persons from one place to another. But specifying what *exactly* the function is for any given artifact can be quite difficult. As we saw in chapter 2, this will often include reference to *how* the artifact is supposed to perform its function. For example, my digital watch is intended to track and display the time *in this particular way*, i.e. digitally, as opposed to my analog watch, which does so with three hands moving along a watch face. Similarly, borrowing an example

¹⁴⁹ Function essentialism is held by, among others, Elder (2007, 2014), Soavi (2009b), Franssen and Kroes (2014), Houkes and Vermaas (2004), Dipert (1993), Kornblith (1980), Hughes (2009), and in a qualified sense, Baker (2007), Evnine (2016), and Grandy (2007).

from chapter 2, a screwdriver is for attaching things together in conjunction with suitably shaped screws and the application of pressure *in this particular way*; pushing on the screwdriver from the end isn't how it's supposed to function. (1) doesn't say anything about how to individuate the function F that any given artifact has and for present purposes we can set that issue aside. What matters is that if something is an artifact, then there's some function that it has, something that the artifact is *for*, regardless of how exactly one specifies that function.

The motivation behind (2) is the idea that, as Kornblith says, "at least for the most part, it seems that what makes two artifacts members of the same kind is that they perform the same function" (1980, 112). We categorize artifacts by their function and any given artifact kind is individuated by a unique function. Subkinds of artifacts such as *utensil*, *chair*, and *car* seem to group together artifacts based on what they are for. That is, something is a chair if it is for what chairs are for, i.e. comfortably seating a single person. Similarly, something is a corkscrew if it's for removing corks from bottles. As we saw in chapter 2, there are many different ways to remove a cork from a bottle and concomitantly many different kinds of corkscrew including winged, pull-up, pull-out, and electronic corkscrews. However, they're all *corkscrews* in virtue of sharing the function of being for removing corks from bottles. Nothing else has this function which is not also a corkscrew. (2) thereby involves two components: the claim that all artifact kinds are determined by a particular function shared by all members and that the function which individuates the artifact kind is unique to that kind. We can therefore formulate (2) as follows:

(2) *Kind Membership Condition*: Necessarily, for all artifact kinds K, there is some function F which all and only members of K have.

Thus, the unique function F associated with K provides both a necessary and sufficient condition for being a K, so concomitantly, there's nothing that has F which is not a K. According to (2),

any artifact kind which we substitute for K will be individuated by a unique function. According to (2), nothing that doesn't have the function of removing corks from bottles is a corkscrew (or bottle opener)¹⁵⁰ and anything with the function of removing corks from bottles is a corkscrew. This correctly groups all different kinds of corkscrew together as corkscrews, including the traditional pull-out, pull-up, winged, and electronic varieties.

We now have explicit formulations of both theses which compose function essentialism. However, there's a residual question waiting in the wings: when it comes to artifacts, what account of function is appropriate for function essentialism? That is, what is it for an artifact to have a function and how do they get that function? There are three main accounts of function:

- (a) Actual causal powers
- (b) Cummins (or systems) functions
- (c) Proper functions

I'll consider each in turn and it will turn out that (a) and (b) have serious problems with respect to artifacts so whatever their merits in other domains, e.g. biology, (c) is the only viable option for an account of artifact function.¹⁵¹ Beth Preston (2009, 214-218) identifies six desiderata for a theory of artifact functions: multiple realizability, multiple utilizability, recycling, reproduction with variation, malfunction, and phantom functions.¹⁵² Most germane to the present discussion is the possibility of malfunction and phantom functions. Artifacts can malfunction by failing to perform the function they are supposed to perform. Phantom functions are an odd case where the

¹⁵⁰ This caveat is to acknowledge that something can be for opening bottles but not be a corkscrew, e.g. bottle openers which remove corks by sliding two metal tongs on either side of the cork and in conjunction with the application of pressure pull the cork out without 'screwing' into it. This would thereby be a bottle opener but not a corkscrew, although one may quibble with the classification. However, the exact example doesn't really matter since I go on to reject (2).

¹⁵¹ There is a longstanding issue with whether biological and artefactual functions can be given the same analysis. See the papers in Krohs and Kroes (2009) for discussion.

¹⁵² Vermaas and Houkes (2003) also consider function ascription to novel prototypes and the ability to distinguish between standard and accidental functions.

artifact intuitively is for some particular purpose but it is physically impossible for the artifact to perform that function. As we will see, (a) and (b) cannot account for malfunction and phantom functions.¹⁵³

With respect to (a), the function *F* of an object *o* is determined by the actual causal powers that *o* has in virtue of which it is capable of producing some output. For example, the function of a car is to easily transport people from one location to another and it has this function in virtue of its actual causal powers, i.e. the capacities of the engine to turn the wheels as directed by the driver, and so on. *Prima facie* this seems to properly ascribe functions to artifacts based on our intuitions about our practices: cars *are* for easily transporting people from one place to another.

There are two problems with the actual causal powers view. The view both undergenerates and overgenerates function ascriptions to artifacts (and non-artifacts). The actual causal powers view undergenerates function ascriptions because it entails that *malfunctioning* artifacts don't have functions. On the causal powers view, a car that has a dead battery lacks the causal powers to easily transport people from one place to another yet intuitively the car still has this function (and is still both an artifact and a car). Similarly, just because the car is out of gas and so can't actually function as transportation doesn't mean that it lacks the function of serving as transportation, only that it can't fulfill that function at this moment. Thus, the actual causal powers view misclassifies malfunctioning artifacts as lacking the function that they intuitively

¹⁵³ All of the accounts fair well with respect to multiple realizability, multiple utilizability (artifacts can be used for multiple different purposes), and recycling (a broken artifact is used as the raw material for a new artifact with a different function. Millikan's proper functions are best suited to explaining reproduction with variation (the tendency of artifact kinds to remain relatively stable over time but nevertheless slowly change through innovation), though causal accounts and Cummins functions may be able to explain this, too. Regardless, my focus is on malfunction and phantom functions.

have. If having that function is essential to being that kind of thing, then this also entails that the object ceases to be a car and perhaps even an artifact, which is wildly implausible.

A related case involves Preston's sixth desideratum, phantom functions, which are functions that some artifacts are intentionally produced for (and are reproduced for) but which it is physically impossible for them to perform. She cites the case of amulets for warding off the evil eye, rosary beads, and the beaked plague masks which physicians wore to protect themselves against the spread of the bubonic plague. Assuming there is no evil eye or Christian deity, the first cases obviously cannot perform their intended function, despite being widely produced for that purpose. Similarly, the beaked plague masks produced in the 17th century were filled with herbs intended to protect the wearer against bad air (a result of the miasma theory of disease), but were incapable of protecting the wearer against the Black Plague since this isn't how the disease spread. Yet they were produced for quite some time to serve this purpose.¹⁵⁴ On the causal powers view of functions, these artifacts simply lack the functions that they intuitively have.¹⁵⁵

Second, (a) overgenerates function ascriptions for both artifacts and non-artifacts. Intuitively, a car is for transporting people from one place to another. This is due to the causal powers that it actually has, according to (a). However, cars have a lot of other causal powers that enable them to perform a lot of other functions. For example, in virtue of being able to crush oranges so they release their juices, cars would have the function of being juicers. But this clearly isn't what the function of cars is, even if they happen to be able to perform that function (as it happens, it's an incredibly inefficient way to make orange juice). Similar considerations apply to non-artifact objects. If chairs have the function of comfortably seating a single person in

¹⁵⁴ See also Evnine (2016, 120) for discussion of these examples.

¹⁵⁵ Preston (2009, 218fn8) considers, but rejects, phantom functions as an extreme case of malfunction. Either way, the causal powers view cannot account for these cases.

virtue of their material and structural features which allow them to do so, then many rocks, logs, animals, and trees have this capacity. Yet these clearly aren't chairs even if they can support a single person. It's patently false to say that various rock formations on Mars are chairs in virtue of their causal powers.¹⁵⁶ Any theory of artifacts needs to be extensionally adequate, so count all and only artifacts as artifacts but also needs to respect our intuitions about function ascriptions to artifacts. The actual causal powers view can do neither so isn't adequate as an account of artifact functions.

A better prospect for the function essentialist would be to appeal to (b) Cummins or systems functions, named after their most prominent proponent, Robert Cummins (1975).¹⁵⁷ Cummins functions offer a functional analysis of a component of a system by analyzing the role the component plays in the capacities of that system. In the biological case, the organism is the system-level of evaluation, so Cummins functions are given for its component parts, such as the human heart. A functional analysis of the components gives their role in contributing to the capacities of the organism. For example, the function of the heart is the role it plays in the functioning of the organism, i.e. its contribution to the organism's capacity to pump blood. Similarly for the lungs, liver, individual cells, and even the molecular structure of the organism.¹⁵⁸ The capacities of the system, such as the organism, that Cummins functions explain are simply the system's causal powers. In this way, Cummins functions are similar to the causal powers view.

In the case of artifacts, Cummins functions can be given for component parts. For example, one can give an analysis of the function of an engine in terms of the role it plays in the

¹⁵⁶ See also Thomasson (2007a, 57-8) for similar objections to the causal powers view.

¹⁵⁷ Others came up with similar ideas independently in the biology literature. See e.g. Hinde (1975).

¹⁵⁸ For functional explanations at the molecular level, see Craver (2007).

capacities of a car to transport people from one place to another. Similarly, one can give further functional explanations of the component parts of the engine itself, and so on down the hierarchy of artifactual components of the car.

One oddity of Cummins functions is that the relevant system is unconstrained, so Cummins functions can be given for any system whatsoever. As a result, *clouds* have functions given their role in the water cycle. This departs considerably from the notion of function typically at issue in biology or those disciplines that study artifacts such as engineering, archeology, and anthropology. The sense of function that a heart or a hammer has is quite different from the role of clouds in the water cycle. The sense of function at issue in Cummins functions is thus an attenuated one at best. Nonetheless, it seems, at least initially, that Cummins functions are appropriate for explaining the functions of artifacts. However, there are two major problems with Cummins functions for artifacts. First, Cummins functions struggle to explain the highest level of function of the artifact, such as the function of a car, say, above and beyond the roles its components play in its capacities. Second, and relatedly, Cummins functions cannot account for the potential for *malfunction* because they rely on the actual causal capacities of the system-level of evaluation. Both problems are due to explaining a system's capacities in terms of its causal powers, so in this way the difficulties with Cummins functions are similar to those the causal powers view faces.

Cummins functions give a functional explanation of the roles *components* contribute to the capacities of a system. Those capacities, such as the heart's contribution to the organism's capacity to pump blood, are understood in terms of the causal powers of the system, such as the organism's causal powers which give rise to its ability to pump blood. In general, organisms aren't taken to have functions at the same general level as artifacts, except perhaps survival and

reproduction. Compare this with artifacts that aren't part of larger artifactual systems: cars, chairs, pencils, picture frames, coffee mugs, and shoes. These artifacts intuitively have functions, things that they are *for* or *supposed to do*. But Cummins functions can't explain these general functions *except* in terms of the (causal) capacities of the artifact and then *explain* how the artifact has those causal capacities in terms of the contributions of its component parts. In the case of a car, Cummins functions can just say that the car has the capacity to transport people from one place to another and it has that capacity in virtue of the contributions of its components. This isn't an explanation of the car's function of transporting people from one place to another, however. Cummins functions only offer explanations of the functional roles of lower level components. So while appropriate for those artifacts that are parts of other artifacts, it can't help with 'stand-alone' artifact functions like those of cars or chairs. Rather, Cummins functions take it for granted that they have some given function, understood in terms of causal capacities, and then explain how the parts contribute to that function. This says nothing about a number of obviously important aspects of a car's function, including the role of the designer or maker, the history of production and selection, and crucially, possibility of malfunction.

With respect to malfunction, because Cummins functions construe the system-level function in terms of causal capacities, it has no way of explaining the potential for malfunction. In the case of the heart, a heart that can't pump blood because the aorta is ruptured isn't broken or malfunctioning, it simply ceases to have the function of pumping blood because it doesn't have the causal capacities to contribute to that overall capacity of the organism. Intuitively, a heart with a ruptured aorta is still *for* pumping blood, it just can't successfully do so. Similarly, a combustion engine is *for* producing energy to turn the wheels of a car and thus propel it even if it can't do so because the spark plug is damaged and can't ignite the fuel. On a Cummins analysis

of the function of a combustion engine, the engine with a damaged spark plug simply lacks the function of producing energy to move the vehicle, which in turn entails that the car itself lacks the function of transportation since it lacks the causal capacities that would enable it to function in that way. Like the simple causal powers account of functions, Cummins functions fail to explain malfunction (and phantom functions) and thus fail to explain the system-level functions of artifacts which aren't parts of other artifacts. Thus, Cummins functions are decidedly unhelpful in characterizing the function essentialist theses for artifacts.

Third and finally are (c) proper functions, developed by Ruth Millikan (1984, 1995, 1999) and familiar from chapter 2. An object's proper function is what that thing is *for*, which is determined by its history of selection and reproduction. According to Millikan's account, proper functions can be had in one of two ways. As Millikan puts it, for an item A to have a function F, it is necessary and sufficient that A satisfies one of the following two conditions:

(1) A originated as a "reproduction" (to give one example, as a copy, or a copy of a copy) of some prior item or items that, *due* in part to possession of the properties reproduced, have actually performed F in the past, and A exists because (causally historically because) of this or these performances. (2) A originated as the product of some prior device that, given its circumstances, had performance of F as a proper function and that, under those circumstances, normally causes F to be performed by *means* of producing an item like A. (Millikan 1984, 13-14)

If items have F because of (1), then they are reproduced because past members had F and successfully performed F in virtue of which they were reproduced. Cases of (1) are most easily found in biology: some biological trait is successful at performing F, say a particular visual system is good at detecting movement in its periphery, so the organism is good at detecting and evading predators, causes the organism to have a better chance of survival and thus a better chance of reproducing. As a result of successful reproduction that particular visual system is reproduced *because* previous visual systems like that were successful at detecting peripheral

movement. That visual system is thereby *copied* from previous members of the kind. This is a case of having a *direct* proper function and standard production of artifacts falls under this category, e.g. cars are for transportation of people and goods and they are reproduced because previous members of the kind were successful at performing that function.

Items that satisfy (2) have *derived* proper functions – functions which derive from the functions of the items that produce them. Cases of prototype artifacts fall under this category. Intuitively, a prototype still has a function, presumably based on its maker's intentions. But that function cannot be established by a history of production since *ex hypothesi* they are the first members of their kind. The function of such artifacts derives from the intentions of their makers. To use an example from Thomasson (2007a, 57), the proper function of a desire for food is to gain nourishment for the organism. In a particular environment, that desire may lead someone to invent a new kind of hunting tool which acquires the proper function of gaining nourishment for the organism (hunter) from the intentions of its maker. The function of this new artifact is inherited from the function of the intentions and behaviours of the maker. A similar explanation can be given for all prototype artifacts, such as the Wright brothers' first fixed-wing airplane or the first computer.

Simon Evnine (2016) offers a similar account of artifact functions as Millikan. Evnine distinguishes between kind-associated and idiosyncratic functions. This roughly tracks Millikan's distinction between direct and derived proper functions. According to Evnine, the kind-associated function of a chocolate bar is to be eaten but *this* particular chocolate bar I made which has a loved one's name imprinted on it, is for reminding me of that loved one. The latter is an idiosyncratic function of the chocolate bar that comes from my intentions in making it (2016, 119). In the case of prototypes, Evnine takes them to only have idiosyncratic functions that they

acquire from their maker's intentions. For example, the first corkscrew, developed in conjunction with the development of corks, had the idiosyncratic function of removing corks from bottles but had no kind-associated function. Once corks entered into general production a history of production becomes established and the kind then acquires a kind-associated function. Evinne's view is structurally similar to Millikan's, but for simplicity's sake I will mostly assume Millikan's account in what follows.

Proper functions seem adequate for accounting for artifact functions. However, there are some important dissimilarities between the biological and artefactual cases. As Millikan is aware, (non-prototype) artifacts have both direct and derived proper functions simultaneously. That is, they have a direct proper function that results from their history of production *and* derived proper functions that are inherited from their makers' intentions. Since intentions don't enter anywhere into explanations of biological propagation, this isn't the case with biological traits. While usually the direct and derived proper functions of artifacts coincide, they can sometimes diverge. To use Preston's (2009, 224) example, the direct proper function of bread is nourishment, but if a baker bakes it to sell it in order to earn an income, then the derived proper function of this particular loaf of bread is to earn an income.

A second important dissimilarity between artifact functions and biological functions is pointed to by Marzia Soavi (2009b, 190-192): artifacts, unlike organisms, aren't self-reproducing. Thus, the history of (re)production is initiated by the intentions of various agents, most conspicuously makers and users. Agents identify (or at least believe they've done so) the success of cars as modes of transportation, so intentionally reproduce cars because of this

success.¹⁵⁹ Functions of artifacts, either direct or derived, are therefore intention-dependent, whereas biological traits are not. This isn't necessarily a problem for Millikan's account, though, since derived proper functions can capture this sort of intention-dependence.¹⁶⁰

While these two features of artifacts make them dissimilar to biological functions, Millikan's disjunctive account generally seems adequate to capture the particular features of artifact functions.¹⁶¹ With respect to the first component thesis of function essentialism, we can say that to be an artifact requires having a proper function, either direct or derived. With respect to the second component thesis of function essentialism, we can say that to be a member of an artifact kind K is to have the direct proper function F (in the case of pre-existing artifact kinds) or the derived proper function F (in the case of novel prototypes which are the first instances of their kind) which all and only members of K have. However, in both cases it must be the artifact's or artifact kind's *intended* proper function. Since chapter 3 established intention-dependence as an essential component of being an artifact, this should hardly come as a surprise. The function essentialist must then say that artifacts are intention-dependent objects that have an intended proper function, either direct or derived and that artifact kinds are individuated by an intended proper function, also either direct or derived. The function essentialist can then claim that intention-dependence in conjunction with function exhausts the essential nature of artifacts

¹⁵⁹ See also Thomasson (2007a, 57) for discussion of this point. While Thomasson discusses the causal powers view and Millikan's proper functions, she doesn't consider Cummins functions. But see Elder (2014) for a discussion of how non-intentional features of capitalist systems can affect production.

¹⁶⁰ Preston (1998) argues that Millikan's account has difficulty explaining artifact functions because of the presence of intentions. She argues that reproduction and innovation occur by non-intentional forces. See Soavi (2009b) for further discussion. Preston is one of the few that completely eschews any intentional explanation of artifact functions. Preston's (2009) offers a useful survey of accounts of artifact function in terms of how intentionalist they are. Searle (1995), Dipert (1993), and McLaughlin (2001) offer intentionalist accounts, while Griffiths (1993), Millikan (1984, 1999) and Vermaas and Houkes (2003) are mixed intentionalist/non-intentionalist accounts. Since I'm assuming intention-dependence for artifacts and artifact kinds, I reject Preston's fully non-intentionalist view of artifact functions.

¹⁶¹ Preston (1998, 2013) offers a pluralist theory of function which adopts and adapts both Millikan's proper functions and Cummins' system functions.

and artifact kinds. Now that we have explicit formulations of the function essentialist theses, we can go on to evaluate their prospects. I consider each condition in the following two sections, respectively.

4.3 Problems with the Artifact Condition

Function essentialism involves two component theses, the artifact condition and the kind membership condition. The artifact condition was formulated as follows:

- (1) *Artifact Condition*: Necessarily, for all x , if x is an artifact, then there's some function F such that x has F .

Function essentialism is the view that, at least in part, artifacts are essentially functional objects. Note that function essentialism needn't aim at giving an exhaustive list of the essential properties of artifacts. Indeed, (1) only offers a *necessary* condition on artifactuality.¹⁶² We also saw that, since intention-dependence is an essential feature of being an artifact, (1) will be coupled with that condition. The functions of interest aren't just any old function an artifact can perform but the ones they were made for. As such, the functions alluded to in each condition are *intended* functions and given that Millikan's account of proper functions is the most suitable account for the function essentialist, they involve *intended proper functions* (either direct or derived).¹⁶³

On its face, (1) really does look plausible as a condition on artifactuality. With the exception of one's self and perhaps plants, most of the things immediately around us tend to be artefactual and moreover, we can readily identify a function for almost every single artifact we

¹⁶² Having a function is obviously not sufficient for artifactuality, since organs and other biological traits have functions but are, by and large, not artifacts. An artificial heart is an interesting cross-over case.

¹⁶³ See also Thomasson (2007a, 57).

surround ourselves with (unsurprising, since we usually acquire artifacts for some specific purpose). Further, we often identify things *as artifacts* (or as “man-made”) by recognizing both their intention-dependence and their intended function. Anthropologists and archeologists initially identify artifacts by the appearance of intentional design and infer that such a design was for some purpose. It is thus no surprise that if one asks laypeople what artifacts are they cite some version of both intention-dependence and function essentialism.¹⁶⁴

Despite the seeming plausibility of function essentialism, there are counterexamples to both component conditions. Regarding (1), a natural place to look for counterexamples are the arts. Many people have the idea that art, especially modern or conceptual art, isn't *for* anything but is instead ‘art for art’s sake’.¹⁶⁵ Since the functions at issue in function essentialism must be *intended* functions, then it seems possible that an artist could make an artwork while intending it to be useless. The driftwood sculpture from chapter 2 could fall into this category as could John Cage’s 4’33 or one of Rothko’s paintings or indeed anything that a lone artist might make in her studio – she simply intends to make something that serves no purpose.

Of course, this isn’t to say that all art lacks a function, nor even that art lacks a function particular to art.¹⁶⁶ As Michael Baxandall (1972) has argued, much Renaissance art had an explicit religious function, such as facilitating religious reflection and obeisance. Other artworks may have explicit representational or expressive functions and like the case of the baker, an artist may make art as a source of income (a derived proper function).¹⁶⁷ Despite the many cases of functional artworks (architecture is another good example), it seems clear that an artist can make

¹⁶⁴ This is, of course, defeasible under the pragmatic constraint. Laypeople will often cite being the result of physical modification as an essential feature of being an artifact, but we’ve seen ample reason to reject such a condition.

¹⁶⁵ See John Wilcox (1953) for discussion of this idea.

¹⁶⁶ Since I argued that artworks are a kind of artifact in chapter 3, it follows from (2) that all artworks have a function unique to the arts. I argue below that this is false.

¹⁶⁷ See Stecker (1997) for a general functionalist account of art.

an artwork that doesn't have any function at all. The lone artist in her studio seems like the paradigm case: she intends to make an artwork but doesn't intend it to be for anything – it's a conceptual or appropriational piece – except to be art. But *being art* doesn't seem like a *function*, it's a kind of artifact. Consider a fictional example: Homer Simpson, in “Mom and Pop Art”.¹⁶⁸ Homer attempts to build his own backyard barbecue, fails spectacularly, and attempts to throw away the resulting mass of concrete and barbecue parts, only to have it damage the vehicle of a museum curator who then suggests that he display the piece as a work of *outsider art*. The artwork certainly isn't *for* anything – it resulted from Homer's failure to make a barbecue. Since artifactuality requires intention-dependence, this would be a case of appropriation; the failed barbecue is appropriated as a work of outsider art. But the work itself has no purpose.

With the advent of modern and conceptual art, this kind of case seems increasingly common. One can understand certain artistic developments in the early twentieth century as expressly eschewing functional artworks. Many artists were rebelling against institutionalized artistic traditions which took art to have a certain function, such as representation or emotional expression or in some cases political propaganda. Instead, they intentionally made art that had no function. In case it's objected that all art has a *derived* function in virtue of being a source of income for the artist, we can note that the lone artist in her studio need not, and often does not, make art for public consumption (part time artists who make art as a hobby often fall into this category).¹⁶⁹ Art isn't necessarily produced in the current capitalist institutional and curatorial art complex. Thus, it seems that many artworks lack a function. Since artworks are artifacts, these cases are counterexamples to (1).¹⁷⁰

¹⁶⁸ *The Simpsons*, Season 10, Episode 19.

¹⁶⁹ One suggestion from *The Simpsons* episode is that to be a *professional* artist one must have sold at least one artwork.

¹⁷⁰ Even if one denied that *all* artworks are artifacts, there are clear cases of artworks that are artifacts and that lack a function.

Other examples include doodles drawn during a boring faculty meeting or casually constructed paperclip sculptures.¹⁷¹ *Prima facie* such things both seem like artifacts (they're intentionally constructed objects, after all) and don't have a function. Indeed, what would a doodle be *for*? There's no readily identifiable function, either direct or derived. A further class of examples are artifacts which are the result of *play*, such as a tower constructed out of blocks or a spaceship that a child makes from Lego or a pyramid of stuffed animals.¹⁷² Sand castles, too, often fall into this category. That is, children are merely creatively 'messing around' and while the concerted actions are directed, the result may not be for any particular purpose, but is just a kind of play or leisure (or the result thereof). The results are clearly artifacts. The child intentionally constructs a pyramid of stuffed animals or a Lego spaceship or whatever. Even if we can't identify a function or if we ask the child what the thing is for and they disdainfully reply that it isn't 'for' anything, the resulting object is still intuitively an artifact. These (non-art) cases are likewise counterexamples to (1) since we have clear cases of being an artifact without having a function.

One way to resist the counterexamples to (1) is to maintain that in all of the above cases the maker's *reason for making* the artifact is the artifact's *function*. This view seems to be adopted by Dipert (1993), at least with respect to putatively non-functional artworks:

If we describe human purposes broadly enough, and if art really does not serve *some* function, play some role in contributing toward our conception of a fruitful life, it is unimaginable why we would voluntarily engage in it. Assuming human rationality, art surely serves some human needs, for both artist and appreciator, and so is but a "means" to *some* end. We are perhaps less conscious of precisely what this goal is in our experience of art than in our experience of other artifacts, especially practical ones (1993, 111).

¹⁷¹ These two examples are from Thomasson (2014, 47-48).

¹⁷² This last example is from Korman and Carmichael (2017, 194). Bloom (1996, 18-19) also considers toys to be non-functional.

Dipert defends function essentialism and seems to be suggesting that if we don't attribute some function, however broad, to artworks, then it's rendered totally unclear why humans would ever produce art. That is, humans are rational beings that act (and thus produce things) *for a reason*, so art must be made for *some* reason. Dipert seems to be suggesting that whatever the reason a maker had for making any given artwork can be identified as the general function of that artwork.¹⁷³ For example, if a desperately poor artist makes a work of art just so she has something to sell, then the function of the artwork is to produce an income for the artist. Similarly, if a producer makes a film that is intended to be an homage to Nelson Mandela, then the film has as its function being an homage to Mandela.

This view can be extended beyond the artwork case to artifacts generally. The functions of artifacts are the reason the maker had for making them. For example, in the above cases of putatively functionless artifacts, doodles and paperclip sculptures are for distraction during a boring faculty meeting. In the case of play, the pyramid of stuffed animals, the sandcastle, and the spaceship made of Lego bricks all have as their general function, being for leisure or entertainment or something like that. That is, they're for whatever reason their makers had for making them. Thus, we can attribute a general function to all artifacts, thereby vindicating (1).

Is this a plausible way of handling the above counterexamples in defense of (1)? I don't think so, for two related reasons. First, this account of artifact function conflates two importantly distinct phenomena: the reason the maker had for making something and the function that the product of their making has. Consider the following scenario: I get into a fight with my boyfriend and after the dispute I need to calm down, which I do by engaging in carpentry in the garage. After the fight, I go to the garage and build a chair. According to Dipert's account, it

¹⁷³ Note that Dipert talks of artifact and artwork purposes, rather than functions, but this is a mere terminological difference.

seems we have to say that the function of the resulting chair is, at least, to help me calm down. But intuitively, the chair's function isn't for helping me calm down – that was just the reason I had in making it. Rather, the chair is for sitting. Sometimes I may make a chair expressly for sitting because I need a new chair for my study. But the function of such a chair isn't *being a chair for my study*, that's just *why* I made it. The chair's function is still for sitting. If we go Dipert's route, we end up over-attributing functions and worse we collapse the distinction between *a reason to make X* and *X's function F*.

Perhaps Dipert can assuage this worry by appealing to Millikan's distinction between direct and derived functions. Consider Preston's example of the bread baker: the direct proper function of bread is nourishment, this is what it's for because past instances of bread have successfully performed that function and thus bread is *reproduced* because of previous loaves' success at providing nourishment. However, a baker may also bake bread for the purpose of making an income and the bread can function as a source of income because it has its direct proper function of providing nourishment. Thus, providing a source of income is the derived proper function of these loaves of bread, a function that derives from the baker's intentions and the success of previous loaves to provide nourishment (bread would not be a source of income if it couldn't provide nourishment). Analogously, Dipert could say that my making of the chair to calm down is a derived proper function which derives from my intention to calm down and the direct proper function of the chair, which is for sitting. But here we have a disanalogy: the proper function of chairs is not to calm people down and they aren't *reproduced* because of the success of previous chairs at enabling people to calm down. Helping me calm down seems like a reason not a function.¹⁷⁴

¹⁷⁴ At least in this instance. A stress ball has the intended function of calming someone down.

With respect to the bread baker, we can distinguish cases that involve direct and derived functions and distinct reasons for baking. For example, consider Preston's example again, except imagine that the baker needs to decide between baking sourdough loaves or baking rye loaves. The baker settles on rye, even though sourdough sells better, because rye was his dead wife's favourite kind of bread. The bread still has the direct proper function of providing nourishment and the derived proper function of providing an income, but also the reason why the baker made *this* bread is that it was his dead wife's favourite. Rye being his dead wife's favourite bread is the reason he baked it, not the bread's function, either direct or derived. Again, it seems clear that we should keep these phenomena distinct.

Second and relatedly, Dipert's view attributes the wrong function to the wrong entity. In both the case of the chair made after the fight with my boyfriend and the results of play such as a pyramid of stuffed animals or the spaceship made from Lego bricks, Dipert's view says that it's the function of the *chair* and the *pyramid* and the *spaceship* that they be for calming me down and entertainment, respectively. But it's the *making of* the chair not the chair itself that aids in calming me down after a fight. That is, the activity of production, not the product is what I have reason to do to calm down. Dipert's view would erroneously ascribe that 'function' to the product rather than the production. It would be weird if later you see that I need to calm down so you hand me the chair I made. Similarly, children construct a spaceship out of Lego or a pyramid out of stuffed animals in order to play. They engage in the construction of such artifacts because they are playing – this is an immediate reason to engage in such an activity. But it is the activity itself that is the entertainment not the resulting object (although they can, of course, play with the spaceship after having built it). They are entertaining themselves *by* building such things. Thus, it is the activity of building which they have a reason to do, not the result, but again, Dipert's

view would erroneously ascribe the entertainment function to the resulting artifact. Rather, the artifact isn't for anything, but building the artifact was done for a reason – play.

Dipert's view does secure (1), but at what cost?¹⁷⁵ I've argued it collapses an important distinction between reasons to make X and the function of X and it misattributes the putative functions to the object when they are properly attached to the activity of production itself. We seem to have lost explanatory power rather than gained it. Describing functions so broadly in terms of general human purposes also makes every reason a function, in which case artifacts would have far more functions than they intuitively have.

However, there's a nearby response that could save (1). Almost everyone accepts the intention-dependence condition on artifacts; to be an artifact is to be intentionally created by a person. We also noted previously that makers can't just intend to make something of a given kind, they also need to do something by intentionally (and successfully) bestowing various features on their creation. When I intend to make a chair, I intend it to be made of wood, to be for sitting, to be used in the dining room (as opposed to my workbench in the garage), to have such and such aesthetic features, and so on. I'm successful to the degree that my creation matches the features I intended to bestow upon it. One could say that, if a person intentionally creates something, then that thing automatically has the function of satisfying the maker's intention. As a result, every artifact has a function, even Hilpinen's triangular cardboard cut-out, which satisfies its maker's intention to make a triangular cardboard cut-out, thereby securing (1).

¹⁷⁵ Dipert defends a general function essentialism along with both intention-dependence and physical modification. He (1993, 23-33) makes a tripartite distinction between instruments (unmodified objects used for some purpose), tools (modified objects used for some purpose), and artifacts proper (modified objects used for some purpose and intended to be recognized as modified for that purpose by other agents). Since he also argues that all artworks are artifacts, it's crucial that functions be found for all artworks.

What's wrong with this 'deflationary' approach to function essentialism? First, note that, like Dipert's reason for making approach, it isn't compatible with condition (2), since it wouldn't yield a kind-specifying function. More importantly, it doesn't seem like the concept of *function* is doing any real explanatory work in such an account of artifact essences. If we want to know what the essential natures of artifacts is, it's not particularly illuminating to be told that to be an artifact is automatically to have the function of satisfying its maker's intention. Any substantive explanation of what this amounts to appeals to the features the maker intended to bestow on their creation – the function 'satisfying the maker's intention' doesn't add anything beyond the appeal to the maker intending to bestow certain features and having successfully done so. In fact, if I intend to make a chair and one of the features I intend to bestow is that it be for sitting someone, then it has (at least) two functions: being for sitting and satisfying its maker's intention. Only the first one is what we intuitively recognize chairs as being for. Hilpinen's triangular cardboard cut-out doesn't have an intended function, but it does have various intended features such as being triangular and being made of cardboard.¹⁷⁶ It is these features that are doing the explanatory work in virtue of satisfying the maker's description. Additional talk of artifacts being functional objects because they all satisfy their maker's intention is explanatorily idle.

Additionally, since almost all those who accept function essentialism adopt some version of Millikan's account of proper functions, the function of 'satisfying the maker's intention' isn't why chairs get reproduced, it's because they successfully seat someone. Of course, one could object that successfully seating someone is satisfying the maker's intention, but again, it's the features the maker intended to bestow that are doing explanatory work, not the satisfaction of the

¹⁷⁶ Hilpinen (1992) himself adopts an intentionalist account of artifacts where they need to satisfy (to some degree) their maker's associated type-description, but he doesn't take this to be a function of the resulting artifact. See also Bloom (1996) and Thomasson (2007a) for such intentionalist approaches.

maker's intention by those features. Such a deflationary explanation looks especially odd when we deploy it in cases of action. For example, if someone asks me why I raised my hand in the council meeting, then I give at most a glib response when I say that I was intending to satisfy my intention to raise my hand. Rather, the action's function was to notify others that I had a comment or question, so it's at best trivial that in doing so I satisfied my intention to do so. We should therefore reject this deflationary approach to function essentialism and concomitantly maintain our rejection of (1).

4.4 Problems with the Kind Membership Condition

So much for the artifact condition. We formulated the kind membership condition as:

- (2) *Kind Membership Condition*: Necessarily, for all artifact kinds *K*, there is some function *F* which all and only members of *K* have.

It may seem redundant at this point to consider (2), since a rejection of (1) entails a rejection of (2).¹⁷⁷ Despite this, I think it's instructive and interesting to consider why (2) fails on independent grounds. With respect to (2), one can offer counterexamples to either direction of the biconditional. That is, (2) claims both that there's a function that all members of a given artifact kind have *and* that no other artifacts have that function which aren't also members of the given kind. Consider the second conjunct: it says that each artifact kind has a *unique* function which determines membership in the kind. Hence, no two artifact kinds can share a function. But how do we individuate the functions of artifact kinds? Millikan's account of proper functions says nothing about individuation. Intuitively, a chair is a piece of furniture for sitting on.

¹⁷⁷ If some artworks, doodles and toys don't have functions then *ipso facto* not all members of the artifact kinds they belong to have a unique, shared function.

However, lots of things are for sitting on: stools, sofas, benches, ottomans, and so on. Maybe chairs are pieces of furniture for seating a *single* individual. Sofas, benches and ottomans are for seating multiple people so this differentiates them from chairs, but stools are also for seating a single person. At least some artifact kinds seem to share a function.

One can avoid this result, as we saw the realists attempt to do in chapter 2.¹⁷⁸ However, this requires individuating function *very* narrowly so that the output function is tied to a particular structure. Maybe a chair is for seating a single person *with back support*. This won't work though, because some chairs don't have backs while some stools do have backs. Artifact kinds need to be individuated far more finely than *chair* to avoid this problem. We already saw ample reason not to go this route, most importantly because it individuates artifact kinds in far too revisionary a fashion, e.g. *chair* isn't a real artifact kind but *Eames 1957 desk chair* is. It seems that having a particular function isn't *sufficient* for being a member of a given artifact kind since distinct artifact kinds may have the same function.

Nonetheless, one could weaken (2) so that it only offers a *necessary* but not a sufficient condition on artifact kinds, namely, all members of the kind need to share a function, but other artifact kinds may also be (partly) individuated by the same or similar function. However, the first conjunct is equally susceptible to counterexamples. There are cases akin to the artist examples above that show that all members of a kind need not share a function. For example, Paul Bloom (1996, 5-6) argues that there's nothing incoherent about someone intending to make a boat but expressly not intending that the boat ever end up in water. Nonetheless, if it had other structural and material features typical of boats, we would intuitively classify it as a boat, even

¹⁷⁸ Soavi (2009b), Franssen and Kroes (2014), and Elder (2007, 2014) all individuate artifact kinds by function but in order to get a unique function they tie the output to a particular structural-historical property, e.g. a slotted screwdriver is for fastening things together in conjunction with slotted screws, which developed in a particular historical context.

knowing that the maker didn't intend it to function in the way most boats do.¹⁷⁹ Similarly, makers may make an artifact, such as a chair, and intend it to be only 'for show' and not ever for being sat upon. This applies to many *model* artifacts, which are often intended to illustrate aesthetic or structural features of the kind but not the function and indeed sometimes the models are unable to perform the function associated with the kind. Even if such an object had the requisite causal powers to support a single seated person, the maker's intention that it not be for sitting on seems to overrule any attribution of function of this sort.¹⁸⁰ Makers appear to have the ability, in principle, to explicitly intend to make an artifact of a given kind without intending that that artifact have the function normally associated with that kind. Thus, the first conjunct of (2) is false: not all members of a given artifact kind K need share a function.

One could try to resist Bloom's showroom counterexamples to the necessary condition in (2). In response to Bloom, Evnine (2016, 124fn5) argues that *not intending to X* isn't sufficient for *having the function not-to-X*, both because functions need to come from intentions rather than a lack of intentions and because he doesn't think *not-Xing* can be plausibly attributed as a function. Recall that Evnine makes the distinction, roughly parallel to Millikan's direct/derived distinction, between kind-associated and idiosyncratic functions (2016, 199ff.). Evnine argues that for an artifact to have some function F associated with artifact kind K, a maker needs to intend to make a K, *not* intend to make something that F's. According to Evnine, this is because F is *necessarily* associated with *being a K*, so not only are functions *kind-associated* but *kind-*

¹⁷⁹ Initial computers and modern computers may be another case: the first computers don't share many functions with modern computers such as accessing the internet, allowing one to write documents, playing games, and so on. However, they do both function as *computing* machines, so perhaps it's sufficient that members of an artifact kind share at least one function.

¹⁸⁰ There seems to be ample psychological research purporting to show that children classify artifacts by makers' intentions. However, other research suggests that infants take function to be central when it is coupled with makers' intentions. See Bloom (1996, 1998), Malt and Sloman (2007), Mahon and Caramazza (2007), Keleman and Carey (2007), Keil, Greif, and Kerner (2007), Mandler (2007), Gelman (2013), Roversi et al. (2013) and Taborda and Cheries (2017) for representative discussion.

dependent, i.e. which function an artifact has is dependent on which artifact kind it belongs to (2016, 122). Thus, Evnine thinks that Bloom is wrong that a showboat or show-room chair doesn't have the function of transporting goods or people over water and seating a single person, respectively. Rather, in virtue of being boats and chairs, they have their respective kind-associated functions.

What about their idiosyncratic functions? As I mentioned, Evnine thinks that an artifact can't have a function of *not-Xing* since one cannot bestow a function merely with a lack of an intention that it have that function. Instead, Evnine (2016, 123-124) recognizes that kind-associated and idiosyncratic functions can conflict. In Bloom's showroom cases, the artifacts have the kind-associated function in virtue of being a member of that kind, but also have an idiosyncratic function bestowed by their maker. These two functions happen to be incompatible, e.g. 'being for transporting goods and people over water' and either 'not being for transporting goods of people over water' (according to Bloom) or 'being for show' (according to Evnine). The idiosyncratic function in this case suppresses the kind-associated function. Bloom's showboat thereby has both the kind-associated and idiosyncratic function, so isn't a counterexample to sharing a function as a necessary condition on artifact kind membership.

What are we to think of Evnine's response to this class of counterexamples? At least as an empirical claim about makers' intentions, it seems that it's in principle possible for makers to intend to make something with the function F, *rather* than intending to make a K and thereby make something with the function F. But this doesn't really address Evnine's claim that Bloom's show-room examples have both a kind-associated and idiosyncratic function which conflict. I'm inclined to simply deny that a showboat has the function of transporting goods and people over bodies of water, partly because the maker would justifiably offer a rebuke to someone who used

it in this way: “That’s not what that thing is *for!*” Such a rebuke carries normative force it seems, in part, because the maker’s intentions are authoritative with respect to the functions of their creations. Someone would be *using it wrong* if they were to try to use the showboat in water. Things get complicated quickly here, because the normative force of the maker’s intention may be mitigated by ownership, i.e. if someone other than the maker comes to own the boat the rebuke is less forceful. The issue of the normativity of artifacts is complicated and occurs along a variety of dimensions. For now we can recognize that such a rebuke does have normative force and this gives us a *prima facie* reason to viewing the boat as not having the function of transporting goods and people over bodies of water.

Another concern with Evnine’s view is that it cannot account for artworks. I argued previously that artworks are a kind of artifact, but we’ve seen many cases that suggest that there is no single function shared by all artworks. They can be for things as diverse as income, representation, emotional expression, political propaganda, cultural revolution, moral education, displaying beauty, being appreciated in a certain way, or they can be for nothing at all. There’s no readily identifiable kind-associated function that would be shared by all members. Many artworks would only seem to have idiosyncratic functions or no functions whatsoever. So Evnine’s response to Bloom doesn’t work for at least one very important sub-kind of artifact.

In a sense, considering Evnine’s view and response to Bloom is otiose because, while Evnine hopes that some version of function essentialism works, he ultimately is skeptical that any general thesis like (1) is plausible (2016, 129). In particular, he thinks it may be hopeless to identify functions for many artworks, so (1) is false. But if (1) is false, then the necessary condition in (2) is also false because if some artifacts don’t have a function, then not all members of an artifact kind will share a function (note that the claim is not that all art lacks a function,

only that some does). However, Evnine (2016, 129) does suggest that functionless artworks may be derivative of, and ultimately dependent upon, the presence of functional artifacts in a culture. That is, a culture can't have artworks without having functional artifacts first, and thus there is a way in which we could capture something important about the relation between artworks and other artifacts, namely the former are privative versions of the latter.¹⁸¹ This would be a much weaker version of (1) and seems to have abandoned the spirit of function essentialism. Nonetheless, Evnine's hopelessness suggests an alternative response to saving some version of (1): restrict function essentialism to a certain large subset of artifacts and exclude artworks as *sui generis* artifacts.¹⁸² I consider this view in the next section.

4.5 Appeal to Technical Artifacts

Evnine's view suggests an alternative that saves function essentialism for a large and important subset of artifacts. That is, the defender of function essentialism who, like Evnine, is skeptical that functions can be found for all artworks, can restrict the view to so-called *technical artifacts*, thereby securing function essentialism for the vast majority of artifacts. The notion of technical artifacts is often mentioned in the literature, but it isn't usually defined.¹⁸³

There have been at least some attempts in the literature to give at least a rough characterization of the distinction. For example, Lynne Baker restricts her account of artifacts to technical artifacts, defining them thus:

¹⁸¹ The claim about cultures could either be a metaphysical or empirical claim. At least as the latter, though, it's hard to imagine a culture that *only* had artworks but no artifacts, but of course conceivability is no guide to anthropology.

¹⁸² The view that artworks are *sui generis* artifacts is defended by Levinson (2007).

¹⁸³ Those who appeal to technical artifacts include Vermaas and Houkes (2003), Baker (2007), Scheele (2006), Vermaas (2009), Krohs (2009), and Kroes (2009). Baker is the only one to give any clue as to what the distinction amounts to. However, with the exception of Baker, the interest in technical artifacts is less about explaining the nature of artifacts and more with explaining the nature of artifact functions.

Although the category of artifact includes sculptures, paintings, literary works, and performances, I shall put aside these fascinating artifacts and focus only on artifacts that have practical functions.

My concern here is with an important subclass of artifacts – technical artifacts, the material products of our endeavors to attain practical goals. Such artifacts are objects intentionally made *to serve a given purpose* (2007, 49).

Baker takes the technical/non-technical distinction to be between artworks, which she takes to be functionless, and all other artifacts, which she assumes serve some practical purpose. But marking the distinction in this way isn't helpful. First, it assumes that all artworks lack functions. Second, it assumes that all non-artwork artifacts have functions. Third, as a basis for defending function essentialism, it is patently question-begging. We've already seen that many artworks are explicitly intended to have functions. We've also seen that some non-art artifacts, such as sandcastles, lack a function. Baker is simply restricting her account of artifacts to those artifacts that have a function. But this doesn't tell us how to distinguish the functional from the functionless artifacts, it just assumes that there is such a distinction. It certainly can't be made, as Baker and Evnine would have it, by appealing to artworks.

Alternatively, perhaps one could draw the technical/non-technical distinction using technological sophistication. This is perhaps the motivation behind the 'technical' moniker. Technical artifacts are objects like airplanes, nuclear attack submarines, the Large Hadron Collider, cellphones, laptops, GPS satellites, and the like. These are technically sophisticated artifacts. Non-technical artifacts are things like the driftwood sculpture or a doodle or sand castle, which aren't technically sophisticated, i.e. they don't involve or were produced by means of, technologically complex artifacts or processes. The obvious problem with this approach is that technological sophistication is a matter of degree. Hammers, cups, and chairs have functions but aren't particularly complex artifacts. Indeed, hammers are some of the earliest tools to be

used by our ancestors. Similarly, one could make an incredibly technologically complex artwork which has no function (maybe akin to a Rube Goldberg machine or computer art).¹⁸⁴ As a result, we have technologically complex artifacts which lack a function and technologically simple artifacts which have a function. This approach doesn't yield a principled distinction between technical and non-technical artifacts and it fails to capture what it set out to do, namely carve up the set of artifacts in order to defend function essentialism for a given subset of them.

An alternative way to precisify the distinction is to restrict technical artifacts to those artifacts that are the proper study of, or result from the application of, engineering and engineering practice. As we saw with Lowe in chapter 2, this isn't particularly promising since a wedge made to hold open a door is the application of engineering knowledge and practice. So is a screw-on lid of a peanut butter jar – a very particular kind of force needs to be applied to the lid to remove it. Virtually every artifact is the result of applying engineering knowledge; some artworks involve the application of engineering knowledge so would count as 'technical' artifacts in this sense. Nonetheless, they could in principle lack a function. Appealing to engineering practice is thus of no help.

Finally, the defender of function essentialism could opt to follow Baker and just insist that technical artifacts are those that have functions (be they artworks or non-art artifacts) and claim that function essentialism holds for them. One could do this, but it doesn't seem to establish the *essentialist* thesis. It's just a way of saying that those artifacts that have functions, have functions. It's not at all obvious that they have their functions *essentially*. Some argument would be needed for the essentialist claim and short of this, we shouldn't endorse such a

¹⁸⁴ See Lopes (2009) for discussion of computer art.

thesis.¹⁸⁵ Besides, this would be a Pyrrhic victory since our initial inquiry is attempting to describe the essential features of artifacts and artifact kinds. The appeal to technical artifacts, even if it could support an essentialist claim, wouldn't apply to all artifacts. Thus, while our practices clearly give pride of place to artifact functions, this doesn't seem to be an essential feature of being an artifact or being a member of a given artifact kind.

4.6 Conclusion

This chapter has explored the intuitive, but false, presupposition that artifacts are essentially functional objects and the concomitant claim that artifact kinds are united by a unique, shared function. I've explicitly formulated both claims and argued that there are clear and compelling counterexamples to both, while considering various ways to resist those counterexamples. Further, I considered restricting the function essentialist claim to a subset of artifacts, technical artifacts, but I argued that this wasn't feasible.

While we've seen reason to reject function essentialism, this leaves unexplained the central role that functions play in both artifact creation and categorization. It's undeniable that the vast majority of artifacts are functional objects and indeed were explicitly created to serve some function or are appropriated to serve an alternative function by users. This fact is probably why function essentialism seems so plausible. In the next chapter, I'll develop my own view of artifacts which will help account for the centrality of artifact functions and thereby accommodate, at least in part, the intuition behind function essentialism.

¹⁸⁵ Claims about essence typically involve intuitions one has about identity and kind-membership in counterfactual cases. It's not at all obvious that something that is, say, a chair essentially has the function of being for seating a single person. I have the intuition that this very same object or kind of object could have been for something else (such as being purely a marker of social status) yet still be a chair.

CHAPTER 5: INTENTIONS, CRITERIAL FEATURES, AND COLLECTIVE MIND-DEPENDENCE

5.1 Introduction

So far, we've explored a number of common proposals for essential features of artifactuality: physical modification, intention-dependence, and function essentialism. I've argued that intention-dependence is the default view based on the pragmatic constraint, while the physical modification requirement and function essentialism need to be rejected for both theoretical and practice-oriented reasons. It's now time to take stock of where we are and put forth a positive theory of artifacts and artifact kinds by unifying the conclusions of the previous chapters.

Intention-dependence is the default view about artifacts – almost everyone accepts this feature of artifactuality and it seems firmly embedded in our practices. In chapter 2 we saw reasons not to buy into the realist mind-independence proposals, while in chapter 3 we saw further reason not to reject intention-dependence in the face of swamp cases and the like. Further, I also argued in chapter 3 against the view that artifacts exhibit a general mind-dependence *without* intention-dependence, as suggested by cases of accidental creation and cases of automated production. In chapter 3, I also argued against the common view that artifacts must be things that have been intentionally physically modified. On such a view the intention must be guiding the physical alteration of some material stuff, the resulting product of which is an artifact. I offered numerous counterexamples which showed it's intuitively implausible despite the fact that *most* artifacts are the result of physical modification.

With putative counterexamples to both mind-dependence and intention-dependence set aside, and the physical modification condition rejected in the face of further counterexamples, we arrived at the position that artifacts are intention-dependent and that we can create artifacts by appropriating pre-existing objects without intrinsically physically modifying them. But as Mag Uidhir has argued, we know that the intention-dependence criterion is pretty thin – it's not just that artifacts are intention-dependent, they also need to be *attempt*-dependent. That is, makers can't just intend to make an artifact, they actually need to *try*, whatever that may involve.

The other dominant view of artifacts is that they are essentially functional objects. I explored function essentialism at length in chapter 4, formulating its two component conditions explicitly – the artifact condition and the kind membership condition – and offering a gamut of counterexamples to each. After disposing of various potential responses to those counterexamples, as well as considering attempts to restrict function essentialism to so-called technical artifacts, we end up in a position where artifacts often are intended to have functions and we frequently group artifact kinds by a shared function, but in neither case is this essential to artifactuality.

While intention-dependence is a key component of artifactuality, we haven't said anything about the content of makers' intentions. While artifacts are often but not necessarily functional objects, we can't just intend to make anything. Except in some dubious Kafkaesque cases, a chair is not a submarine. If makers need not intend to bestow a particular function on an artifact, there must be some other constraints on their making. Thus, there must be *some* features which makes something a chair and some other features which make something a submarine. Such features probably include a particular function, but they may also include a variety of other

criteria. Thus, general constraints on the content of makers' intentions and on the criterial features of artifact kinds need to be specified.

In addition to specifying constraints on makers' intentions and specifying what criterial features govern artifact kinds (and by extension makers' intentions), the appropriation cases from chapter 3 also suggest that in some cases the mind-dependence isn't on a lone individual, as it typically is on the maker, but that a maker's success may depend in part on the intentions or mental states of others. That is, whether a maker was successful at making an artifact sometimes seems to depend on whether it is accepted as such by others or if it conforms to certain public norms specifying how it should be used. For example, whether the rock I bring in is successfully appropriated as a doorstep may depend on whether the rest of my household accepts it as a doorstep and use it, regard it, and treat it as doorstops are normally treated, as well as whether they accept my rebuke for not treating it as doorstops are to be properly treated by, e.g., putting it back in the garden. Taking such practices at face-value, we need to accommodate the seemingly *collective* mind-dependence of artifacts.

The goal of this chapter is therefore threefold. First, I will specify some general constraints on makers' intentions, which largely follows previous discussion by Hilpinen, Bloom, and Thomasson. Second, I'll specify what criterial features unite artifact kinds and concomitantly how these features constrain makers' attempts to create artifacts and their intentions to make something of a particular artifact kind. One upshot of this discussion will be that it allows us to, at least partially, unify accounts of artworks and other artifacts. Third, I'll expand the account that results from the first two goals to accommodate *collective* mind-dependence, including the particular properties of the dependence relations that result. Addressing these three goals will thereby yield my account of artifacts, incorporating results

from the previous chapters and showing how artifacts are created and what success conditions govern that creation. This will then leave us in a position to address two residual issues in the remaining chapters. First, the account of artifacts I develop makes essential reference to making artifact *kinds*, so this naturally raises the question of what makes a kind an *artifact* kind (chapter 6). Second, with an account of the essential nature of artifacts in hand, we will be in a position to explain how the reference of artifact kind terms works (chapter 7).

The chapter is structured as follows. In section 2 I discuss intention-dependence as the default view and what constraints we might initially introduce on makers' intentions. In section 3 I discuss the criterial features which determine membership in an artifact kind, which concomitantly constrain makers' intentions. I outline the different sorts of criterial features that govern membership in artifact kinds and argue for a cluster or family resemblance view of artifact kinds, similar to Berys Gaut's (2000) cluster theory of art. I then consider two conditions introduced by Thomasson between strict and loose artifact kinds and the requirement that makers require a substantive conception of what they're trying to make and argue that this condition is too strong. Unifying the discussions in the previous two sections, section 4 presents an initial account of artifacts and offers a first-pass at their success conditions. Section 5 then adds to the initial account of artifacts by including cases of collective mind-dependence. I consider three proposals previously made in the literature, namely those by Dipert, Thomasson, and Scheele, and take aspects of these accounts and incorporates them into the initial account given in section 4. The result is that the account of artifacts we arrive at is disjunctive: artifacts can either be mind-dependent on a single individual or they can also be dependent on social groups and public norms. Section 6 then considers different kinds of dependence relations and I supplement my account with a more precise account of the mind-dependency relations exhibited by artifacts,

before incorporating the disjunctive account into the initial view of artifacts that I developed in section 7.

5.2 Intention-Dependence

Our practices surrounding artifacts support the pre-theoretic claim that artifacts are intention-dependent. We commonly view artifacts as things made, usually by humans and usually for some specific purpose, although some non-human animals also appear to engage in tool construction and use. Artifacts are distinguishable from natural objects at least insofar as natural objects occur on their own, in nature, without the intervention of humans or anything else with mental states. It's not just that artifacts depend on mental states, but specifically that they are things that are made intentionally. When I'm hiking in the Alps and loudly say to my companions, "I hope there won't be any avalanches" and the loud noise causes an avalanche, quite unintentionally on my part, the avalanche is not an artifact, even though it (causally) depends on my mental states (the intentional production of words at a certain cadence). Thus, while the avalanche is, in a sense, mind-dependent, it isn't artifactual.¹⁸⁶ By contrast, when I'm cutting, sanding, varnishing and gluing together a bunch of wood with the intention of making a table, then I am in the process of making an artifact. After I've put all that wood together, the result is a table – a table that resulted (necessarily) from my intention to make a table. Something shaped exactly like it but which occurred naturally or by accident is not a table.¹⁸⁷

¹⁸⁶ Recall from chapter 2 that the sense of mind-dependence we're concerned with regarding artifacts is *constitutive*, not *causal*, mind-dependence.

¹⁸⁷ Though I argued at length in chapter 3 that such an object could *become* a table if appropriated as such by e.g., intending to use it as tables are normally used, by telling other people it's a table, by treating it and regarding it as tables are normally treated and regarded, and so on

Mag Uidhir (2013) argues that artifacts aren't just intention-dependent, but they must also be attempt-dependent. That is, I can't just sit here and intend to make a table, I actually need to do something. My intention needs to be executed and a successfully executed (i.e. attempted) intention results in an artifact. Back in chapter 3, I formulated the intention-dependence condition as:

Intention-dependence of artifacts (IDA): x is an artifact only if x is the successful product of an attempt to make an artifact.

I defended this condition in chapter 3 against a variety of counterexamples, so I will assume it from here on out. Since an attempt to ϕ entails an intention ϕ , this condition entails intention-dependence. What exactly a successful *attempt* to make an artifact involves is a complicated question, which I will defer until later in this chapter. First, I want to explore what initial conditions are required on the intention itself. That is, what do makers need to do to *intend* to make an artifact? Note that I'm not asking the more general question of what it is to intend something, but the more specific question of what it is to intend to make an artifact.¹⁸⁸

One prominent suggestion has been put forth by Paul Bloom (1996).¹⁸⁹ Bloom takes inspiration from Jerrold Levinson's (1979) view of artworks, whereby artists make artworks by intending to make an artwork (of a given kind) and 'artwork' refers to what has been historically properly regarded as works of art. Artists therefore intend to make something that is to be regarded as artworks have historically been regarded. Thus, artists have a 'backwards' intention to make such a thing. For example, if I intend to make an Impressionist painting, I intend to make something that has historically been regarded, appreciated, and treated as Impressionist paintings have historically been regarded, appreciated, and treated.

¹⁸⁸ You can plug in your favourite account of intentions to my account of intending to make an artifact.

¹⁸⁹ See also Bloom (1998).

Bloom (1996, 9-10) suggests that for a maker to make an artifact they need a similar backwards intention to make ‘one of those’. When I make a table I have an intention to make one of those things and I succeed if the result of that intention (my attempt) is a table. But notice that this seems to require that I intend to make a particular *kind* of artifact. *Prima facie* it doesn’t seem like someone can have a backwards intention to make an *artifact* without having that be an intention to make a more specific kind of artifact. I can’t just intend to make an artifact – that’s too general – and then do a bunch of stuff and the result is an artifact if I’m successful, because my intention doesn’t seem to have any success conditions, i.e. the intention isn’t specific enough nor could any attempt be guided by anything. On the plausible assumption, briefly discussed in chapter 3, that all artifacts belong to some artifact kind, then to intend to make an artifact I must intend to make a particular kind of artifact K, such as a chair, table, or pinball machine. Bloom’s view, then is that makers need a backwards intention to make *one of those*, where the ‘one of those’ must be a particular artifact kind. To make a chair I intend to make something of the same kind as (successful) current and previous chairs (Bloom 1996, 11-12).

Risto Hilpinen (1992) advances a similar view as Bloom, but Hilpinen gives general conditions on creating an artifact, rather than casting it in terms of making a specific artifact. However, he includes in his condition on agents’ intentions that the intention is successful if the artifact satisfies some type-description included in the agent’s intention (Hilpinen 1992, 61). This implicitly includes artifact kinds since the agent could, as Bloom suggests, intend to make a chair and simply have ‘chair’ be her type-description of what she intends to make. However, Hilpinen doesn’t require the backwards-looking intention that Bloom does – a point to which I’ll return shortly.

While Bloom's view seems initially plausible, it faces two problems. First, because Bloom is explicitly following Levinson, he inherits a difficulty that Levinson's historical account of artworks faces, namely the problem of Ur-artifacts, although novel prototypes pose the same problem. The problem with both accounts is that they require makers, be they artists or craftspeople or whomever, to have an intention which makes reference to previous members of the kind of thing they are intending to make and makers of those previous members of the kind would have had the same intention to make 'one of those', and so on. Since neither artworks nor different kinds of artifacts have existed forever, this chain of backwards intentions needs to come to an end somewhere, namely with the first instances of the kinds. Given that this historical intention is supposed to yield a necessary condition on all artifacts, how then could the first artwork or the first chair ever come into existence? The first chair maker couldn't have intended to make 'one of those' since *ex hypothesi* chairs didn't exist yet.¹⁹⁰ Assuming all artworks are artifacts, then this problem boils down to how prototypes could ever initially come into existence.

How could someone sympathetic to Bloom's historical-intentional account get around this difficulty? Prototype makers have no previous members of the kind to refer to – that's why they're making a prototype. But they clearly intend to make *something*. The Wright brothers surely had an intention to make something with specific features, notably fixed wings and the capability/function of flying while carrying a human passenger, and various other features. What the Wright brothers did was create a new kind of transportation device – the first fixed wing aircraft – by intending to create something with some particular features and successfully executing that intention by making a vehicle that had those intended features. Thus, what the

¹⁹⁰ See also Thomasson (2007a, 58-59) for this objection.

Wright brothers did was create the first instance of a new kind of artifact – the prototype – but they lacked a backwards-looking intention. Nonetheless, they still had an intention to make such a thing. So it seems that, at least in the case of prototypes, the historical component isn't necessary. A general intention to make something is required to make a prototype and that intention seems to involve intending to make something with specific features.

A natural conclusion to draw at this point would be to say that the intention condition on artifacts is disjunctive: makers either need to intend to make 'one of those' for artifact kinds which already exist or they need to intend to make something with some specific set of features, for prototype artifacts. However, at this point we run into the second problem facing Bloom's view. The second problem, raised by Thomasson, is that even in non-prototype cases, makers can't just intend to make 'one of those' without having some more specific or robust sense of what *those* are (2003b, 595-6; 2007a, 58-59). For example, I can't intend to make a tulwar – an artifact kind which already exists – without any idea of what tulwars are. Without knowing what a tulwar is, how could I even begin to attempt to make one? I need to have some understanding of what makes something a *tulwar* in order to intend and subsequently attempt to make one.

Bloom seems to be aware of this difficulty, though, but how he proposes to solve it is somewhat unclear. He introduces the case of a madman who intends to make a chair by pushing a little pile of dirt together and subsequently claims that he's made a chair (1996, 19-20). Intuitively, the little pile of dirt isn't a chair because the madman doesn't seem to have the right concept of what a chair is. Bloom claims that we regard the madman as having failed to make a chair either because he doesn't share our concept of chairs or our respective concepts don't sufficiently overlap. This is just to say that makers need some idea of the thing that they intend to make. I can't make a tulwar without knowing that it's a kind of sword, typically made of metal,

with a particular shape and a honed edge on one side, and so on. Similarly, Bloom's madman needs to know that chairs are normally for sitting a single individual, they're usually raised off the ground on legs with a flat seat to support one's tushy, they typically have back support and are made out of materials strong and durable enough to support an average human's weight. Presumably, given what the madman came up with and declared a chair, he lacks any such idea of what chairs are, which is why he failed to make one.

This apparent concept-dependence of artifacts is present in both cases of prototypes and non-prototype artifacts. Prototype makers like the Wright brothers or Alexander Graham Bell can't just intend to make a fixed wing aircraft or a telephone, respectively, without having some idea of what these are. It just so happens that what such artifacts are seems largely up to the initial prototype makers. By contrast, when I intend to make a chair or tulwar I need some idea, some concept, of what chairs or tulwars actually are, which current and previous makers of these kinds hold. Otherwise, my intention will be undirected and only by pure happenstance could I come up with something that has the features of a chair or tulwar. Without a concept of chairs, the madman is, quite literally, just pushing dirt around. As a result, it seems the historical aspect of the intention isn't necessary in either prototype or non-prototype artifact cases. What's doing the work is the concept the maker has of what they're trying to make, be it either something that already exists or something completely novel.

We can now appreciate Hilpinen's artifact condition: something is an artifact only if it satisfies the type-description included in the maker's intention. This doesn't require the backwards-looking intention from Levinson and Bloom, but does recognize that makers need some concept of what they're making. To use Hilpinen's example, I intend to make a new kind of garment by intending to make an object that satisfies my type-description 'short skirt' and I

thereby make a prototype – a miniskirt (1992, 68). Similarly for extant artifact kinds: I make a chair by intending to make an object that has certain features (my type-description) such as having a seat, a back, legs, being made of wood, having the function of seating a single person, etc.

Thus, the intention condition on makers, *pace* Levinson and Bloom, doesn't require a backwards, causal-historical intention to make 'one of those'. Rather, it requires that makers intend to make an artifact of kind K and concomitantly that they have some concept of Ks by having an idea of the features that make something a K. This naturally raises the question of what features go into artifact kind concepts which guide makers' intentions, or the parallel question of what makes something a member of a particular artifact kind.

5.3 Criterial Features

Intention-dependence is therefore necessary to be an artifact. Makers must intend to make an artifact and moreover intend to make an artifact of a particular kind, such as a pagoda or gazebo. In order to do so, makers must have some idea of what they make; they need some conception of what it is to be a gazebo in order to have any idea of *how* to make one. Bloom's madman case shows clearly that there are some constraints on makers' intentions which guides their making – there must be some features which makes something a chair rather than a pencil which guide and constrain makers' intentions, but also features that make something a chair as opposed to a failed chair, a non-chair, or a poor or exceptional chair.

The question, then, is what features determine membership in different artifacts kinds. In other words, what features are *criterial* of a given artifact kind K. We saw in chapter 4 that function isn't essential to being an artifact nor is possession of a shared function essential to

being a member of a particular artifact kind. Nonetheless, function often seems to play a central role in determining kind membership, so that we generally think something is a chair or was intended to be a chair, if it was intended to seat a single person.¹⁹¹ Any account of artifacts should accommodate the centrality of function.

If you think of a chair, paradigmatic cases will pop into your mind, likely including the office chair you're now sitting on or perhaps your dining room chairs, or in the likely event you're a philosopher, maybe you'll think of the infamous armchair. What do these things have in common in virtue of which they're all *chairs*? In chapter 4 I argued that the answer can't be that they share a common function since it seems *prima facie* possible that someone can intend to make a chair that expressly isn't for sitting, but instead is only 'for show', as Bloom has argued. Nonetheless, paradigmatic chairs are clearly intended for sitting.

The centrality of function to artifact kind membership is hardly restricted to chairs. Cellphones are, by and large, communication devices, cars are a mode of transportation, and pencils are for writing. In all such cases, function seems to be the dominant criterion for kind membership. Whether something is a cellphone seems to largely rest on whether it does or is intended to do what cellphones typically do, namely text or call or receive messages and increasingly browse the internet on various apps. Yet none of these functions are restricted to cellphones: landlines send and receive calls, while pagers send and receive text messages and laptops and tablets can browse the internet using various apps. What distinguishes a cellphone from a landline and a laptop or tablet? There is, intuitively, *something* which distinguishes them since we can all immediately identify a cellphone as opposed to a laptop or pager.

¹⁹¹ Or at least we might think this is symptomatic of stereotypical of chairs, since stools and ottomans have a similar function.

While function may be central, other considerations appear to be relevant in determining kind membership. With respect to the difference between cellphones and laptops the most obvious answer is form or structure. Cellphones are handheld communication devices while laptops are larger and are intended to rest on a flat surface. Tablets are then an intermediate category whereby they're handheld but also have much larger screens than cellphones. In this case, the predominant difference seems to be size. So at least in some cases, form or structure seem equally important. Further, the more specific or esoteric the artifact kind, the more specific the criterial features, especially when it comes to form and function. For example, a rheostat has a very specific function (variable resistor that controls electric current without interrupting it) along with a general shape/structure. Similarly, to be a building is to have a (very) general function, but to be a church, A-frame cottage, or bungalow, is to be a building with a much more specific set of criterial features, including function and structure. We can also note that a single criterial feature may be relatively central at a higher level of kind, such as chair, which have a generally circumscribed shape, but the single criterion will become much more specific for different subkinds of chair. For example, while chairs show an impressive diversity (bean bag chairs, thrones, armchairs, desk chairs, etc.) they're all generally constrained in their shape by human anatomy. However, more specific kinds of chairs are determined by concomitantly more specific shapes (rocking chairs, thrones, recliners, etc.).

Compare the above cases with the difference between champagne, prosecco, and cava. The difference between them lies in where they're from: champagne is from France, prosecco from Italy, and cava from Spain. However, differences may also involve the grape varieties (prosecco must be at least 85% of the Glera variety) or the traditional production method, as with cava, or a more specific geographic region, as with champagne production coming from the

Champagne region of France. Again, they all share a function, but what makes a sparkling white wine prosecco as opposed to cava or champagne depends on other criteria.¹⁹²

In some cases, as with the prosecco grape variety, the material constitution of the artifact may be central. For example, one may think that Peking duck is differentiated from other smoked meat dishes by being made from duck and what differentiates it from other duck dishes is the duck being prepared (smoked) in a particular way. Thus, method of production can also be central. Similarly, to be a work of pottery, both material constitution and production method seem central, while shape and function are highly variable – one can make vases, bowls, mugs, and ornaments. In other cases, material constitution and shape are irrelevant, but a general function along with having certain aesthetic qualities may be the central criteria, as seems to be the case with candy or chewing gum, which tend to be determined by sweetness and the intended method or pattern of consumption.¹⁹³

Therefore, artifact kinds may be determined by a wide variety of criterial features and which ones are central for kind membership vary by the artifact kind in question. Thus, while function is often central for a great many artifact kinds, the above cases show that it's often not the overriding consideration even though it may still be quite important. Other criteria, such as shape, material constitution, aesthetic qualities and geographic or historical origin, can also be relevant. A general breakdown of cases by criteria could include:

Function: Cellphones, cars, ICBMs, spaceships, TVs, lamps, rheostats, swords, Kleenex, watches, ear plugs, stiletto (both sword and shoe)

¹⁹² What's the function of sparkling white wine? Perhaps nourishment in beverage form that also provides inebriation? Defining functions for artifacts with any amount of precision can be extremely difficult and there is probably quite a bit of vagueness involved. An intuitive idea of their function is sufficient for present purposes.

¹⁹³ I'm unsure whether gum is a kind of candy; at least, it's usually included in the same displays as candy.

Structure/Shape: Corinthian/Ionic columns, A-frame cottages, thongs, flip-flops, scimitars, bean bag chairs, suspension bridges, Gothic churches, rocking chairs

Material Constitution: Peking duck, prosecco, hydroelectric dams, candles, wood-frame buildings, pottery, wicker furniture, barrels

Geographic/Historical Origin: Champagne, mozzarella, Rolex watch, Greek Tragedy, the Tango

Production Method: Peking duck, pottery, buttermilk, cava, Persian carpets

Aesthetic Qualities: Candy, Impressionist paintings, Greek Tragedy, Gothic churches¹⁹⁴

Different artifact kinds, different criterial features. This list isn't meant to be exhaustive, there could certainly be other features that are relevant to artifact kind membership, while some kinds are determined by more than one criterion.¹⁹⁵

From the above cases, can we conclude that any of these features are either necessary or sufficient for membership in a given artifact kind? That is, could we claim that, say, Peking duck *necessarily* contains duck or having an 'A' roof shape that starts near the foundation is *sufficient* for being an A-frame cottage? In chapter 4 I argued that it seems in principle possible that a maker could always intend their creation to just be 'for show', so it may not share a function with other members of the kind. But this seems far less plausible for the other criterial features. It doesn't seem like I could make an A-frame cottage without it having a steep, 'A' shaped roof that begins close to the foundation. Intending it to be 'for show' would require certain features such as shape. Similarly, it might seem that Peking duck can only be made from duck, and thus

¹⁹⁴ Rheostats are Kornblith's (2007) example, while Ionic columns, A-frame cottages, Peking duck, and candy are given by Thomasson (2003b, 2014). I include hydroelectric dams under material constitution, not in the sense that they must be made out of a specific material like concrete, but in the sense that they must be made out of other material artifacts, such as generators and turbines, although this may be a case of overlap between function and material constitution.

¹⁹⁵ For example, barrels, a type of cask, are usually white oak and are determined by the volume of liquid they can hold.

duck is necessary to be of that kind. So *prima facie* it seems that some criterial features are at least necessary for kind membership.

However, I don't think this generalizes to all artifact kinds. While exhibiting these sorts of clusters of criterial features, some artifact kinds seem to be united by relations of family resemblance rather than possession of strictly necessary or sufficient features. Consider the kind *key*, the paradigmatic case of which is the standard house key. House keys, office keys, shed keys, all have a standard function: opening doors via a correspondingly fitted lock. However, not all keys share such a function. Key pendants and a key to the city are, seemingly, *keys*, but they aren't for opening anything, except metaphorically in the latter case. Nonetheless, a key pendant is intuitively a *key* because it shares a shape with standard keys – in odd cases maybe a house key but more often they are shaped like rustic or gothic 'old timey' keys. By contrast, a key card or key fob is also intuitively a key because it shares the function of opening doors with standard house keys. However, they share neither a shape nor material constitution with paradigmatic keys, being made of plastic rather than metal and shaped like cards or little flattened disks rather than the more typical toothed metal wedge we all keep in our pockets. As a result, the kind *key* doesn't seem to be determined by a single or even joint set of features that are necessary or sufficient for kind membership. Rather, what makes a standard house key a key is the possession of a certain function, shape, and material constitution which has become paradigmatic. What makes a key pendant and key to the city keys is possession of a certain shape and what makes key cards and key fobs keys is possession of a certain function. Thus, key pendants and keys to the city and key cards and key fobs don't share any features which make them keys, but they are both relevantly similar to standard keys such that they're both genuine keys.¹⁹⁶

¹⁹⁶ Wittgenstein (2009) was the first to recognize this sort of family resemblance in the case of games, arguing that there are no necessary or sufficient conditions for being of the kind *game*, but that games are united by overlapping

This cluster or family resemblance view of (at least some) artifact kinds is similar to Berys Gaut's (2000) cluster theory of art. On Gaut's view, we can't give jointly necessary and sufficient conditions for something's being art nor can we even give individually necessary conditions with the exception that art is intention-dependent. Thus, art is a cluster concept with a variety of criterial features, including significant form, expressing emotion, being in an established art genre, being representational, intended to be regarded in a way that art has or should be regarded, displaying aesthetic qualities, and so on. Other than being intention-dependent, none of these features are, according to Gaut, individually necessary for being art and in all likelihood we couldn't pick out a subset of them which are jointly sufficient either. Being art is thereby similar to being a key, albeit far more variable. In both cases, members of the kind are related by overlapping relations of family resemblance within a cluster of criterial features relevant to being art and being a key, respectively.¹⁹⁷

From this description of standard artifact cases and our associated practices of categorizing artifacts, it seems that some artifact kinds may have some necessary features, such as A-frame cottages and Peking duck, while others merely have clusters of disjoint features which are more or less central, such as keys and chairs. Thomasson (2003b) argues that this tracks an important distinction between what she terms *strict* and *loose* artifactual kinds. Loose artifactual kinds are like being a key: united by a loose set of criterial features with perhaps overlapping relations of family resemblance. Members of loose artifactual kinds can have quite different subsets of K-relevant features. By contrast, strict artifactual kinds have rigid sets of

relations of family resemblance, similar to keys. It's generally agreed that Bernard Suits (1978) gave a definition of games that is both necessary and sufficient.

¹⁹⁷ Rebuttals often take the form that we could simply take the disjunction of all features as necessary and sufficient. Besides not being particularly unified, the criterial features are open-ended and more can be added and some may fade into irrelevance, thus the disjunction of features at any given time won't be necessary and sufficient. See Weitz (1956) for discussion.

kind-relevant (or K-relevant, for short) features – criterial features which members of the kind *must* have. Strict artifactual kinds share some set of features which are perhaps necessary and sufficient for kind membership. For strict artifact kinds, function will often be necessary, which, while not vindicating function essentialism, does go some way towards supporting its key intuition.

Thomasson (2003b, 599-600) formulates the principles governing strict and loose artifactual kinds as follows:

Strict Artifactual Kinds: Necessarily, for all x and all strict artefactual kinds K , x is a K if and only if x is the product of a largely successful intention that (Kx) , where one intends (Kx) if and only if one has a substantive concept of the nature of Ks that matches that of prior makers of Ks (if any) and intends to realize that concept by imposing K -relevant features on the object.

Loose Artifactual Kinds: Necessarily, for all x and all [loose] artifactual kinds K , x is a K *only if* x is the product of a largely successful intention that (Kx) , where one intends (Kx) *only if* one has a substantive concept of the nature of Ks that *largely* matches that of *some group* of prior makers of Ks (if there are any) and intends to realize that concept by imposing K -relevant features on the object.

There are two main differences between these principles. First, since strict artifact kinds are formulated using the stronger biconditional, the conditions for strict artifact kinds entail those for loose artifact kinds. Second, for strict artifact kinds, makers must have a concept of the kind that *exactly* matches the concept held by previous makers of the kind. By contrast, makers of loose artifact kinds only need a concept of Ks that *largely* matches the concept held by at least some of the previous makers of Ks .

This second difference entails that for loose artifact kinds, makers just need to intend to bestow some number of criterial features (what Thomasson calls K -relevant features) on their creations and the features they intend to bestow must largely match those features intended by previous makers. Hence, makers of key cards successfully make *keys* because the features they

bestowed on key cards largely matched those of previous makers of (standard) keys insofar as they possessed the same function. Of course, the ‘largely’ matching requirement is vague and a matter of degree. In the case of key cards and key fobs, sharing a function was sufficient to count as largely matching the concepts of previous makers, but in some cases a greater match of K-relevant features may be needed.

Compare this with strict artifact kinds. For a maker to make a member of a strict artifact kind, their concept of Ks needs to match those of previous makers of Ks. Thus, they can’t deviate from the features of previous Ks, at least those that are deemed central. For example, Peking duck must be made by the traditional smoking method and must be made out of duck. Lacking either of these features, the resulting dish would not be Peking duck.

Thomasson introduces this distinction in recognition of the relatively stable and strict features that experts appeal to and agree on in our artifact-oriented practices: “this seems apt for many of the strict artifactual kinds designated by experts (tailors, architects, chefs, etc.) involved in making the artifacts (e.g. double-breasted waistcoat, split-level, Peking duck), with strict criteria that must be known by those in the business and closely reproduced” (Thomasson 2003b, 600). Certain artifact kinds do exhibit this kind of stability and rigidity.

While our practices give us a *prima facie* reason to accept such a distinction, I think we should treat the distinction as a matter of degree, for two reasons. First, experts can disagree, improvise, and innovate. While Peking duck is currently constituted by both duck and being prepared in a certain way, as agreed by chefs, it need not be. There is nothing incoherent about a vegan Peking duck dish, where someone prepares a large duck shaped piece of tofu by smoking it in the traditional method. With the rise in veganism, it seems possible that some chef will innovate with traditional dishes and I have the intuition that this would in fact be a case of

Peking duck, especially if other chefs come to accept it as such. Relatedly, there can be extant expert disagreement about the ‘proper’ way to make a dish or other artifact. Some carpenters may prefer dovetail joints while others dismiss them as lazy. A fashion designer who is introducing a new pump in her Spring collection may find herself altering the structure of the shoe as an experiment, presenting the result on the catwalk and claiming that this is a ‘new’ kind of pump even though it doesn’t have the standard structure of one. Strict artifactual kinds are governed by expert opinion, but this doesn’t preclude change to their kind-relevant properties through innovation, improvisation, or expert disagreement. Since experts can disagree about the ‘right’ way to make a member of a strict artifact kind, we should allow makers latitude in the kind-relevant features, even for strict kinds.

The second, related reason is that there’s no principled difference between the criterial features of loose and strict kinds since both sets of features could have been different. We shouldn’t move from a claim about how certain artifact kinds actually are (Peking duck includes *these* two features) to a stronger necessity claim (Peking *must* include *these* two features). If the history of Peking duck had been slightly different, the two central criterial features could have been different, too. Under different historical circumstances perhaps duck was used alongside chicken, while the smoking method was slightly changed. Other strict kinds like Impressionist painting could have been constituted by different criterial features, such as different kinds of brushstrokes or a particular kind of paint or lighting technique. It was just contingent historical circumstances that they came to be constituted by *these* particular features. Further, the features of strict artifact kinds may change in the future. Currently, Peking duck is made out of duck prepared with the traditional smoking method, but in the future some innovative vegan chef may

come up with vegan Peking duck made out of a duck shaped piece of tofu. We get similar results in counterfactual cases.

Strict artifact kinds had their features rigidified by experts which historically led to their current criterial features. Strict kinds could conceivably experience a loosening of their K-relevant features. With other strict artifact kinds this seems less likely. Greek tragedy and Impressionist paintings are fixed by a historical origin, so it's hard to imagine that what makes something Greek Tragedy or Impressionist painting is ever going to change. Similarly, complex technological artifacts like the Large Hadron Collider (LHC), televisions, and rheostats seem too directed towards particular practical ends for their criterial features to ever change, at least with respect to function. Although maybe in the future we'll find a different and more central use for the LHC, at least at present, it seems that to be such a machine it's necessary to have the function of colliding subatomic particles together. We also see this kind of rigidification with Champagne and other products which fall under the European Union's protected designation of origin scheme. Such laws help fix the criterial features of certain kinds, even if the associated terms, such as 'Champagne' also have a vernacular usage.¹⁹⁸

Ultimately, this comes down to an issue about reference-fixing. That is, some relevant authority decides that an artifact kind term 'K' will only refer to *these* kinds of things, i.e. sparkling white wine produced in the Champagne region of France. There are two views we could take of this phenomenon: *either* the term 'K' is *fixed* by such acts and the boundaries of the kind are similarly fixed, where any change would actually be a case of reference shift *or* such

¹⁹⁸ Here we can see the insight behind the realist proposal of individuating artifact kinds very narrowly: we do tend to find more rigid and circumscribed sets of features the more narrowly we individuate the kind. However, from this realization, we shouldn't follow the realists in only countenancing these narrowly individuated artifact kinds, but rather just recognize that different artifact kinds have variably strict criterial features, with some being highly specific and others being highly disjoint and open-ended.

acts attempt to fix the reference of the term but in principle can be overridden by language users who expand or contract the reference of the term and thus the boundary of the kind. For example, the EU legislates that ‘champagne’ will only refer to that sparkling white wine produced in Champagne and any other reference to ‘champagne’ that isn’t produced in that region is just talking about a different kind of sparkling white wine. Alternatively, we could say that the EU attempts to fix the reference of ‘Champagne’ but actual language users (and sparkling white wine producers) don’t follow suit and some small vineyard in Bretagne decides to make champagne. Knowing the French, this wouldn’t go over well and the producer would certainly face penalties for calling her product ‘champagne’. But this is just a historical accident. It could be that the reference of ‘champagne’ does come to move over time to include the varieties from Bretagne. This certainly seems possible (perhaps even likely) with ‘Peking duck’ coming to refer to a tofu dish. There are a number of complicated linguistic issues here and this isn’t the place to try and decide them.¹⁹⁹ We can only go by our intuitions, unless some overriding theoretical reason is found to reject them. It suffices to say that I’m inclined towards the second option, where *in principle* the terms could come to refer to these new cases and concomitantly the kinds could come to include these new members, e.g. Peking duck made out of tofu or champagne made in Bretagne or as seems to have actually happened, chairs that aren’t made for sitting on. However, fully addressing the linguistic issues here must wait until chapter 7.

For now, we should say that, from looking at our practices, there does seem to be an actual difference between strict and loose artifact kinds. However, this distinction is one of degree. Some artifact kinds have relatively rigid sets of K-relevant features while others are

¹⁹⁹ A nearby issue is whether the terms are descriptions or proper names/kind terms. From ‘Peking duck’ we may be misled into thinking it must contain duck, similar to how the Holy Roman Empire was neither holy, Roman, nor an empire.

extremely loose and relaxed. In principle, however, it seems that any given kind can change in how strict or loose its K-relevant features are, even if in some cases it seems highly unlikely that that will ever actually occur (as with Greek Tragedy, say). Nonetheless, I think that we shouldn't adopt such a stringent condition on makers, not least because it would seem to preclude innovation and improvisation by experts or the transition of a kind from the province of experts to something more quotidian and accessible to the lay person. As a general claim about artifact makers, we should only require that their conception of Ks match that of previous K makers *to some extent*. What counts as an appropriate matching will be determined by kind and context.

Concomitantly, Thomasson (2003b, 597ff.; 2007a, 62-3) also introduces the requirement that makers have a *substantive* conception of what they make. Because makers must have a concept of Ks that largely or exactly matches that of previous K makers, makers seem to require a robust or substantive idea of what Ks are. That is, they need to intend to bestow the kind-relevant features. I made the tentative argument above that strict kinds don't have K-relevant features which are necessary for kind membership. Even if we reject that argument and maintain that some features are necessary for some kinds, there's still the question of to what extent makers' concepts need to match those of current or previous makers. Since 'matching' is a matter of degree, the question is really about how many K-relevant features makers need to intend to bestow in order to make a K.

Recall that Hilpinen (1992) introduces a similar requirement in his account of artifacts, whereby makers have a type-description of the artifact kind they are trying to make and "an agent produces a genuine artifact only if his activity is *successful* in some respect and to some degree" (1992, 160). Recall Hilpinen's example of a non-functional artifact: I intend to cut out a piece of triangular cardboard under the type-description 'triangular cardboard cut-out' with no

further intention that it be *for* anything. I'm successful at making such an artifact to the extent that the result matches the description I had, namely, it's triangular and cut from cardboard (Hilpinen 1992, 63).

In both Hilpinen's and Thomasson's cases, the requirements seem apt as a description of what makers actually do when making artifacts and thus seem like appropriate conditions on artifact making. Bloom's discussion of makers intending to make 'one of those' with his recognition that the madman doesn't succeed in making a chair because he lacks the right concept of *chair* is in a similar vein. Indeed, Thomasson's view is explicitly an amalgam of Hilpinen's and Bloom's positions (Thomasson 2003b, 597-598).

There must be some threshold of K-relevant features that makers need to intend to bestow, but I think makers' conceptions can be relatively lightweight or thin, at least in some cases. With respect to 'loose' artifact kinds like chairs or keys, makers seem to only require to intend a single, central kind-relevant feature. Intending to make something for sitting a single person is enough of a concept to make a chair. Granted, the maker will also intend to bestow other features, such as a certain form, but this need not be anything like a standard chair form (and thus not a kind-relevant feature, or at least a central one). This lead to bean bag chairs and large, hand-shaped novelty chairs.

In a related vein, many artifacts result from trial and error, whereby makers won't know entirely what they're making until it's realized. Prototype makers often are just messing around in a workshop and have some vague idea of what they want to make, but no unified conception of what they're aiming at. They try adding one feature, then another, and may need to remove or revise during this process until they get something that they're satisfied with.²⁰⁰ When they begin

²⁰⁰ See Petroski (1992) for a number of artifact kinds that resulted from trial and error and see Basalla (1989) and Arthur (2009) for a broader historical account of such developments.

such a process, they certainly don't have a substantive conception of what a K is – they figure that out in the process of making a K. Early hominids who first started using flaked stone tools and weapons probably didn't have a very robust list of kind-relevant features in mind, but only a general functional one. But intending to bestow a single functional feature doesn't seem like a *substantive* concept. Thus, we should only require makers have some rough concept of what they're making, where this includes at least *some* kind-relevant features, even as minimal as 'pointy, stabby thing' or 'object for sitting'.

For stricter artifact kinds like Peking duck or the LHC, makers must have a much more robust concept of what they're trying to make. Even if I'm intending to make a machine that smashes subatomic particles together, without any further idea of what the kind involves, I couldn't possibly succeed in making one. Nonetheless, cases of improvisation and innovation again suggest in some strict cases a less exact and substantive concept is required.

Perhaps Hilpinen and Thomasson would accept the cases above as described but count this as having a substantive conception that largely matches that of previous makers. In this case, then it's merely a verbal dispute about whether to call such a concept 'substantive'. If this is the case then we're in agreement on what sort of concept and kind-relevant features makers require. I doubt we can give an exact threshold of kind-relevant features makers must associate with the artifact kind that could suitably generalize to all artifacts. The concept makers require varies by how strict the kind-relevant features are and probably also the context of making. We must therefore settle with a general condition that makers must have *some* idea of the features relevant to being a member of a particular artifact kind, the exact number and nature of which will vary with kind and context.

Artifact kinds are therefore determined by clusters of criterial or kind-relevant features, with individual features being more or less central depending on the kind. For some kinds, these features may be very strict, such that makers must successfully bestow quite specific subsets of these features in order to make such an artifact. For other kinds, the kind-relevant features are far looser and are often united by relations of family resemblance, such that makers need only successfully bestow some small number of them, perhaps even a single one such as function, in order to make such an artifact. This corresponds to how substantive the kind concept the maker possesses must be in order for her to successfully create a member of the kind. Loose artifact kind, thinner concept, strict artifact kind, more substantive concept, with the difference between them being one of degree.

5.4 Artifacts: A First Pass

We're now in a position to bring all of these features together into a unified and general account of artifacts and artifact making. In earlier chapters, we concluded that artifacts are intention-dependent and attempt-dependent and that function essentialism is false but that functions play a central role in our artifact practices. We also saw that artifacts don't need to be the result of intentional, intrinsic, physical modification of some pre-existing material objects. Thus, makers can make a new artifact by appropriating pre-existing objects under the right conditions. So, artifacts are intention-dependent (and attempt-dependent), they can be created by appropriation, and function is central but not essential to artifactuality.

We can initially say that a maker successfully makes an artifact when she intends to make an artifact of some kind *K* and thereby intends to bestow some subset of *K*'s criterial features on the thing she produces, and successfully bestows (at least some of) those features on her creation.

Concomitantly, an artifact is a member of some artifact kind K, when it possesses, as the result of its maker's intentional activity, some subset of the criterial features that determine membership as a K. Following Thomasson, call these criterial features the kind-relevant or K-relevant features.

In the previous sections, I argued, with Bloom, that artifact makers need an intention to make 'one of those', where 'those' is some artifact kind like chair, car, or a puttanesca sauce. Moreover, by intending to make 'one of those' makers need to intend to bestow some number of kind-relevant features on the resulting object. These kind-relevant features often include a function, but may also include structural, material, aesthetic, or other properties constitutive of the kind. The K-relevant features form a cluster which is constitutive of the artifact kind and each feature can be more or less central depending on the kind in question. The K-relevant features of particle accelerators are far stricter than those for chairs or tables. Therefore, we can say that to be an artifact is to be the successful product of a maker's intention to make an artifact of kind K and what makes something an artifact of kind K is whether its maker has successfully bestowed the K-relevant features onto an object.

However, the best of intentions don't always go as planned. Nonetheless, we want to allow that makers can succeed at making a K even if what they produce doesn't match their intention *exactly* (anyone who's tried baking will be familiar with this phenomenon). Similarly, we also don't want to require makers successfully bestow a fixed set of K-relevant features since there's huge variation between members of artifact kinds. So it seems we should say that makers need to intend to bestow some subset of the K-relevant features on their creation and moreover that the intended K-relevant features need to be successfully bestowed *to some degree*.

Cases of appropriation show that the bestowal of the kind-relevant features can occur in a minimal sort of way by a maker recognizing that an object already has features constitutive of the kind and appropriating it as that kind of artifact. If I come across a piece of driftwood that is capable of supporting wine bottles, then I can make a wine rack by bringing it home, using it as a wine rack, telling others it's a wine rack, and so on. This counts as a minimal sort of 'making' and thereby a minimal sort of 'bestowal'. So long as the necessary intention-dependence is present, then such a making can be successful.

We can now formulate a general principle for artifacts. This principle is very close to Thomasson's principle for loose artifactual kinds, but it incorporates our previous conclusions.

Artifact Principle: Necessarily, for all x and all artifactual kinds K , x is a K if and only if x is the product of a largely successful intention that (Kx) , where one intends (Kx) if and only if one has a concept of the nature of K s that matches to some extent that of some group of prior makers of K s (if there are any) and intends to realize that concept by bestowing some subset of K -relevant features $k_1, k_2, k_3 \dots k_n$ on the object.

The differences with Thomasson's formulation should be apparent: the concept needn't be substantive nor need to largely match that of other makers, but only match 'to some extent'. The 'largely successful' condition allows for success to be a matter of degree, as it should. I can attempt to make a chair and this attempt could result in failure, in a crappy chair, in a decent chair, or in an excellent chair. So long as the attempt is largely successful it will be a chair (of some quality or other) rather than a failed chair. It's formulated using the biconditional because it's intended to cover *all* artifact kinds, either strict or loose, as well as the different degrees of K -relevant features between the two. By allowing makers' concepts to match *to some extent* those of other makers, the principle is fully general and provides both necessary and sufficient conditions for being an artifact. That is, even if we accept that some artifact kinds have necessary K -relevant features, rather than this being a highly central and stable but historically contingent

feature of the kind, the *Artifact Principle* will cover such kinds since the necessary K-relevant feature(s) will fall under the ‘to some extent’ requirement.

As this is a principle governing all artifacts and artifact kinds, we can substitute any artifact kind for ‘K’. For example, we can sub in ‘key’ and get:

Key Principle: Necessarily, for all x and all keys, x is a key if and only if x is the product of a largely successful intention that (Keyx), where one intends (Keyx) if and only if one has a concept of the nature of keys that matches to some extent that of some group of prior makers of keys (if there are any) and intends to realize that concept by imposing some subset of key-relevant features, function of opening locks, shaped like a wedge with a toothed side, made of metal, plastic, rubber, etc. on the object.

Not all key-relevant features are intended, since keys come in different shapes and are made of variable materials, which are mutually exclusive. A maker could intend to make a key card, in which case she intends to bestow the function of opening doors, it’s small and rectangular, and made of plastic, with a barcode or chip. The same holds for all other artifact kinds, with the concomitant variation among kind-relevant features and how strict they may be. A maker can’t make a particle accelerator without intending to make something with the function of accelerating and smashing particles together since this function is so central to being a particle accelerator. Although again, this may change in the future. Thus, in cases of stricter artifact kinds, the matching ‘to some extent’ may require matching very specific subsets of K-relevant features, such as a specific function or structure.

This account of artifacts also allows us to reconcile artworks and other artifacts. *Pace* Jerrold Levinson (2007), artworks aren’t a *sui generis* kind of artifact, they just (often) have far more leeway in their kind-relevant features than other artifacts do. As Levinson (2007, 82) notes, appropriational and conceptual art-kinds have more leeway in their kind-relevant features than ordinary artifacts: “a sculpture, say, needs to be physical, perceivable, and perhaps smaller than the planet, but apart from that, it can be of any size, any composition, any shape, any color, and

any subject”.²⁰¹ That is, the K-relevant features for a piece of found art or conceptual art are highly loose and disjunctive. Levinson compares this with chairs: “a chair must exhibit shape within a given broadly circumscribed range, with certain shapes, such as that of a javelin, being excluded in advance.” (ibid. 77) Shape is central to being a chair, since chairs are broadly constrained by their usual function to seat a single human being and thus constrained by the shape of the human body. It’s pretty difficult for a human to comfortably sit on a javelin.²⁰² But from these facts it doesn’t follow that there’s something special or unique about artworks. Indeed, many artwork kinds are very strict in their kind-relevant features. Impressionist painting, for example, must exhibit certain aesthetic qualities, such as brush stroke, colour palette, and general themes. In this sense, Impressionist paintings are more like chairs than conceptual or appropriational artworks.

Levinson appears to be misled by the particular case of conceptual or appropriational artworks, but the difference between them and other artifacts isn’t one of kind, but one of degree. That is, it’s harder to make a particle accelerator than a sculpture simply because there are more particle-accelerator-relevant features than there are sculpture-relevant features and more of the particle-accelerator-features are strict or central than the sculpture-relevant features. We can recognize, with Levinson, that many artworks are looser than other artifacts in their kind-relevant features without going the whole hog and taking artworks to be *sui generis* artifacts.

We can now list more perspicuously the success conditions on artifact making. What is necessary for a maker S to succeed at making an artifact of kind K? From our earlier discussions, we have these general conditions required of makers:

²⁰¹ Traditional artwork kinds like *painting* or *sonnet* are quite constrained in their kind-relevant features compared to conceptual or outsider art, say.

²⁰² If we encounter alien life whose physiology is vastly different from our own such that a rough javelin shape is suitable for them to sit on, then we’d count these things as chairs since they share the same function as our chairs.

- (1) Intention-Dependence: A maker S must intend to make an artifact of kind K.
- (2) Attempt-Dependence: A maker S must attempt to make an artifact of kind K.
- (3) Concept-Dependence: A maker S must have a concept of Ks.
- (4) Kind-Relevant Features: A maker S must attempt to bestow some of K's kind-relevant features $k_1, k_2, k_3 \dots k_n$ on an object(s) O.

These four conditions are necessary for a maker to make an artifact, but I can meet all four conditions and still fail, so what else is required? Certainly, we need the attempted bestowal of some kind-relevant features to be *successful to some degree*:

- (5) Bestowal: A maker S must successfully bestow the intended kind-relevant features $k_1, k_2, k_3 \dots k_n$ on O to some extent.

The caveat at the end, 'to some extent', is necessary because makers often intend to bestow a number of features but may only succeed in bestowing some of them or only to some degree, yet overall they succeed in making an artifact. If I intend to make a baked Alaska (layers of cake and ice cream topped with a baked or torched meringue), but the ice cream leaks out or the cake is slightly under baked or the meringue is burnt, then I still have succeeded in making a baked Alaska, but I didn't bestow all the features I was intending to or at least not to the degree I was intending to. This is just to say that there can be better or worse members of an artifact kind and more or less successful attempts at making an artifact.²⁰³ At some point, enough of the K-relevant features will be lacking or had to such a poor degree that the attempt fails and the maker doesn't succeed in making an artifact at all, but only produces rubbish or scrap or a non- or failed K.

²⁰³ This isn't to say that all the worse members of an artifact kind K are ones where the intention didn't fully succeed. One can intend to make a shoddy K and succeed at making a shoddy K by bestowing exactly those features one intended. Either some K-relevant features are lacking which make it shoddy or the degree to which it has some features makes it shoddy. Regardless, the features it does have were exactly as intended.

Also, we've already seen that the Concept Dependence and Kind-Relevant Features principles really amount to the same thing, since to have one is to have the other. Nonetheless, (4) is a helpful unpacking of what's involved in both (2) and (3). Similarly, (2) renders (1) unnecessary, since an attempt to ϕ entails an intention to ϕ . Nonetheless, we often focus on the nature of the maker's intention rather than her attempt, so I include both. An intention on its own isn't sufficient, since makers must attempt to make what they intend. Condition (5) expresses the fact that this attempt must be at least somewhat successful and moreover *how* success is determined, namely, by the extent to which the intended K-relevant features were bestowed.

Conditions (4) and (5) also include reference to some object or objects from which the artifact originates or is made. Following Stephen Davies (1991), we can call this the artifact's *progenitors*.²⁰⁴ However, recall that in chapter 3 I argued against the physical modification condition partly on the basis that it would exclude abstract artifacts. Since I don't want to exclude abstract artifacts from the get-go, I can't restrict the progenitors to physical or material objects. Thus, there merely needs to be some extant object or objects, abstract, concrete, material, physical, whatever, from which the artifact originates or is made from:

- (6) Progenitor: For any artifact A, there is some pre-existing object(s) O from which A originated as the result of the maker S's attempt to make A.²⁰⁵

Three things should be noted about the progenitors. First, they need not cease to exist during the making of the artifact, as when a flaked stone is affixed to a stick to become a crude axe. Second, the progenitors of an artifact may be other artifacts, as when tires, engine, chassis, and so on are

²⁰⁴ Baker (2007, 52-53) also includes a similar condition, though she characterizes it in terms of an aggregate that is arranged or selected by the maker. This explicitly allows for cases of appropriation, although Baker deems them "degenerate" artifacts (2007, 53n8).

²⁰⁵ The latter caveat is to ensure that the artifact's progenitors don't include, say, the water that nourished the tree that provided the wood that S made into a table. Only the wood would count as the table's progenitor.

assembled to make a car. Third, in cases of appropriation, such as the rock becoming a doorstep, the progenitor isn't modified to make the artifact, it only undergoes intentional modification, i.e. Cambridge change.²⁰⁶

If S's attempt to bestow the K-relevant features on O is successful, then S makes a K. The exact nature of the attempt is going to vary by the K-relevant feature – bestowing a function will be different from bestowing a shape or aesthetic property or whatever. The physical process the maker must engage in will concomitantly vary. The case that deserves special attention is creation by appropriation, since the pre-existing object already possesses the K-relevant features. Thus, we shouldn't follow Hilpinen in cashing out the K-relevant features in terms of counterfactual dependence on the content of the maker's intention (Hilpinen 1992, 65).²⁰⁷ Rather, what's lacking in appropriation cases is the relevant intention-dependence. Thus, the 'attempt' in appropriation cases is often just the intention to appropriate and I'll treat appropriation as a limiting case of 'bestowal'. In cases of appropriation, sometimes further action is required on the part of the maker even if this doesn't involve modifying the intrinsic physical properties of the object. For example, in the rock doorstep case, to successfully appropriate the rock as a doorstep I may need to move it inside and actually use it to prop open the door and further I may need to tell others that it's a new doorstep so they come to accept it as one and treat it accordingly.

This last point about acceptance is important for two related reasons. First, Hilpinen (1992, 62) introduces as a success condition that the maker accept that her attempt was successful. This seems too strong since a maker may successfully bestow all the features she was

²⁰⁶ See Hilpinen (1992, 63-64) for discussion of a similar condition, although Hilpinen formulates it also as a physical modification condition but nonetheless treats cases of appropriation as 'limiting' cases of modification. He adds a further condition that to be an artifact, there must be a progenitor – artifacts can't be created from nothing.

²⁰⁷ See also Dipert (1993, 126n6) for discussion of Hilpinen's counterfactual condition.

intending to bestow and to the degree intended, but still not accept that the attempt was successful. Perhaps the maker is particularly humble or is a perfectionist or has some malfunctioning sensory apparatus or is in some particularly deceiving or misleading context so that she can't appropriately gauge the extent to which she was successful. In all of these circumstances we would intuitively say that she did succeed in making the artifact she was trying to make; she's simply wrong about her own success and needs to adjust her propositional attitude accordingly. Thus, we shouldn't require, as Hilpinen does, that makers accept that their attempt was successful.

The second, related reason is that often it seems that the acceptance of others may partly determine or influence a maker's success. In the rock doorstep case, it may be that my appropriation attempt is overruled by the rest of my household refusing to accept the rock as a doorstep. Perhaps my husband finds it too ghastly or crude so puts it back outside or won't use it to prop open the door. Under these circumstances, it seems that my appropriational attempt can be undermined or thwarted by the attitudes of others. But this introduces a much larger and more complicated aspect to the account as I've been developing it so far: it now seems that the mind-dependence of artifacts is no longer only on the mental states of individual makers, in particular their intentions, but rather that there's an aspect of *collective* or *social* mind-dependence involved in artifact creation. I'll consider the extent and importance of social mind-dependence in the next section, after which I can incorporate it into the current account.

5.5 Artifacts and Social Mind-Dependence

The acceptance of others seems to bear significantly on maker success, both in appropriation and modification cases. Taking this feature of our artifact practices at face value,

artifacts are at least dependent on the intentions of individual makers but also sometimes dependent on intentions or other mental states that belong to individuals besides the maker. Moreover, this kind of dependence may be collective or distinctly social. If successful artifact creation often seems to depend on groups or public acceptance, then how can this feature of our artifact practices be incorporated into the account given in §4? Before attempting to answer this question, we need to clarify the different ways in which artifacts could be dependent on collective, group, or public mental states. There are three different ways such collective mind-dependence can occur, as defended by Scheele, Dipert, and Thomasson, respectively.²⁰⁸

With respect to such group mind-dependence, Scheele (2006, 280-32) gives two actual cases that occurred in the Netherlands, which I discussed in chapter 3.²⁰⁹ His concern is with how functions get ascribed under certain *social conditions*. First, he gives the example of the Pieterskerk in Leiden. With the decline of religious institutions and the rise of secularization, this church eventually ceased religious services. In 1975, it was acquired by a private company which lets it for various semi-public events such as concerts, conferences and dinner parties. Scheele argues that the Pieterskerk has ceased to be a church (because its proper function has changed). Instead, it became a ‘hall’ available for rent given the contractual changes and new ownership that occurred (Scheele 2006, 29). But such a change depends on various social institutions and norms (partly because the building itself wasn’t really modified), and thus the building’s kind is partly dependent on more than just its maker’s original intention.

²⁰⁸ Evnine (2016, 127 and fn. 10) also seems to recognize certain cases where communal acceptance bestows artifact status, but he explicitly rejects Dipert’s ‘extreme claim’ that all artifacts are social in this sense.

²⁰⁹ Thomasson (2014, 53-4, fn. 9) imagines a similar case where the US and China are isolated from each other in everything except trade of chopsticks, which are made in large quantities in China and used there as eating utensils but sold to American consumers to be used exclusively as hair accessories. She suggests that they are perhaps both utensils and hair accessories, and come to be the latter by broad social use and acceptance (as well as a minimal kind of ‘making’ of a new artifact by exaptation).

Scheele's second example is that of a device manufactured for climbers called the figure-eight. It was originally made to be an abseiling device – a device used to protect and transport the climber. However, it also began to be used as a belaying device – a device used to protect your climbing partner (Scheele 2006, 29-30). Both uses function in the same way, by applying friction to the rope. While it was designed as an abseiling device, some manufacturers started marketing it as a combined safety device for abseiling and belaying. Thus, we may ask whether it is an abseiling device or both an abseiling and belaying device. As it happens, the answer you get depends on who you ask; there is debate within the climbing community about the proper use of the device, partly because it is slightly less safe when used for belaying. The device may produce leverage on the carabiner, and if the force generated is applied to the lock of the carabiner it can break. Some climbers take this to be unacceptably risky while others take it to be well within the acceptable margin of error. Nonetheless, the majority of climbers don't care about such a discussion and just follow what others in the community do, and a sizable majority use it as a belaying device. Like the previous examples, Scheele (2006, 31) takes this to show that it has genuinely become a belaying device by being ascribed such a function by the community of users, manufacturers and sellers. Its status as a belaying device is thereby dependent on certain social features of our practices and certain collective intentions of the group of climbers.

This second kind of case was first recognized by Dipert (1993, 23ff.), who makes a tripartite distinction between *instruments*, *tools*, and *artifacts proper*. The distinction tracks the different ways humans can use objects: (i) some objects are used as they are found, (ii) some objects are modified to be used for some practical goal, while (iii) still others are modified with the intention that the modification be recognized. My interest is in what he calls artifacts proper

– objects that are intentionally made (modified) in order to attain some practical end and that are created with the intention that they be recognized as having been made for that purpose.²¹⁰

On this definition, artifacts are distinctly ‘social’, since they require that their maker think of other agents when creating the artifact. That is, they depend partly on the mental states of others besides the maker: “they require us as agents to think of other cognitive and acting agents, their attitudes and thought and emotional mechanisms, and the contents of their thoughts and attitudes” (1993, 31). Artifacts are thereby individuated by the contents of their maker’s intention, and *to be* an artifact, such contents must include that the object is to be recognized by others as such. Dipert calls this their “communicative purpose” (1993, 102), though they will have other, expressive or practical purposes, as well. However, Dipert isn’t clear about whether the recognition criterion must *actually* be fulfilled or if the maker must merely have the intention that the object be so recognized.

As a general requirement on artifacts, Dipert’s condition seems too strong. While it certainly seems that makers *can* intend that their creations be recognized as being of a given kind or as being for a particular purpose, this audience recognisability doesn’t appear to be *necessary*. I could make a hammock and intend only to bestow several hammock-relevant features on the object but not intend that anyone else recognize it as a hammock. This isn’t to say that I want people to perceive and *fail* to recognize it as a hammock, by disguising it as a large leaf or something, only that the mental states of others don’t enter into my intention at all when making it. This seems not only possible but actually a quite common approach to artifact making – we often make things for our own benefit without regard to what others may think.

²¹⁰ While the common view of artifacts is that they are individually mind-dependent, Dipert argued from the outset that artifacts depend on the mental states of others. This view has not been widely adopted. Nevertheless, the spirit of Dipert’s suggestion has recently influenced others into recognizing a role for collective mind-dependence, most notably Thomasson, as well as Houkes’ and Vermaas’ (2004) action-theoretic account of artifact functions.

There's a further class of counterexamples to Dipert's recognition condition, albeit ones he is aware of. These include artifacts that are intentionally modified but specifically intended *not* to be recognized as artifacts that serve a given purpose. That is, they're intentionally misleading. Dipert (1993, 31) considers the cases of a two-way mirror and a spy's listening device that is disguised as a martini olive. The two-way mirror is intended to be perceived as a mirror (and thus an artifact) but not as a window. By contrast, the listening device isn't intended to be recognized as an artifact at all, but as an olive.²¹¹ But as Thomasson points out, at least *someone* is intended to perceive the martini olive as a spy device, namely the spy's handlers, so what this kind of case shows is that sometimes the intended audience of receivers may be restricted and not include the general public. However, Thomasson (2014, 47) gives a variation on this case which avoids this last point: I make a cleverly painted planter filler that looks exactly like naturally occurring rocks, so well painted in fact, that I, too, wouldn't recognize them as anything but rocks if I hadn't made them. Indeed, I may explicitly intend that I, too, am unable to distinguish them from natural objects. In such a case, there's an artifact (presumably one that doesn't require maintenance, so we can avoid that complication) that is specifically intended not to be recognized as an artifact *by anyone*, yet nonetheless it's clearly an artifact.²¹²

Of course, Dipert will just claim that such cases fall into his second category of 'tools', objects intentionally modified to serve a given purpose, but his tripartite distinction seems arbitrary and as he admits, it is, to a certain extent, stipulative. Rather, all three categories seem like they belong to the overarching class of *artifacts*, with just variations amongst how and why they're made. Indeed, I've already argued that what Dipert calls mere instruments – appropriated

²¹¹ Olives off the tree are inedible, so martini olives, like other domesticated species, may be artifactual. See Sperber (2007) for discussion.

²¹² Thomasson (2014, 47n6) credits this case to Evnine.

objects – are genuine artifacts. Thus, whether we call the hammock and the planter filler instruments or artifacts proper, it seems clear that they’re both *artifacts* in the more general and quotidian sense that I’m interested in.²¹³

In later work, Thomasson (2014) introduces collective mind-dependence into her account of artifacts. Inspired by the work of Dipert, Heidegger and Ingarden, Thomasson distinguishes between *public* and *private* artifacts, with the latter adhering to her previous (2003b, 2007a) account. By contrast, public artifacts are artifacts (as opposed to institutional objects like money) that are subject to and dependent on, public norms, in addition to the maker’s intentions.

Thomasson’s new account focuses on a specific kind of intended kind-relevant feature that has hitherto been ignored (with Dipert the exception): what she calls their “receptive and normative” features, which involve “how the object created is to be regarded, used, treated, or behaved in regard to (and by whom, in what context)” (2014, 47). This generally follows Dipert’s account of artifacts proper, however, Thomasson reads him as saying that such public artifacts require *actually being recognized as a K* (2014, 50), since someone can make a poem or tea cozy while intending that it be kept locked away never to be seen by anyone. Thus, Thomasson suggests that public artifacts need only be *recognizable* as members of their kind. However, such intended recognisability need not apply to everyone. A mechanical shark movie prop is intended to look like a real shark by movie-goers (Hilpinen’s example); the recognisability condition need only apply to an *intended audience*.

A second feature of public artifacts is that the intended features need not be recognitional, but can involve other ways in which the object is to be used, considered or treated.²¹⁴ For

²¹³ Dipert could claim that the social nature of artifacts proper includes the maker, thereby making the recognisability reflexive, but this would render the social aspect redundant, since the maker intending that they themselves recognize their K as a K isn’t plausibly *social* and it would collapse Dipert’s distinction between instruments and artifacts proper.

²¹⁴ Levinson (1979) argues for such a view with his intention-historical account of artworks.

example, what distinguishes a flag from a piece of cloth are the norms governing the appropriate use or behaviour towards such objects.²¹⁵ The former is for some communicative purpose (surrender) and may be preserved for its ceremonial or cultural value, say, while the latter is for cleaning pots. Using a flag to clean pots violates the norms governing its proper treatment (Thomasson 2014, 51). Similar considerations apply to *buildings*, which are partly constituted by the different norms that govern comportment in them. For example, churches demand a certain kind of behaviour, while shopping malls are governed by a different set of norms, and even in one building, different norms may apply to different audiences, e.g. adults are to stay in the chapel while children proceed to the basement for Sunday school.²¹⁶

Therefore, public artifact kinds are not individuated (merely) by functional or structural features, but also by being intended to be subject to certain norms, where this is for the object to be recognizable by an intended audience as to be treated, regarded, used, in certain ways (2014, 52-53). Thus, “to intend to make a work of art, a cathedral, a cheese sauce, or a top hat, is (inter alia) to intend to make something that is *to be recognized as subject to certain norms of use, treatment, regard, etc.*, by an appropriate (intended) audience” (2014, 53). These are actual norms, since those who violate them are subject to correction or rebuke.

Dipert, Thomasson, and Scheele all identify different ways that artifacts may be socially or collectively mind-dependent. The pragmatic constraint enjoins us to accept these cases at face value (since there are no compelling theoretical reasons not to) and thus my account of artifacts needs to accommodate this phenomenon. However, while I think Dipert, Thomasson and Scheele

²¹⁵ This is Arthur Danto’s example (1981, 1-2).

²¹⁶ Thomasson (2014, 51-52) borrows these examples from Roman Ingarden (1989), who, like the other phenomenologists, gave extensive consideration to artifacts long before analytic philosophers. With respect to religious buildings, Ingarden points out that many of their features are purely recognitional: they serve to identify the building as a place of worship for *this* particular faith. Thomasson also points to Heidegger’s (2010) notion of ‘being ready-to-hand’ as recognizing the way objects (though not exclusively artifacts) are subject to constitutive norms of treatment.

are all correct about this aspect of artifactuality, I do not think that this marks a *principled* division between *kinds* of artifacts, with some artifact kinds being dependent only on the maker's intentions and other artifact kinds being dependent on both the maker's intentions and social groups or collective acceptance or public norms. Rather, I think any artifact kind can, in principle, be *either* individually *or* socially/collectively mind-dependent.

Consider two artifact kinds, chairs and salad forks. Chairs seem to be a quintessential artifact kind which lone, individual makers can create without reference to, or independent of, social groups or public norms. I can make a chair in my garage out of wood, intended for private use, which will allow me to sit at my drafting table. My intention is to make something that can accomplish this function; I don't consider whether others will recognize it as a chair nor do I consider how others should treat or regard it. This chair depends only on my intention and its content.

By contrast, consider my attempt to make a salad fork. A salad fork is a utensil that's intended to be used to eat salad; it has a specific shape, is made of metal, and is to be placed in a specific spot on the table. Moreover, it seems that such an artifact is (typically) made with the intention that it be recognized as a thing to eat salad with and concomitantly subject to various norms. I'm open to rebuke if I use it for steak because I'm violating the norm of use – at least in a context where there's full dinner service with other forks provided (Thomasson 2014, 55).

I don't see a *principled* difference between the chair I make for personal use in my garage and the salad fork which I make with the intention that it be recognized as such. That is, chairs can be made with an intention that be recognized as chairs and thus subject to public norms, while salad forks can be made for personal use merely with the intention that be used by some

guy to eat salad with. This suggests that artifacts can either be dependent only on a maker's intentions or *also* on public norms or social acceptance or whatever.

Does this generalize to all artifact cases? One test used to distinguish between institutional and artifactual kinds is the Robinson Crusoe test: Crusoe is alone on an island and if he can make an X, then such a thing isn't an institutional kind since they necessarily involve collective mind-dependence.²¹⁷ With respect to public and private artifacts, the same test can be applied: if Crusoe can make an artifact of kind K, then K is private and if he cannot, then K is public. But Crusoe can seemingly make a salad fork as well as he could make a chair or a hammock or a spear, even though members of all these kinds can also be made subject to public norms. Thus, the public/private artifact kind distinction doesn't divide artifact *kinds* but *individual* artifacts depending on what the maker's intention was and her context and reasons of making.

Thomasson points out that the scenario in the Robinson Crusoe test is underdescribed. Either Crusoe arrived on the island after the age of infancy, in which case he's partly enculturated and thus his intention may include being recognizable or subject to public norms. Otherwise, Crusoe was left on the island right after birth and was raised by wolves or sheep or whatever, in which case he still makes a chair or hammock or spear, but without the public intention. In the latter case, Thomasson contends that Crusoe makes a private tool rather than a public artifact, but that his creations could be regarded as *artifacts* in a broader sense. At this point we've run into a terminological dispute similar to that with Dipert. I'm using 'artifact' in a broad sense (but excluding those cases of scrap or unintended by-products). We can also make a division between 'artifacts' in the sense of 'public artifacts' or 'artifacts proper' as opposed to

²¹⁷ I got the moniker 'Robinson Crusoe test' from Rebecca Mason. See Mason (2016). Thomasson also considers the case of the lone individual on an island (Thomasson 2014, 56), which I return to below.

‘private tools’ or ‘instruments’, as Thomasson and Dipert use these terms, while simultaneously recognizing a broader sense of ‘artifact’ which covers all of these cases. My use of ‘artifact’ is broad in this latter sense, covering both public and private artifacts. But note that the Crusoe test still doesn’t bifurcate artifacts between *kinds* but only between members of artifact kinds. For this reason, I reserve ‘artifact’ for both public and private artifacts while recognizing that members of different artifact kinds may be either.

There’s a different class of objects which are artifacts but which can’t be made by Robinson Crusoe. For example, Crusoe probably can’t make the large hadron collider (LHC) or a skyscraper or nuclear submarine, yet these are paradigm examples of artifacts. However, the reason is not that they’re dependent on public norms or require some sort of collective acceptance (although they may) but that they’re simply too complex for a single human to make alone. While we think of the paradigmatic artifact maker as the lone craftsman in her workshop, the vast majority of artifacts are mass produced in semi-automated factories or are produced as the result of coordinated efforts by large numbers of people. Crusoe can’t make these kinds of artifacts because it’s probably physically impossible for a single human to produce such a thing.

This doesn’t undermine the Crusoe test. Recall the three disambiguations of ‘maker’ from chapter 3: ‘maker’ can mean the designer, the assembler, or the person who guides assembly by ensuring compliance with the design. In cases with the lone craftsman, they are all three. In cases of mass production, the three typically come apart *and* there may be multiple agents in each role, all coordinating their intentions and actions (their attempts) to make an artifact. Because of the complexity of a skyscraper, different agents are needed to fulfill each of the three maker roles, with all of them coordinating their intentions and attempts to produce the final

product. Crusoe is physically unable to design, assemble and oversee such a production, but this is due to cognitive and anatomical limitations, not because there's an absence of public norms.²¹⁸

Another class of counterexamples to my claim that the disjunctive account tracks individual artifacts rather than artifact kinds by appeal to the Robinson Crusoe test are artifacts which have a *social* function, such as thrones, flags, or a five franc coin. It doesn't seem like Crusoe can make artifacts of such kinds because they have an ineliminable social feature. Thus, at least *some* artifact *kinds* are wholly public.

I think we can resist these putative counterexamples in one of two ways. The first way is to maintain that Crusoe *can* make such artifacts just without their status functions. Following Searle (1995), a status function is a function an artifact has which is unrelated to its particular physical make-up. For example, a ceremonial sword may denote a particular rank, but its signifying rank has nothing to do with its material constitution or shape. Anything could be used to denote rank, such as a particular hand gesture, verbal salutation, or material artifact. We could claim that Crusoe could make a sword just like that one but without the status function of signifying rank. Thus, its status function is just one constitutive but not necessary kind-relevant feature amongst many. In the same vein, Crusoe can make a throne or a flag but without their respective status functions – he could make a chair and a piece of cloth that otherwise share all their constitutive features with thrones and flags (and thus are a throne and a flag) but without the particular social function these kinds usually have. Alternatively, we could deny that kinds like throne, flag, and five franc coin are *artifact* kinds. Rather, these are institutional kinds that overlap with, or depend on, material artifacts. The status function of a sword to signify rank is

²¹⁸ We could alter the case so that the island has all the materials Crusoe needs to make a skyscraper, he has vastly greater cognitive capacities than current humans, and he's super long-lived. In such a modified, albeit far-fetched, case, I think Crusoe could make a skyscraper by himself.

therefore an additional institutional kind which depends on a particular sword, just as a *wedding* ring is a ring with an additional institutional-social property. While Crusoe can make the underlying artifact (chair, sword, ring, cloth, coin, etc.) he cannot make such an artifact *with* the attendant institutional property because he lacks the requisite collective mind-dependence. I prefer this second option, for reasons that will become clear in the next chapter.

So particular members of artifact kinds are often collectively mind-dependent, but this shouldn't be taken as a fully general, necessary requirement on artifactuality nor a principled distinction between kinds of artifacts, as the Robinson Crusoe test shows. Nonetheless, it's clear that we need to recognize and accommodate the sometimes collective nature of the mind-dependence involved in artifactuality. There are three interrelated ways this can happen:

- (a) Makers intend that the artifact they make be recognized by others as being a K or as having the function F (Dipert).²¹⁹
- (b) Makers' creations are subject to existing public norms of creation, use, regard, and treatment (Thomasson).
- (c) Artifact creation and function ascription are determined by, or dependent upon, the collective acceptance of the maker's attempt as successful by a particular audience, community or social group (Scheele).

The different kinds of collective mind-dependence in (a) through (c) all generally rely on a kind of acceptance by some social group of the maker's success or more generally norms or conventions surrounding what counts as success.

This kind of acceptance state is what determines the public norms governing artifact kinds. When a group tends to accept an attempt to make a K as successful, that generates and

²¹⁹ Dipert's function essentialism leads him to include the recognisability of function, but it may involve recognisability of other criterial features.

establishes a norm governing Ks. Similarly, when a group treats Ks in a particular way and rebukes other kinds of treatment of Ks as wrong or inappropriate this likewise generates and sustains a norm governing Ks. We can call this the K-norm: the public norm which governs Ks in these myriad ways. Dipert's condition that makers intend their creation be recognized as a K is ultimately the maker's response to the K-norm. That is, there's an attempt to meet the K-norm that guides the production process. The maker is aware of a norm that Ks possess certain properties and function in a particular way and she wants the community of users, makers, appreciators, or buyers to recognize that her attempt was a K-attempt (rather than, say, a K'-attempt, a non-attempt, or a failed K-attempt) and recognize the K-attempt as successful by accepting it as meeting the K-norm. This is what went on in Scheele's belaying/abseiling device case. The manufacturers intended to make a belaying device, the community of users (or parts thereof) appropriated the device as an abseiling device because the features of the belaying device met the abseiling device-norm (i.e. it could function as an abseiling device) and as a result the manufacturer started marketing it as both a belaying and abseiling device.

The above considerations suggest the order of dependence between (a)-(c) is reversed. That is, the first step towards collective mind-dependence occurs in prototype cases or cases of exaptation (appropriating an existing artifact kind for a new purpose), where makers introduce a new artifact along with how it is intended to be treated, used, or regarded. The relevant audience for the prototype will then either accept or reject the maker's attempt as successful (or revise the intended norms of treatment, use and regard), in which case a new norm governing that kind of artifact will be initially established. Once the new artifact kind is accepted and the norms in place, production will begin and makers will internalize the public norm so that it's reflected in their intention. That is, having passed through (c) and (b), we now arrive at (a), where makers are

making an artifact with the intention that it be recognized as such. This process is not linear; I expect (a)-(c) overlap in various ways throughout this process. Moreover, there is probably a sort of feedback loop with prototypes, where makers adjust their intentions in response to public norms and public norms gradually change in response to makers' intentions.²²⁰ Since fully novel prototypes are relatively rare – and thus initial acceptance by a relevant audience determining success is relatively rare – I will mostly follow Thomasson and talk of (b) public norms, since they are the most ubiquitous and wide ranging sense in which artifacts are social entities or collectively mind-dependent.²²¹

Whether something meets the K-norm will vary by kind and context in the same way that the 'minimum' threshold of K-relevant features varies. For example, if your child makes you a papier-mâché salad bowl that leaks salad dressing, it may still have a minimum number of bowl-relevant features to be a (perhaps poor) salad bowl. By contrast, if you're throwing a fancy soirée and you commission a glazed ceramic salad bowl but the result leaks salad dressing, this may count as a failed bowl, rather than a poor bowl. Judgements between a failed K, a non-K, and a poor K are fuzzy and vary greatly with context and the agent's reason in making the judgement, but will often just as much depend on the reception the artifact-attempt gets from the relevant audience.

²²⁰ Recognition of this process comes from Ian Hacking (2000) who introduces the term 'feedback loop', although he is concerned with social constructionism in cases such as gender or scientific theories.

²²¹ I don't want to commit to the claim that artifacts are *collectively* mind-dependent for two reasons. First, there's much debate about what collective intentionality involves or whether there can be genuine group mental states at all. Second, it's not clear that artifacts depend on *collective* mental states, but rather just the presence of some social group and the public norms governing the kind. This seems importantly different, although the initial acceptance states of an audience may count as a collective mental state. If this is so, then just substitute your favourite account of collective mental states in to my account of artifacts. Dipert doesn't seem to take a stand on the nature of collective intentionality, while Thomasson (2014, 55; n10) explicitly sets this issue aside while Scheele (2006, 26) seems to endorse Searle's (1995) account.

These kinds of cases clearly support the inclusion of a collective- or social mind-dependence condition on artifacts. But the Robinson Crusoe test simultaneously suggests that artifacts can be singularly mind-dependent on their maker. This shows that artifacts are interestingly disjunctive in the mind-dependence they exhibit: they can *either* be dependent on individual makers *or also* on social groups, society, or public norms. This disjunction is inclusive, since the above cases involve both individual and collective dependence. However, it is, in a sense, ‘asymmetric’²²² in that while some artifacts are dependent only on individual makers (as the Robinson Crusoe cases show) or on both individual makers and social groups or public norms (as the public artifact cases show), they can’t *only* be dependent on social groups or public norms – there needs to be a maker(s) upon whose intentions they depend.²²³ Before incorporating disjunctive mind-dependence into the account of artifacts I developed in section 4, we need to consider what sorts of properties these mind-dependence relations have.

5.6 What Kind of Dependence?

There is a variety of ontological dependence relations. Artifacts, I’ve argued, are mind-dependent, specifically on the intentions of their makers and often also on the mental states of social groups or the presence of public norms determined and sustained by the mental states of groups. But what are the properties, both logical and non-logical, of these dependence relations?

²²² Rather, the disjunction is of the form P or $(P$ and $Q)$, so that the first disjunct (individual dependence) is necessary for all artifacts regardless of whether the social dependence holds for any particular artifact.

²²³ Cases like skyscrapers may or may not involve collective mind-dependence. The construction of a skyscraper involves myriad agents all coordinating their actions towards creating a single artifact. But the success of those coordinated actions is partly dependent on public norms, particularly those regarding building permits, safety regulations, and other legal qualifiers.

Much work has been done on dependence recently, motivated by the grounding literature. However, some early work on dependence was done by Thomasson (1999), although not in the context of an account of artifacts but for the purposes of giving an account of fictional characters (albeit as abstract artifacts). We can apply the kinds of dependence relations Thomasson identifies to artifacts and their makers.

First, there's a very general and weak existential dependency relation: for A to depend on B, is necessarily, for A to exist only if B exists. This doesn't specify the times at which A and B exist, but just says that if A exists at some time, then B exists at some time (Thomasson 1999, 29). Existential dependence can come in (at least two forms): causal and constitutive. Thunder is causally existentially dependent on lightning, while being married is constitutively existentially dependent on having signed a marriage contract. I argued in chapter 2, against the realists, that the relevant sense of mind-dependence for artifacts is constitutive (at least with respect to their essences; they're also causally existentially dependent on their makers, too).

Thomasson identifies two more specific forms of the general existential dependence relation, *constant* and *historical* dependence. Constant dependence is where if A constantly depends on B, then for all times at which A exists, B exists. To use Thomasson's example, Mary's being a legal driver is constantly dependent on Mary having a valid driver's license (1999, 30).²²⁴ By contrast, historical dependence is where A depends on B to initially come into existence, but A doesn't require B to exist at every moment at which A exists (Thomasson 1999, 31-32). For example, if we accept Kripke's (1980, 112ff.) necessity of origin thesis for persons, then I historically depend on my parents, i.e. my parents must exist for me to come into existence, but I don't require them to continue to exist at all times that I exist.

²²⁴ This is sometimes called 'on-going' dependence.

Both constant and historical dependence can be either *generic* or *rigid*. Generic dependence involves some entity of a given kind, but not a *specific* entity. By contrast, rigid dependence involves the existence of a *particular* entity (Thomasson 1999, 32-33). For example, assuming Kripke is correct, then I am rigidly historically dependent upon my parents – my existence depends on these two particular individuals, but only for my initial existence. Thomasson (ibid.) gives catalysts as an example of generic historical existence: alcohol is the result of simple sugar being mixed with yeast (but the molecules don't combine with the yeast, they're simply the catalyst). But it doesn't require any particular bunch of yeast, any yeast will do to catalyze the sugar. A case of generic constant dependence would be money (in the sense of currencies such as the Japanese yen or Swiss franc): for this piece of paper to count as yen, some group of people must all collectively believe that it's yen, but there's no exact group of people that is required – in fact, the relevant group is changing all the time. A case of rigid constant dependence would be the dependence between me and my brain: necessarily, at every point at which I exist, my brain exists, but not just any old brain will do, it must be *this* one (Thomasson 1999, 30).

We can note that constant dependence entails historical dependence and historical dependence entails general existential dependence. Further, any instance of rigid dependence entails generic existential dependence. Causal and constitutive dependency relations are orthogonal to the constant/historical and rigid/generic distinctions. They can come in combinations of constant and rigid or generic or historical and rigid or generic. I'm interested in the constitutive varieties. We can also note, as Thomasson (1999, 34) does, that general existential, constant, and historical dependence are all transitive, e.g. if I rigidly historically depend on my parents, and they rigidly historically depend on their parents, then I rigidly

historically depend on my grandparents. The same holds for the other kinds of dependence. Finally, despite the widespread view in the grounding literature that grounding isn't reflexive, I'll follow Thomasson (1999, 30) in assuming that dependence relations are all (trivially) reflexive, though nothing will hang on this.

Given these kinds of dependency relations, what should we say about artifacts? On the above account, artifacts depend on the intentions of their makers but can also depend on the collective mental states of groups or public norms. Let's consider these in turn.

The dependence of an artifact on the intentions of its maker is an essential feature of artifactuality. Artifacts don't require the constant sustaining of the maker's intention in order to exist. Most artifacts outlive their makers. Thus, the intention-dependence is historical: artifacts depend on their maker's intention at the advent of their creation, but not at every time at which they exist. In cases where there are intentions from multiple individual agents engaged in making a single artifact, the artifact is (singularly) historically dependent on each of them.

Is this kind of historical dependence generic or rigid? Kripke (1980, 113-114) argued that artifacts are composed by their matter essentially, so that his lectern could only have been made of wood not of ice. It's generally agreed that this view of artifacts is false because we take it as a datum from our artifact practices that they can change their material parts, just as persons do, without ceasing to exist. When I replace the gear shaft on my car a new car doesn't come into existence. Artifacts clearly aren't rigidly dependent on their matter.²²⁵ A more plausible thesis is that they are rigidly historically dependent on their *makers*. We've established that they're historically dependent on their maker's intentions, but must it be the intention had by *this* particular maker? Or could someone else with the same content to their intention produce the

²²⁵ Evnine (2016, 15ff.) calls this feature of artifacts their *metabolism*.

same artifact? I'm inclined to say that artifacts are rigidly historically dependent on their makers. If there's a pile of wood in front of the two of us and we both form an intention to assemble it just so to make a table, then if I execute my intention with the wood the resulting table will be a different table than if you execute your intention with the wood, regardless of how similar the content of the intentions is or how similar the resulting tables would be. Different intentional actions brought them into existence so they would be different artifacts. Of course, if we coordinated on assembling the wood, then our joint intentions would jointly produce a different artifact altogether. We shouldn't be misled by the physical similarity of the resulting tables; imperceptible extrinsic features – the maker's intention – determine identity.²²⁶

The artifact is rigidly historically dependent on the intentions of the artifact maker(s).²²⁷ What about cases involving collective mind-dependence? Things are much more complicated here, for several reasons. First, it seems any given artifact kind is susceptible to this kind of collective mind-dependence, even though not all particular artifacts happen to be collectively mind-dependent. Second, it's not always clear which audience is supporting the collective mind-dependence in question. If I'm making hammocks for commercial sale, does it include all customers or just my coworkers or distributors or is it society at large? In the case of the church being appropriated as an event hall, it depends on the system of laws and contracts that govern property ownership and use of commercial space in the Netherlands, but which group do these laws ultimately depend on, society as a whole or the relevant legal authority that drafted those laws?

²²⁶ See Evnine (2016, 86ff.) for further defense of the essentiality of origin for artifacts.

²²⁷ In cases where we're talking about the maker in the sense of the agent(s) with the relevant intention, then this involves constitutive mind-dependence. In cases where we're talking about the maker in either the sense of assembler or agent coordinating the assembly to ensure they follow the intentions or design, then this involves causal mind-dependence. The former case is rigidly historical, but the latter two seem to be generically historical, i.e. anyone could be the assembler or coordinated, say, but only *this* person can be the source of the intention.

Consider the case of Scheele's belaying device. It rigidly historically depends for its existence as a belaying device on its maker (the manufacturer, in this case a group of agents with coordinated intentions in a factory). The belaying device is appropriated as an abseiling device by the climbing community, which means that a series of individual belaying devices were successfully appropriated by climbers as abseiling devices. The figure-eight then became, through broad community acceptance and use, both a belaying and abseiling device. The climbers were just the users of the belaying device, so it isn't dependent on them. However, the climbers were the makers of the abseiling device (via appropriation), so each individual climber that initially appropriated the figure-eight as an abseiling device generated the same kind of dependence as ordinary artifact creation: the abseiling device is rigidly historically dependent upon the intentions of the individual climber. But once broad communal acceptance and entrenched use occurs (albeit gradually) it seems that at least the kind *figure-eight device* becomes at least partially dependent on the climbing community collectively, since its kind-relevant features have changed as a result of the change in the public norm governing figure-eight devices. This change didn't seem to require any particular individuals but just a general group of climbers appropriating, using, and treating the figure-eight device in a certain way. That is, the climbing community was responsible for the change, but no particular climbing community was – if the make-up of the group was different it still could have heralded the same change in the figure-eight device, pointing towards generic dependence on the group. The same holds for other cases of collective dependence, like the church becoming an event hall: the event hall depends on the laws, contracts and public norms governing property, and thereby depends on the groups that sustain those laws, contracts, and public norms, but it doesn't require that

exact group or those exact collective mental states. A generic group of law and policy makers and public opinion about property rights is sufficient. So again, the dependence is generic.²²⁸

The more difficult question is whether this generic group mind-dependence is constant or historical. I lean towards generic historical dependence. It might seem like the figure-eight being an abseiling device will continue only so long as the public norm and the climbing community sustaining that norm, continue to exist, thereby suggesting constant dependence. However, once the climbing community initiates the change to the figure-eight, it seems that all of a sudden Robinson Crusoe cases are possible: someone stuck on an island who just spent their time climbing using a figure-eight device could appropriate it as an abseiling device, thereby creating such a device absent any collective dependence. Of course, this would have been possible even without the climbing community's acceptance, but back in a social context where the climbing community did accept and adopt the figure-eight as an abseiling device, other makers could then make it or appropriate it in isolation if they're aware of the new figure-eight norm. In such circumstances, the norm plays an essential role, but the group may not even be aware of the existence of the figure-eight-abseiling device made in isolation, so the device is only generically historically dependent on the climbing community.

On the other hand, it could be argued that this is a form of constant mind-dependence because in the case just described above, it's the continued existence of the new norm governing figure-eight devices that they're for abseiling as well as belaying. That is, so long as the norm is such that figure-eight devices are abseiling devices, then what the lone maker makes is an

²²⁸ There are difficult questions waiting in the wings here about group identity. What makes a social group the same social group across time? It probably depends on the kind of group in question; what makes something the social group of Dutch lawmakers is different from what makes something the same baseball team or the same society. I can't address these issues here, though how they're addressed may matter for the nature of the social mind-dependence of artifacts. For representative accounts, see Hawley (2017) for group composition as identity, Ritchie (2013) for groups as realizations of structures, and Epstein (2015) for groups as constituted but not identical to their members. For general discussion of group persistence see Wahlberg (2014).

abseiling figure-eight device. Thus, the figure-eight device is constantly dependent on the public norm for its existence.

While one could argue this, I'm not convinced. I have the intuition that *that* figure-eight device would continue to be an abseiling device even if the norms change. That is, the artifact is dependent for its existence on the norms that exist *at the time it's created*, but even if the norms change, that particular artifact was created to meet different norms and it's these norms that are relevant in determining what kind of thing it is. Therefore, the figure-eight device would be generically *historically* dependent on the figure-eight device norm introduced by the climbing community.²²⁹

Therefore, in cases of constitutive individual dependence, artifacts are rigidly historically dependent on their maker's intentions. In cases where there is an element of constitutive collective or social mind-dependence, the artifact is also generically historically dependent on the public norm and the social group which gives rise to it. We've clarified the properties of the different mind-dependence relations, so we can now add the disjunctive mind-dependence from section 5 to the account of artifacts developed in section 4.

5.7 Conclusion: Tying All the Threads Together (to Make an Artifact)

We can now give a final account of artifacts by drawing all the disparate threads of the chapter together. This includes the three main features of artifacts explored: their intention-

²²⁹ If we accept my claim in section 5 about the order of fundamentality of group mind-dependence, plus the transitivity of dependence, then we can say that an artifact of kind K is rigidly historically dependent on the maker's intention that it be recognized as a K, which in turn is generically historically dependent on the K-norm, which in turn is generically historically dependent on the acceptance of the success of the initial maker of Ks by the relevant audience.

dependence, the role of criterial or kind-relevant features, and the disjunctive nature of mind-dependence.

In section 4 I gave a first-pass account of artifacts and their success conditions. I formulated a general artifact principle, into which we can substitute any artifact kind, and six success conditions on artifact making. Recall that the artifact principle was as follows:

Artifact Principle: Necessarily, for all x and all artifactual kinds K , x is a K if and only if x is the product of a largely successful intention that (Kx) , where one intends (Kx) if and only if one has a concept of the nature of Ks that matches to some extent that of some group of prior makers of Ks (if there are any) and intends to realize that concept by imposing some subset of K -relevant features $k_1, k_2, k_3 \dots k_n$ on the object.

This says that a maker makes an artifact when she intends (and attempts) to bestow, and does so successfully, some number of kind-relevant features of the kind she's intending to make. We can substitute any artifact kind into this principle, such as *key* or *chair* or *Champagne* or *cellphone*. Because the principle makes reference to the artifact being the product of a *largely successful intention* to make one of those kinds of things, it was necessary to say what conditions there are on successfully making an artifact, i.e. what makes something a *successful* product of such an intention?

I provisionally listed six conditions on a maker S successfully making a K :

- (1) Intention-Dependence: A maker S must intend to make an artifact of kind K .
- (2) Attempt-Dependence: A maker S must attempt to make an artifact of kind K .
- (3) Concept-Dependence: A maker S must have a concept of Ks .
- (4) Kind-Relevant Features: A maker S must attempt to bestow some of K 's kind-relevant features $k_1, k_2, k_3 \dots k_n$ on an object(s) O .
- (5) Bestowal: A maker S must successfully bestow the intended kind-relevant features $k_1, k_2, k_3 \dots k_n$ on O to some extent.

(6) Progenitor: For any artifact A, there is some pre-existing object(s) O from which A originated as the result of the maker S's attempt to make A.

The maker's intention must involve a concept of the kind they're trying to make and this concept must involve an awareness of the kind-relevant features constitutive of the kind, which matches to some extent the concept held by other makers. This intention must then be executed, i.e. attempted: the maker must actually try to make the artifact they intend to make. This attempt will in turn involve bestowing some number of kind-relevant features on the progenitor and the maker will have successfully made an artifact of the kind she intended if the bestowal was successful. Here we can't give some set of strict necessary and sufficient conditions. For any artifact kind K there is some minimum threshold of K-relevant features that its members must have, but the minimum threshold of K-relevant features will vary with kind (submarines vs. chairs) and context (for sale, for personal use, as a gift, etc.). So the 'to some extent' in (5) is at or above the minimum threshold of K-relevant features for each kind.

In sections 5 and 6 we explored the collective mind-dependence of artifacts and the nature of such dependence relations. I argued, with Dipert, Thomasson, and Scheele, that the success of a maker's attempt sometimes depends on either the product's recognitional features (Dipert), its compliance with a public norm (Thomasson), or the collective acceptance of the intended audience (Scheele). The social nature of the mind-dependence partly determines the success of the maker's bestowal of the K-relevant features, which appears in conditions (4) and (5).

Let's call the public norm governing an artifact kind K the K-norm, and the relevant audience for any *individual* K, the K-audience.²³⁰ The K-audience will be determined by the

²³⁰ The audience will change for members of the same artifact kind, e.g. whether I make a chair for my personal use or for sale or as a gift, etc. so each individual chair will have its own corresponding chair-audience.

maker's intentions; if I intend to make a chair for personal use in the garage, then I may be the only relevant K-audience. However, if I make a doorstep by bringing a rock in from the garden for use in my household, then my family may constitute the K-audience. Since the mind-dependence of artifacts is disjunctive, we need to recognize that in our success conditions. If the artifact is private, then the maker is successful to the extent that they bestowed the intended K-relevant features on the progenitor (and they failed if they're below the minimum threshold for Ks). If the artifact is public, then the maker is successful to the degree that the bestowed K-relevant features meet the K-norm (where this is determined by the K-audience).

We can now formulate an *Artifact Success Principle* to account for this disjunctive mind-dependence:

Artifact Success: For all x and all artifact kinds K , S 's intention that (Kx) is successful *either* [to the degree that S bestowed the intended K -relevant features $k_1, k_2, k_3 \dots k_n$ on x] *or* [to the degree that the product of S 's intention that (Kx) is accepted as having satisfied the K -norm by the relevant K -audience].

As with the *Artifact Principle*, *Artifact Success* is fully general and any artifact kind can be substituted for 'K'. For example, we could substitute 'salad fork' for 'K' and get an instance of the principle which involves both disjuncts:

Salad Fork Success: For all x and all salad forks, S 's intention that $(SaladForkx)$ is successful *either* [to the degree that S bestowed the intended Salad Fork-relevant features, intended to eat salad with, during full dinner service, to be held in one hand and used to stab, shorter than other forks, etc. on x] *or* [to the degree that the product of S 's intention that $(SaladForkx)$ is accepted as having satisfied the Salad Fork-norm by the relevant Salad Fork-audience].

In a case where the artifact is intended to have the feature of *being recognizable as a K*, then this feature will appear in the first disjunct, in the list of K -relevant features, but will simultaneously centrally determine whether the maker was successful, according to the K -audience. In cases of private artifacts, the maker won't intend to bestow the feature of *being recognizable as a K*.

The disjunctive mind-dependence is built into *Artifact Success*. Again, the first disjunct can hold with or without the second, but one cannot have the second disjunct satisfied without the maker's intention to make a K. The first disjunct involves the *actual* bestowal of K-relevant features. That is, if S intends to bestow k_1 , k_2 , and k_3 on x , then x must *actually* have some minimum number of k_1 - k_3 as a result of S's intention.²³¹ The two disjuncts cover cases where S might have only successfully bestowed k_1 and takes herself to have failed to make a K, but the K-audience might accept her product as a K on the basis of k_1 alone and thus her intention was successful. Such a disagreement is about the minimum number of K-relevant features necessary to make a K and this threshold can vary, with the K-audience sometimes determining where it lies, while other times it's determined by the maker.

Of course, sometimes such disagreement may not result in a clear 'victor'. The disagreement about the minimum threshold of K-relevant features may be so trenchant that it's simply indeterminate whether a K was successfully made. There are these kinds of borderline cases of success and I think we should just take our practices at face value and accept that sometimes whether a maker succeeded in making a K might be indeterminate. In general, though, I think there's broad agreement on the extent to which makers are successful, so cases of indeterminacy are marginal and uncommon.²³²

²³¹ What about cases where both the maker and the K-audience are massively mistaken about *whether the K-relevant features were actually bestowed*? We can go one of two ways here: either everyone accepts that x is a K and everyone, including the maker, are mistaken because x has little or no K-relevant features *or* we could say that collective acceptance can 'confer' artifact success and thereby overrule the need for *actual* bestowal of the K-relevant features. I'm not sure which option to go for – questions of epistemic privilege will be addressed in chapter 7 – but cases of what Beth Preston (2009) calls *phantom function* suggest the latter option. Sometimes artifacts are ascribed functions and reproduced because of those functions when it's physically impossible that they perform that function. For example, the beaked plague masks of the seventeenth century can't stop the spread of disease but were reproduced for a long time due to that function. Such a function seems central to being a plague mask, so it's tempting to say that collective acceptance judges their production a success. However, we need to distinguish between having a function F and being able to perform F . The masks could have the function without being able to perform it, so they may count as having been successfully bestowed F . This would make cases of mass mistake exceedingly rare.

²³² Since this seems to be a feature of our practices, the pragmatic constraint enjoins us to accept it unless we have good theoretical reason not to. I'll follow Thomasson (2003b, 598-599) and Baker (2007, Ch. 6) in accepting

In general, however, the maker's attitude towards her own success and the general attitude of the K-audience will coincide, resulting in broad agreement that the maker succeeded in making a K. In such cases, the artifact is dependent on both the maker's intentions and the K-norm and concomitantly the K-audience. I argued for a specific account of the disjunctive mind-dependency relations that artifacts exhibit. We can specify those here:

Individual Mind-Dependence: An artifact A of kind K is constitutively rigidly historically dependent on A's maker S's intention to make an artifact of kind K.

Social Mind-Dependence: An artifact A of kind K is constitutively generically historically dependent on the K-norm and by transitivity, on the K-audience.

These two dependence conditions supplement the principle *Artifact Success* by specifying the nature of the mind-dependence in each disjunct.

Artifact Success, together with the *Artifact Principle*, the six conditions on artifact making, and the two mind-dependence conditions, yield a fully general account of artifacts. However, the account of artifacts I've developed makes essential reference to artifact *kinds* because it explains *being an artifact* in terms of *being a member of an artifact kind K* and a maker's intention (and attempt) to make an *artifact* in terms of an intention (and attempt) to make a *member of a particular artifact kind*. This raises an important and heretofore unaddressed question in the literature: what makes a kind an *artifact* kind? I'll pursue this question in the next chapter.

indeterminacy. You can pick your favourite account of vagueness to explain these cases, though I prefer an account that places the vagueness in our concepts, rather than the world.

CHAPTER 6: WHAT MAKES A KIND AN *ARTIFACT* KIND?

6.1 Introduction

The past couple of decades have seen an explosion in philosophical attention to artifacts, with an ever-increasing number of accounts of the metaphysical nature of artifacts. In the previous chapter, I offered my own account of the metaphysics of artifacts and their essence. On my account, artifacts are the successful products of a maker's intention to make an artifact of a given kind K, where 'intending to make a K' is understood as intending to bestow some sufficient subset of K-relevant features on the resulting product. These features are often functional but may also be structural, material, aesthetic, geographic or historical. However, I also argued that the mind-dependence of artifacts is importantly disjunctive: some artifacts are as just described and depend only on the mental states (intentions) of their maker – these I called private artifacts. But some artifacts depend on public norms which constitutively govern the kind and in turn on the relevant audience or social group which sustains those norms. Thus, some artifacts depend not only on their maker's intentions but also on public norms or collective acceptance by a social group – following Thomasson, these are termed public artifacts. This introduces an essential element of group or social mind-dependence and, as I argued in the previous chapter, this applies, in principle, to *any* artifact kind. The public/private artifact distinction tracks *individual artifacts* rather than *kinds of artifacts*. Members of the same artifact kind can *either* depend only on their maker's intentions *or* can also depend on public norms and communal acceptance. Whether only one or both kinds of dependence holds will depend on the circumstances of creation of the individual artifact.

The account I give involves makers making artifacts by intending to make an artifact of a particular artifact kind *K*. But this naturally raises the question of what kinds are *artifact* kinds, specifically and what makes a kind an *artifact* kind. These questions are implicit in my account, but even if one doesn't buy into my account, the question of what makes a kind an artifact kind arises for any account of artifacts which appeals to being a member of an artifact kind. I assume, as do most others, that to be an artifact entails being a member of an artifact kind – there are no free floaters, so to speak, entities which are artifacts but don't belong to a more specific artifact kind like *chair*, *gearshift*, or *lampshade*. Any account of artifact essences that involves the following schema – call this the *artifact schema* – will be faced with this question:

Artifact Schema: x is an artifact iff x is a member of an artifact kind K and...

What follows the ellipses is whatever else the account takes the essence of artifacts to involve. An account need not have this exact formulation of the schema; what matters is that being a member of an artifact kind is a necessary feature of being an artifact. The question of what makes a kind an artifact kind also arises for the accounts given by Bloom (1996), Thomasson (2003b, 2007a, 2014), Eynine (2016), Baker (2007), Elder (2007, 2014), Soavi (2009b), Franssen and Kroes (2014), and Grandy (2007).²³³ The question also arises indirectly for Hilpinen (1992) since he requires makers to intend to make something that satisfies some type-description and these descriptions seem to correspond to artifact kinds, though he doesn't explicitly say so.

In addressing this question, I will assume my own account of artifacts, since it furnishes the resources for a solution that many of the other accounts lack. In particular, the account of artifact essences that I offer, which involves what I've called disjunctive mind-dependence, will

²³³ Dipert (1993) doesn't talk much about artifact kinds, but I suspect his account faces this question, too. Preston (2013) argues that the concept of *artifact* is explanatorily useless, and we should focus instead on *material culture*, so I'm not sure she would or should have any truck with this question.

allow us to answer this question, though similar responses are available to those who accept some aspect of collective or social mind-dependence, such as Dipert, Thomasson, and Scheele.

The question of what makes a kind an artifact kind is actually two distinct questions, both of which are implicit in my account and any others that explicitly or implicitly involve the artifact schema. The first question can be understood as asking what distinguishes artifacts from other *kinds*, such as natural or institutional kinds. The second question can be understood as asking what distinguishes distinct artifact kinds from *each other*, such as chairs, pencils, or teapots. I'll discuss these in turn.

The first question asks what distinguishes artifacts from other kinds or in other words, what kinds can be substituted for 'K' in the artifact schema. We can intuitively substitute all the paradigmatic artifact kinds and get an obviously true case of the schema (filling it out with the rest of my account from Chapter 5). It may be less obvious, but we can do so for esoteric artifact kinds, such as *rheostat* or *tulwar*, as well. But what about the kinds *molybdenum* or *beech tree* or *human child* or *declaration of human rights* or *non-resident alien*? In virtue of what do we get a false version of the artifact schema when these kinds are substituted for 'K'? We need an account of what distinguishes the artifact kinds from other kinds. I can't give an exhaustive account of what delimits each kind. It's too monumental a task to give an account of natural and institutional kinds, in addition to my account of artifacts, in order to distinguish between them. However, I can offer an account of what distinguishes the kind *artifact* from other kinds based on the features of artifacts and the generally accepted features of these other kinds in conjunction with paradigmatic examples. I also can't give an answer for *every* kind of kind, so I will focus on the two most salient and widely discussed: natural kinds and institutional kinds. This will cover the 'big three': artifactual, institutional, and natural. I will also gesture at some ways artifacts

differ from some other kinds, including purely functional kinds, culinary kinds and social or human kinds more broadly. Despite myriad similarities, the mind-dependency relations of artifacts, in particular the disjunctive nature of such relations, allows us to distinguish them from natural and institutional kinds. In the case of the former, we can make a principled distinction between artifact kinds and natural kinds based on the types and modal status of the mind-dependence involved. This is *pace* various authors who argue that no such distinction can be made and so natural and artifactual kinds exist on a continuum.²³⁴ With respect to institutional kinds, the difference lies in whether the kind in question requires collective, or group or social mind-dependence. Institutional kinds necessarily do, while artifacts may or may not involve such mind-dependence.

The second question asks what distinguishes artifact kinds from *each other*, or in other words, why does a maker make some artifact of kind K_1 rather than an artifact of kind K_2 ? The answer to this question might seem obvious or the question unimportant. After all, we know what a chair, pencil, and teapot is and rarely confuse them. Indeed, we can readily identify most artifact kinds by sight alone. Moreover, makers intend to make something of a specific kind – a carpenter intends to make a picnic table not a rocking chair – by intending to bestow the features constitutive of the kind they intend to make. Thus, the makers' intentions seem sufficient to determine the kind in question. However, there are cases where it's not clear why or whether two kinds of artifacts are distinct kinds and cases where, for a given artifact, it's not clear which kind it belongs to. For example, why are chairs and stools two distinct kinds of artifacts and is a hotdog a sandwich or a distinct kind? The answer to the former is certainly not obvious given the similarities between the two kinds and any answer to the latter is sure to be controversial.

²³⁴ E.g. Baker (2008, 2007), Elder (2007, 2014), Grandy (2007), Sperber (2007), and Khalidi (2016).

A parallel question has recently been raised in the philosophy of art literature. Dominic Lopes (2014) has proposed his ‘buck passing’ theory of art, whereby he argues that giving a theory of art is a hopeless task so we’d be better served passing the buck and giving theories of the individual arts instead. So instead of asking what general features make something an artwork, Lopes suggests that what makes something a work of art is that it belongs to a particular art kind, such as *dance*, *cinema*, or *painting*. Passing the buck in this way raises the question of what makes a kind an *art* kind. To use Lopes’ (2014, 16-17) example, what makes a piece of *bizen-yaki* a work of ceramic art but my ceramic coffee mug mass produced for sale at Walmart not? Like the parallel question about artifacts, the answer is not at all obvious. Nonetheless, an answer to the question of what makes a kind an *art* kind has recently been given by Michel Xhignesse (2020b), who argues that it’s our arbitrary and contingent social conventions surrounding our artworld practices that determine what kinds are *art* kinds. Thus, *bizen-yaki* is an art kind because an appreciative practice surrounding *bizen-yaki* has arisen amongst our artistic practices but the same has not occurred with Walmart coffee mugs, though this is merely a result of historical circumstance.

While there are a number of important differences between the art kind case and the artifact kind case, the answer I will give to our latter question is essentially the same as Xhignesse’s. What distinguishes chairs from stools is that there are distinct social practices governing the two. What makes a hot dog a sandwich (or not) is that hot dogs have (or have not) become subject to our sandwich practices. That my view is so similar to Xhignesse’s shouldn’t be surprising, since I’ve argued that all artworks are artifacts (Chapter 3); that is, artworks are one kind of artifact, alongside area rugs, automobiles, and power lines. What differs is the constitutive features of the artifact kind in question. Further, in tackling the second question

about what makes a kind an artifact kind, I'm not endorsing a view of artifacts parallel to Lopes' view of artworks. While Lopes thinks that a theory of *art* must pass the buck to a theory of *the arts*, and as a result we're faced with the question of what makes a kind an art kind, I have offered a general and informative account of artifacts in Chapter 5. Nonetheless, since my account fits the artifact schema, we still need an answer to the question of what makes a kind an *artifact* kind, even if we're not fully passing the buck to a theory of the artifact kinds. Indeed, there are far fewer art kinds than artifact kinds (since the former are all instances of the latter), so giving an exhaustive account of *the artifact kinds* would be a nigh impossible task. This will go some way towards giving a unified account of artworks and other artifacts, but I by no means take it to be exhaustive or complete – that project requires its own book-length treatment.

The chapter is structured as follows. In section 2 I address the first question about what distinguishes artifacts from other kinds. Section 2.1 considers institutional kinds, while section 2.2 considers natural kinds. Section 2.3 looks at the differences between artifacts and functional and culinary kinds, while along the way, artifacts will be distinguished from social or human kinds, broadly construed. In section 3, I address the second question, about what distinguishes artifact kinds from each other. Section 3.1 introduces the problem and discusses particular cases to help focus the issue. Section 3.2 considers the nature of social norms and conventions. Section 3.3 illustrates how norms arise which govern specific artifact kinds by considering the historical case of *chopines*. Section 3.4 then discusses how such norms give rise to, and ultimately constitute, our social practices surrounding artifact kinds. Thus, while relations of mind-dependence distinguish artifacts from other kinds, it is social norms and their concomitant social practices which distinguish artifact kinds from one another. Finally, in section 3.5, I make a general observation about artifact, art, and social kinds, namely that they're all what Ian Hacking

calls *interactive kinds*. This follows (with some caveats) from the norms which govern these kinds. I briefly conclude in section 4.

A brief qualification before moving on. With respect to the first question, about what distinguishes artifacts from other kinds of kinds, the majority of work on this question has focused on issues concerning realism – whether institutional, artifactual, and other social kinds are ‘real’ kinds, as allegedly natural kinds are. In Chapter 2, I argued against the realist construals of artifacts in part because realism isn’t well defined. Everyone means something different by ‘real’. But as many have argued, including myself in Chapter 2, once realism is specified explicitly, it turns out either that artifacts are real or that some natural kinds aren’t real. I won’t rehash those arguments. It suffices to say that the realism issue is fruitless, and a needless diversion from more substantial and interesting questions about artifactual, institutional, and social kinds. Thus, I won’t address it again here.

6.2 Artifacts versus Other Kinds

The first disambiguation of the question ‘What makes a kind an *artifact* kind?’ is what distinguishes artifacts from other kinds, such as natural kinds like gold, electrons or wombats or institutional kinds like the supreme court, marriage, or money? That is, what makes the kind *chair* an artifact kind, rather than a natural or institutional kind? There are many other kinds of kinds but I take these two to be the most salient and certainly the most widely discussed in the philosophical literature. Moreover, other kinds tend to fall under one of the ‘big three’: artifacts, natural kinds, or institutional kinds. For example, purely functional kinds may have members which are artifacts (particle accelerators) or natural kinds (a bird’s wings). While I can’t give an exhaustive account of all kinds, I’ll discuss functional and culinary kinds in section 2.3, while

social or human kinds, broadly construed, will be clarified as we go. Section 2.1 addresses institutional kinds, while natural kinds are considered in section 2.2. The upshot is that we'll have a clear way of demarcating artifacts from natural and institutional kinds and we'll have a rough guide for how to distinguish artifacts from other kinds, including kinds not considered here.

6.2.1 Social and Institutional Kinds

Much attention has recently been paid to institutional, and more broadly social, kinds, paradigmatic instances of which include the supreme court, marriage, permanent residency, parliament, sports teams, college degrees, and money.²³⁵ While the broader category of social kinds includes institutional kinds, I will focus on the latter for reasons that will become obvious below. In many ways, these entities are akin to artifacts, the most salient similarity being that they are both mind-dependent – they cannot occur 'naturally', i.e. as a result of purely causal forces that don't involve the mental states of an agent or agents. But what differences are there and what makes, e.g. *permanent residency*, an institutional rather than an artifactual, kind? First, we must get clearer on what social and institutional kinds are like.²³⁶

To do so it will be helpful to start with Muhammad Khalidi's (2015) tripartite distinction between social kinds. Khalidi, like many others, is primarily interested in securing realism about social kinds. However, his discussion is particularly useful in characterizing institutional kinds

²³⁵ There's an increasingly large literature on institutional and social kinds. See especially Searle (1995), as well as Ruben (1985), Tuomela (2002, 2007), Thomasson (2003b, 2016), Bicchieri (2006), Khalidi (2010, 2015, 2016), Epstein (2015), Gilbert (2015), Guala (2016), Mason (2016, 2020), Ritchie (2013, 2015), and Mallon (2016).

²³⁶ There's a distinct but nearby question about the metaphysics of social *groups*. Depending on how this is cast it may be about social/institutional kinds or it may not. See Ruben (1985), Thomasson (2016), Ritchie (2015), and especially Hawley (2017) for discussion.

and differences amongst social kinds. The moniker ‘social kind’ isn’t often defined. Social kinds – also frequently called *human* kinds²³⁷ – are implicitly taken to refer to any kind that is distinctly *social*. That is, those kinds that in some way depend on, are about, or occur in, human social contexts, social contexts being those that involve *groups*.²³⁸ Khalidi, in criticizing Searle’s (1995, 14ff.) treatment of social kinds, identifies three distinct social kinds. First, are those social kinds that are generally mind-dependent, but don’t depend on people having specific propositional attitudes about them, such as *racism* and *recession* (Khalidi 2015, 99-100).²³⁹ Racism can only exist if groups of agents exist, but racism can occur without those agents having any attitudes towards it. Indeed, neither the perpetrators nor victims of racism may even have the concept of racism. Similar considerations apply to *recession*: the existence of a recession depends on the existence of minds and the various actions and behaviours those minds exhibit, but those very agents whose minds it depends on need not have any beliefs, intentions, or attitudes *about* recession, nor possess the concept itself, for a recession to exist.

Khalidi’s (2015, 100-101) second kind of social kind involves kinds that are mind-dependent, but only the *type* (or kind) requires some agents to have specific attitudes about it. Particular tokens or instances of the kind need not be the object of any propositional attitudes. This second social kind includes kinds like *money* and *war*. Money, Searle’s favourite example which Khalidi borrows, is certainly mind-dependent; no minds, mental states, or agents, no money. However, Searle and Khalidi both argue that only the type or kind *money* requires specific attitudes for its existence. We all agree that there is a thing that is money and that it has

²³⁷ See e.g. Mallon (2016).

²³⁸ While not addressed in the literature, I see no reason for social kinds not to include kinds that pertain to non-human life that exhibits social behaviour and advanced cognitive capacities, such as bonobos, advanced AIs or alien life. This is perhaps a reason to use ‘social’ rather than ‘human’ kinds.

²³⁹ The example of *recession* is Thomasson’s (2003a) which she brings up in the context of criticizing Searle’s analysis.

an exchange value and can be used to buy goods and services, and so on. If we didn't all collectively accept this, there would be no money (Searle 1995, 32ff.). However, according to Searle and Khalidi, particular instances of money, such as a particular ten dollar American bill, don't require *any* specific attitudes to be had towards them. Khalidi (2015, 100) gives the example, which he borrows from Searle (1995, 32-33), of a ten-dollar bill which falls between the cracks in the floorboards directly from the printing press and no one ever notices it. Khalidi (and Searle) claim that this is an instance of *money* but that it doesn't depend on agents having any specific attitudes about it. Thus, the second kind of social kind only depends on collective attitudes about the type, not its tokens.

Khalidi's (2015, 101-102) third kind of social kind is what are more commonly regarded as institutional kinds. Both the type and tokens of such entities depend on collective attitudes and acceptance of their existence in order to exist. Examples include *marriage*, *permanent resident*, *elections*, and *the office of the American president*. The type or kind *permanent resident* exists only as long as there is collective acceptance of its existence, but any particular *permanent resident* also depends on collective attitudes about their status as an instance of that kind. There are many different accounts of such institutional kinds most of which share the central feature that institutional kinds are essentially *collectively* mind-dependent.²⁴⁰ As I argued in the previous chapter, Robinson Crusoe can make a hammock or a tea cozy, but he can't make the supreme court or a marriage.²⁴¹ Thus, these kinds are institutional kinds since they depend upon collective, rather than individual, intentions.²⁴²

²⁴⁰ Searle (1995) is the original account, but see Thomasson (2003b, 585-592) and Guala (2016) for more recent representative accounts.

²⁴¹ Depending on one's views about Wittgenstein's private language argument, and how exactly one constructs the Crusoe case, languages may turn out to be institutional kinds. See Wittgenstein (2009) and Kripke (1982).

²⁴² Again, I won't take a stand here on what the right account of collective intentions is. We just need to recognize that there are such things and that they are typically accepted as an essential feature of institutional kinds.

Whether a social kind is of the first, second, or third kind thereby depends on whether propositional attitudes are required of the type, tokens, both, or neither. Thus, Khalidi's (2015, 99-101) tripartite distinction among social kinds is as follows:

First Kind: Some kinds are mind-dependent on groups of agents but don't require *any* attitudes towards either the kind or members of the kind, in order to exist (Examples: recession, racism, GDP).

Second Kind: Some kinds require specific attitudes towards the type/kind in order to exist, but not towards individual tokens (Examples: money, war).

Third Kind: Some kinds require specific collective propositional attitudes towards both the type/kind and individual tokens for their existence (Examples: prime minister, permanent resident, election, marriage).

Given this tripartite distinction, how do such kinds differ from artifacts? I've argued that artifacts are mind-dependent *either* on the intentions of their makers *or* on the intentions of their makers and public norms which are partly constitutive of the kind (or collective acceptance by the relevant group which sustains the norms). This disjunctive account of mind-dependence holds for both artifact kinds (types) and individual artifacts (tokens). As a result, any kind of artifact or individual artifact *may be* collectively mind-dependent. By contrast, at least the latter two of Khalidi's social kinds *require* collective mind-dependence for either the type or both the type and its tokens.

Consider the third kind first. These are the standard institutional kinds which Searle is most interested in, and which have attracted the most attention in the literature. These involve collective acceptance by some group or members of some society to come into existence and to continue existing. If everyone in a society stopped believing that there was such a thing as a

permanent resident, there would cease to be such.²⁴³ This is true of both the type *permanent resident* and particular tokens of the type (though not everyone involved in the relevant group need have an attitude about each particular token permanent resident – there just needs to be *some* group or some subset of society, such as government officials, which holds the relevant attitude towards each individual token). This isn't the case with artifacts. Particular artifacts need not be collectively mind-dependent, but can be, whereas collective mind-dependence is necessary for institutional kinds. Moreover, artifacts don't involve constant or 'on-going' mind-dependence, but historical mind-dependence (either on the maker or on the relevant social group). That is, artifacts historically depend on the intention of the maker to make that very thing, but makers (or users) need not have any subsequent attitudes towards the thing they create. By contrast, most accounts of institutional kinds require some sort of constant or 'on-going' mind-dependence, though this may just involve a legal/institutional framework setting out the nature of the kind. It's not just that a bunch of people got together and agreed that there's this kind, *permanent resident*, and stipulated the features which constitute the kind; these beliefs and attitudes towards the kind must continue in order for *permanent residency* to continue to exist. If *everyone* in a society stopped believing and acting as if there are no more permanent residents and the requisite legal framework changed accordingly, then *permanent residency* would cease to exist in that society. Therefore, the specific nature of the mind-dependence relations required for institutional and artifactual kinds are importantly different and distinguish between the two. We can again deploy the Robinson Crusoe test for any given kind in order to determine whether it is institutional or artifactual.

²⁴³ Of course, this is overly simplistic; a lot of things would have to follow from everyone ceasing to believe in the kind for it to go out of existence because of the institutional kinds we have in place, e.g. laws and federal policies governing the kind. See Khalidi (2015, 102-103) for good discussion of what would be involved.

Now consider Khalidi's first kind of social kind. These kinds are mind-dependent and essentially dependent on groups, but not, apparently, collectively so. Moreover, these kinds don't require anyone, ever, to have specific attitudes towards them; they need not even possess the requisite concept for the kind to exist. Kinds such as recession, gross domestic product (GDP), racism, and homophobia fall into this category. It's certainly the case that a country has a GDP regardless of whether anyone measures it or even possesses such a concept (this was, of course, the case for all countries for most of human history). Yet for there to be GDP there must be groups of agents doing things, namely producing goods and services.²⁴⁴ Thus, GDP depends on a group of individuals, but not on their collective attitudes nor on any particular attitudes they may have about the kind at all. This is very different from artifacts, where to be an artifact an object needs a maker with the specific intention to make something of a particular artifact kind where the artifact kind is constituted by a cluster of kind-relevant features. While particular artifacts may depend on groups of individuals, this isn't necessary to be an artifact, and even where they do depend on groups, this involves a sort of collective dependence that is absent in the case of Khalidi's first social kind. Artifacts require a specific intention (and hence propositional attitude) about both the kind and particular artifacts (intending to make *something* of that *kind*). This requires that makers have a concept of the thing they intend to make. Neither an attitude towards the kind or towards its individual members is necessary for the first social kind. No one needs to intend to be homophobic in order to be homophobic.

²⁴⁴ The first kind of social kind seems to require *groups* of individuals. Robinson Crusoe can't experience a recession alone on his island. I'm less certain that Crusoe and his island community of one can't have a GDP, though perhaps absent a group which is producing goods, anything Crusoe produces wouldn't be measurable. Since GDP is usually defined relative to countries, Crusoe's goods can't be measured using that metric. This would be a matter for economists to decide.

The second social kind – those which are allegedly collectively mind-dependent but only with respect to the type, not specific tokens – pose more of a challenge. The reason is not that artifacts are like the second social kind in this way. Rather, I think that there is no such kind. Searle, and Khalidi following him, are confusing two distinct kinds with their examples of money and, less obviously, war. The reasoning behind positing this second kind of social kind is that these examples allegedly show that there are social kinds which differ from the first kind insofar as they are collectively mind-dependent and require specific attitudes about them, but which, unlike the third kind, only need to be about the type, not the individual tokens. Searle (1995, 32-33) gives the example of money: for money to exist we must collectively agree and accept that it exists and if we all ceased to do so money would disappear. But, particular tokens of money allegedly don't have this feature: a dollar bill can fall off the printing press between the floorboards and no one ever discovers it, yet it's still money despite not being the object of any propositional attitudes. Khalidi (2015, 100-101) offers similar considerations in the case of war. As a result of such cases, Khalidi posits the second social kind.

Khalidi and Searle are conflating two distinct senses of 'money', which have distinct properties, thereby leading to the unjustified positing of an additional social kind.²⁴⁵ Money in one sense is *currency* – the yen, the renminbi, the U.S., Canadian, and Australian dollars, among others, the pound sterling, and so on. Currencies like these collectively depend on our attitudes towards them. If we didn't all accept and agree that there was a such a currency, which is systematized and institutionalized via an exceedingly complex global financial and legal apparatus, such a kind wouldn't exist. Moreover, this requires constant or on-going mind-dependence for its existence, not just for the type, but also for its tokens. For individual coins,

²⁴⁵ Lowe (2014, 20) also makes this distinction, though it's not directed at anyone in particular.

bills, and electronic signatures to count as *yen*, there must be the requisite collective mind-dependence and acceptance and collective beliefs in place. Of course, how exactly the collective mind-dependence for individual tokens should be cashed out is a complicated affair. For a bill to count as yen doesn't require that someone be thinking that it's yen at all times at which it exists. Rather, there's a complex institutional framework that we all collectively accept and support which determines what things count as money, who has the power to decide what's money, how much the money is worth, etc. For the United States dollar, it's the Bureau of Printing and Engraving and the Federal Reserve, though other agencies are involved with e-currency units. With this vast institutional and legal framework in place, particular tokens count as tokens of whatever currency. But they are *collectively* mind-dependent. At this juncture, it seems that money in the sense of currency exhibits the same properties as standard institutional kinds like permanent resident, elections, marriage, and the supreme court. Thus, money in this sense falls under Khalidi's third kind of social kind.

Money in the second sense is things like coins and bills and electronic signatures, that is, money in the sense of *medium of exchange*. The dollar bill that falls between the floorboards and is never noticed by anyone is still a *bill*. It's also a (American) *dollar* because of the institutional framework which supports it being such, but this is money in the sense of currency as institutional kind. The piece of paper that falls off the machine is still a *bill* because it was intentionally made to be such. That is, money in this second sense of medium is an *artifact* kind: it is an item intentionally made by some agent intending to make something of that kind, i.e. something with dollar bill-relevant features. If all humans were wiped out in a mass extinction, the dollar bill would cease to be money in the first sense of money, but it would still be a dollar *bill*. Artifacts can exist without their creators, they don't require constant mind-dependence, but

historical mind-dependence, i.e. they must be the successful product of an intention to make that kind of thing. The bill that falls between the floorboards doesn't require constant or collective mind-dependence with specific attitudes towards it for it to be a bill because it's an artifact, and thereby depends historically on its maker intending to make something of that kind. The same holds for other mediums such as coins or e-signatures. We can use anything in this way, such as seashells (cf. Searle 1995, 34-35), in which case, if we aren't modifying them, then we are appropriating them as artifacts, specifically as a medium of exchange. If we come up with a currency which we say they designate, then they are simultaneously an instance of money in the institutional sense (rather than just something used for barter). Often artifacts simultaneously fall under institutional kinds and thus may have multiple different, but related functions. For example, the institutional kind *driver's license* involves an artifact, the material laminated card or piece of plastic. Similarly, a *marriage* involves a contract, often the physical piece of paper that both parties sign and often also the exchange of rings. But in all such cases, we shouldn't conflate the artifact with the institutional kind – they can come apart and have very different properties. Both a wedding ring and a marriage contract have similar functions – they signify the union of a couple – but they do so in different ways and only one of them has legal import.

Based on the dollar bill that falls between the floorboards and similar cases, Searle and Khalidi claim that money requires specific attitudes about the type but not about individual tokens. Once we recognize that there are two distinct senses of money – an artifactual and an institutional sense – we see that the second social kind collapses into either artifacts or the third social kind. Money in the sense of medium of exchange fits my analysis of artifacts: bills and coins are the successful products of an intention to make something of that kind in virtue of their makers successfully bestowing the kind-relevant features on the object. Artifacts do require that

at least their makers have specific attitudes towards them (they intend to make them, after all) but they don't require those attitudes to be constant or on-going, hence why the bill between the floorboards is still a bill. Since (artifactual) money is intended to be used as a form of barter or legal tender it is distinctly social such that its production is governed by public norms surrounding bills and coins. Nonetheless, Robinson Crusoe could still produce a piece of paper with all of the same features as an American dollar bill. What Crusoe couldn't do is produce a *dollar* bill – the piece of paper lacks the requisite institutional support and authority to count as an instance of American currency since it didn't originate from the right source. All of that's to say that Crusoe can make money in the sense of medium but not money in the sense of currency.²⁴⁶ Of course, the dollar bill that falls between the floorboards is intuitively *both* a dollar bill in the sense of medium and in the sense of currency. In the first sense, it originated from a mostly automated printing process, but the machinery used was intentionally constructed with the intention that it be used to make that sort of thing, hence why the bill is still a bill.²⁴⁷ But the bill is also a *dollar* even if no one ever comes across it because it originated from the proper authority. Imagine someone does come across two years later; they would treat it as a dollar because the institutional framework is in place which stipulates that such things are legal tender. The relevant collective attitude is something like, *any bills and coins that originated from the Bureau of Engraving and have such-and-such features are legal currency in the United States.*²⁴⁸

²⁴⁶ We're now in a position to see why I preferred the second alternative to handling thrones, money, and wedding rings in Chapter 5. Crusoe can't make a *wedding* ring but he can make a ring. He can't make the institutional kind that depends on the material artifact but he can make the artifact itself. The same holds for money and the other kinds: he can make a *coin* but not a *five franc* coin.

²⁴⁷ See Chapter 3 for a discussion of automated production. The products of such processes are still artifacts they just aren't immediately causally dependent on their makers for their existence. See Khalidi (2016, 241) for a similar view of this case.

²⁴⁸ Searle calls these *status functions* – functions that institutional kinds have but which aren't dependent on their particular physical features. For example, a ceremonial sword can have the function of indicating rank, but there's nothing particular to the physical properties of the sword that do this, we've just all agreed (or the relevant group has)

As a result, the requisite collective attitude is in place, in addition to the necessary historical property, so it's both a *bill* and a *dollar*.²⁴⁹

Therefore, Khalidi's second social kind really collapses into the third kind – institutional kinds – and artifacts. Institutional kinds require collective attitudes towards both the type and individual tokens, while artifacts just require a historical attitude from the maker towards both. Since we already distinguished artifacts from institutional kinds and the first social kind, our work is done. It's worth noting that, while I set out to distinguish artifacts from institutional kinds, Khalidi's distinctions showed that they can be distinguished from other kinds of social kinds (though there's no snappy name for the first kind). However, what the *social* kinds are is usually just regarded as those kinds that involve humans and their social contexts, understood very broadly. On this understanding, it seems plausible that artifacts are a kind of *social* kind. I've argued (as has Thomasson, Dipert, and Scheele) that artifacts are importantly social insofar as they often depend on agents besides their maker. Exactly how one cashes out this insight doesn't really matter, since it's enough to include artifacts as a third kind of social kind. As a result, we can retain a tripartite distinction between social kinds, as Khalidi does, but swap out his second social kind for artifacts, and in virtue of the differences in the mind-dependence relations involved, distinguish artifacts from his other two social kinds.

that this is what it does. Such an institutional function is independent of its function as a *sword*. Thus, it has both an artifactual and institutional function simultaneously.

²⁴⁹ A similar disambiguation can be given for Khalidi's example of war, though it's less obvious. It follows the same pattern as money, driver's licenses, and marriages, but the associated artifact is an action or group of actions. While I can't defend the view that actions are artifactual events here, Hilpinen (1992, 70ff.) and Evnine (2016, ch. 7) have done so previously.

6.2.2 Natural Kinds

The other main kind from the ‘Big Three’ are *natural kinds*. Paradigmatic artifacts include chairs, pencils, and cellphones, while paradigmatic institutional kinds include marriage, money, elections, prime minister, laws, and congress. By contrast, natural kinds are things like gold, electrons, molybdenum, mountains, positive charge, wombats, and beech trees. Natural kinds are often thought to have three distinguishing features: (a) mind-independence, (b) an essential nature or essence, and (c) they are subject to law-like generalizations. These three features are often taken to distinguish natural kinds from other kinds, especially social or human kinds like artifacts and institutional kinds. Are (a)-(c) sufficient to distinguish natural kinds from artifacts?²⁵⁰ I’ll consider them in reverse order, but it should be clear already that (a) is the most promising candidate.²⁵¹

It’s often claimed that (c) natural kinds are those kinds that figure in laws of nature and thus support nomological generalizations. However, as I argued in Chapter 2, artifacts can appear in nomological generalizations, too, if we look to the special sciences. Anthropology, archeology, and history all make inductive generalizations about artifacts, especially tools. For example, ‘the introduction of flaked stone tools in a culture tends to lead to larger populations because of increased hunting success’. If we understand laws as counterfactual supporting generalizations, then this clearly counts as a law, just a special science law. It can’t be argued

²⁵⁰ See Putnam (1975), Devitt (1991), Wiggins (2001, 89-90) Thomasson (2007a), Chakravartty (2007), Baker (2007, 60ff.), Button (2013), Lowe (2014), Koslicki (2018, ch. 8), and Olivero (2019) for discussion of one or more of these features.

²⁵¹ It will be recalled from Chapter 2 that realist approaches to natural kinds also often assume an epistemic and semantic thesis which say that we have no privileged knowledge about natural kinds (we can be wrong about them) and that natural kind terms involve a causal connection with a member or sample of the kind that fixes reference, respectively. I argue in Chapter 7 that artifact kinds and kind terms function like natural kind terms in these ways, so these theses can’t help distinguish the two.

that this is a *ceteris paribus* law, because so are almost all laws in the sciences, natural or special. Thus, (c) won't help distinguish natural kinds from artifacts.

With respect to (b), it's thought that natural kinds are determined by their essential nature. For example, water is determined by its molecular structure, H₂O and wombats have a particular causal-evolutionary history of selection and reproduction. However, in Chapter 5 I developed an account of artifact essences, as have many others recently. Such proposals usually involve some extrinsic properties, such as intention-dependence or function, but this doesn't undermine their status as having an essence in the same way that some paradigmatic natural kinds are determined by an extrinsic essence, such as species, organs, and mountains. Wombats and other species kinds are taken to be paradigmatic cases of natural kinds, yet their essence is an extrinsic relational property – their particular etiology from a common ancestor. Similarly, mountains are those geological formations that result from a particular tectonic process. Finally, organs are determined by their function, which are extrinsic properties. As a result, both natural kinds and artifacts have essences, with some natural kinds having extrinsic, relational essences, just like artifacts. Thus, having an essential nature, regardless of whether it's partly extrinsic, doesn't distinguish artifacts from natural kinds.

This leaves (a) mind-independence. Can we simply say that artifacts are necessarily, essentially, mind-dependent, while natural kinds aren't? Initially, this seems quite plausible, since I've already argued, as have many others, that artifacts are essentially mind-dependent: the intentions of artifact makers partly constitute an artifact. By contrast, paradigmatic natural kinds are all things that occur naturally, independent of human thought and action, such as photons, gold, elm trees, asteroid belts, and tarantulas. Photons exist regardless of what we think about them or do to them; they're mind-*independent*, both causally and constitutively. It seems mind-

dependence provides a neat bifurcation of artifacts from natural kinds. Unfortunately, things aren't so simple, as there have been a growing number of attacks on the artifact/natural kind distinction in recent years, all of which argue that there's no principled distinction to be made, but rather artifacts and natural kinds exist on a continuum with some kinds in the middle being both natural and artifactual. Putative examples include bacterial batteries and engineered organisms (Baker 2007), stainless steel, decaf coffee, and dredged lakes (Grandy 2007), square watermelons and seedless grapes (Sperber 2007), and Ritalin, domesticated plants and animals like canola and dogs, and uranium-235 (Khalidi 2016). In all such cases, it's alleged that the essence of such things doesn't involve intentions or any other sort of mind-dependence, (e.g. Ritalin and uranium-235 are determined by their chemical structure) but that they are all undeniably artifacts since they are things intentionally produced by humans. Hence the conclusion that they are both artifacts and instances of natural kinds.²⁵²

While these examples are very interesting, I don't think they show that there's no principled difference between artifacts and natural kinds. We need to make some rather fine-grained modal distinctions in order to sharply distinguish natural kinds from artifacts for all of these kinds of cases. However, there are three issues about mind-independence/dependence that we need to distinguish here (this follows Khalidi 2016, 227-228):²⁵³

- (i) Mind-dependence of the kind vs. its instances/members
- (ii) Causal vs. constitutive mind-dependence
- (iii) Accidental (contingent) vs. essential (necessary) mind-dependence

²⁵² On the relation between artifacts and natural kinds, especially from an epistemic perspective, see Elder (2014), Franssen and Kroes (2014), Reydon (2014), Houkes and Vermaas (2014), and Kerr (2014).

²⁵³ Khalidi also includes mind-dependence of the kind versus mind-dependence of theory but I set that issue aside since it's not germane here.

With respect to (i), we needn't take a stand on this issue. We can be Platonists, Aristotelians, nominalists, or abstract creationists. That is, we could say that the kind or type is mind-independent or mind-dependent, but this is a more general issue about kinds and properties, natural or otherwise. One could distinguish between kinds on the basis of mind-dependence, as the creationists and some Armstrongians do, but we need not take a stand on that here. My account of artifacts focuses on instances or members of the kind, rather than the kind itself; the issue at hand is really about the mind-dependence of instances or members of the kind. As it happens, I'm inclined to think that the kind doesn't exist until it's tokened or instantiated, even if this is just as a plan or thought or design for the prototype that the inventor may have, but nothing will hang on this. Whether one prefers my view or nearby views, this won't help us distinguish between natural kinds and artifacts.

The issue of (ii) causal vs. constitutive mind-dependence is more germane to our discussion. I've argued, as have many others,²⁵⁴ that artifacts are constitutively mind-dependent – to be an artifact is, in part, to be intention-dependent where this feature partly constitutes the essence of the artifact. However, the constitutive mind-dependence of artifacts entails that they are also causally mind-dependent, since the same intention that partly constitutes their essence also causally contributes to their existence.²⁵⁵

At this point we run into the alleged counterexamples offered by Khalidi and others. Take uranium-235. It is allegedly an artifact and a natural kind. It's an artifact because all of its (known) instances are created in a laboratory. It's a natural kind because it's an atomic element whose essential nature and identity are determined by a mind-independent essence, its internal

²⁵⁴ E.g. Thomasson (2007b), Baker (2007), and Evnine (2016) to name a few.

²⁵⁵ In cases of appropriation, the progenitor may not be causally mind-dependent, but appropriating it as some artifact kind, such as a doorstop, thereby partly constitutes a new entity (a doorstop) but is also causally responsible for the creation of this new doorstop.

atomic structure. As a result, it's claimed, there are (1) artifacts which aren't constitutively mind-dependent and (2) artifact kinds which are also natural kinds (Khalidi 2016, 229-232). Therefore, it's concluded, there's no principled distinction between artifacts and natural kinds, but only a continuum with places on it that correspond to different kinds of essence and mind-dependence. It looks like the distinction between causal and constitutive mind-dependence can't distinguish artifacts from natural kinds since some artifacts aren't constitutively mind-dependent and are simultaneously members of natural kinds.

This brings us to (iii) accidental (or contingent) versus essential (or necessary) mind-dependence, which offers a way of handling these putative counterexamples to there being a principled distinction between artifacts and natural kinds (and similarly a way of maintaining their constitutive mind-dependence). By deploying and developing a fine-grained modal principle, first proposed by Hilpinen (1992, 66) and later by Thomasson (2003b, 592-593; 2007a, 57-58), we can make a principled distinction between artifacts and natural kinds and maintain that all artifacts are constitutively mind-dependent while no natural kinds are. Hilpinen and Thomasson distinguish between *essentially* artifactual kinds and *accidental* artifactual kinds (or necessarily and contingently artifactual kinds). We can formulate this distinction as follows:

Contingently Artifactual Kinds: For all contingently artifactual kinds K, possibly, some members

of K are not artifacts.

Examples: gold sphere, path, village, gear

Essentially Artifactual Kinds: For all essentially artifactual kinds K, necessarily, all members of K are artifacts.

Examples: chair, cellphone, pencil, aircraft carrier, thermostat

Essentially artifactual kinds necessarily have artifacts in their extension, while contingently artifactual kinds may happen to only have artifacts in their extension but this isn't necessary. For example, *transistor radio* is essentially artifactual, since anything that is a transistor radio is necessarily an artifact. However, the kind *gold sphere* may happen (actually) to only have artifacts in its extension, i.e. all gold spheres have been created by humans, but it's possible that there be non-artifacts in its extension, such as naturally occurring gold spheres not causally dependent on humans (this example is Thomasson's 2007a, 58). Hilpinen (1992, 66) further gives the example of *village* as a contingently artifactual kind, while Thomasson (2003b, 593) suggests in a similar vein that *path* is contingently artifactual.²⁵⁶

Essentially artifactual kinds include the majority of our paradigmatic artifact kinds such as chair, cellphone, nuclear submarine, and pencil. All of their members or instances are artifacts, and necessarily so. No member of these kinds can exist which isn't an artifact, i.e. mind-independently. Moreover, their mind-dependence is partly constitutive of their nature, so they are both causally and constitutively mind-dependent. If I make a transistor radio, then my intention to make something of that kind partly constitutes the nature of that particular transistor radio, while my intention to make one is simultaneously causally efficacious in my making one.²⁵⁷

²⁵⁶ Thomasson claims that *path* is contingently artifactual since a path could be worn unintentionally over a long period of time merely by people always following the same route. Similarly, Hilpinen suggests that *village* is contingently artifactual since there may be no covering intention to place all the buildings, roads and other artifacts together in a particular way – they just grew up around each other organically, as it were. *Bridge* may be similar since we recognize 'natural' bridges which are the result of erosion. However, we could also understand these cases as essentially artifactual if we construe them as cases of appropriation – people happen to walk this particular route over and over again and eventually appropriate it (with the concomitant intention) as a *path*. Similarly with *village* and *natural bridge*, though nothing hangs on either of these interpretations.

²⁵⁷ Again, in cases of appropriation the progenitor, such as a piece of driftwood, isn't an artifact but it is artifactualized by my intention to appropriate it as a wine rack or sculpture. This intention still plays both a causal and constitutive role in the driftwood becoming an artifact.

By contrast, the cases given above by Baker, Grandy, Sperber, and Khalidi are all contingently artifactual kinds. Transuranic elements are contingently artifactual since they can exist independently of humans. While most if not all known samples were created in laboratories, it's nomologically possible that they can come into existence mind-independently. Similarly, square watermelons, canola and the traits of domesticated animals, such as dogs, horses, camels, and cows can (nomologically *can*) come into existence without the aid of humans. While square watermelons might seem *unlikely* to come about as the result of evolutionary processes, if nature can come up with the cubed poop of wombats, square watermelons certainly aren't off the table.²⁵⁸ Perhaps counterintuitively, decaf coffee, stainless steel and polystyrene also pass this test, so are contingently artifactual; their chemical essences are not counterfactually dependent on human thought and action (either causally or constitutively) since their instances could have come into existence without human involvement. Even if all members of the kind (i.e. every piece of stainless steel) happens to be causally dependent on human thought and action, this doesn't show that it *must* be. Certainly, the chemical structure of stainless steel could come into existence, however unlikely, on its own, perhaps through some unique pressure at the center of some distant planet. Thus, not everything we cause to come into existence is an artifact in the essential sense. This shouldn't really come as a surprise, since we cause all sorts of things to exist. For example, imagine I accidentally (or even intentionally) drop an acorn into some soil and it grows into an oak tree. The oak tree depends on me, but not essentially and it's not an artifact. My account of artifacts (and those of many others) are only accounts of *essentially* artifactual kinds, which require *constitutive* (and

²⁵⁸ See Sperber (2007) for how domestication of plants and animals are all still part of the evolutionary process. It might seem implausible that seedless grapes could come into existence without human intervention, but there are many ways this could happen, such as being spandrels. See also Gould (2007).

therefore causal) mind-dependence and we have independent reason to recognize the legitimacy of the distinction between contingently and essentially artifactual kinds.

This distinction shows that the examples given by Khalidi, Grandy, Baker, and Sperber can in principle be divided. All of their examples which allegedly show that there's no sharp divide between artifacts and natural kinds are all cases of *contingently* artifactual kinds. But we can maintain a sharp and principled divide between essentially artifactual kinds and natural kinds on the basis of their mind-dependence and independence, respectively. Essentially artifactual kinds are essentially constitutively mind-dependent, while natural kinds are (in principle) mind-independent. There may be instances of some natural kinds that are also artifacts, like uranium-235, but these are only contingently artifactual while being essentially natural.

However, there is a further concern that might threaten this division. Khalidi suggests that “however, improbable it may be, it seems obvious that a building, canoe, broom, or shoe, could all have materialized on a planet on which there never were any humans or other intelligent beings” (2016, 232). The idea is that we can't maintain the distinction between contingently and essentially artifactual kinds because in principle *any* artifactual kind can be instantiated mind-independently. While Khalidi doesn't rest his argument on this, it's worth briefly going over why it fails. As I argued in Chapter 3, there are many ways of explaining away the intuitions in such cases. Most importantly, we can treat many of them as tacit cases of appropriation – if we arrived on Mars to find something curiously shaped like standard Earth brooms, our astronauts could certainly appropriate it as a broom (and if conditions are right, it would genuinely become one) to sweep up all that Martian dust. Only then would the broom have come about in the right way. The suggestion that a building could occur mind-independently on Mars by a bunch of stones naturally being arranged in a certain way also

demands an answer to what makes such a thing a *building*. It can't be functional, for reasons I gave in Chapter 4, nor can it be structural, since buildings are multiply realizable in their structure. Moreover, in imagining such cases we can't help but project an intentional perspective on the case and we may be implicitly assuming the presence of intelligent design given the apparent complexity of the objects. Therefore, such objects aren't (initially) artifacts but they can become artifacts through subsequent acts of appropriation.

In many of his examples, Khalidi seems to elide the distinction between progenitor and artifact, which leads him to think that there are no neat divisions between kinds (2016, 232ff.). For example, these include kinds like *ADHD medication* or *psychotropic drug* or glue or gunpowder. These are essentially artifact kinds because they involve constitutive mind-dependence. They are multiply realizable, with diverse intrinsic structures and essences. For example, ADHD medication is most commonly Ritalin (methylphenidate), but other stimulants with different chemical structures may be used, as well as non-stimulant drugs such as bupropion (known by its trade name Wellbutrin). Thus, the kind *ADHD medication* isn't identical to any one of these chemical compounds. Any particular instance of *ADHD medication* may have one of these as its progenitor, but ADHD medication isn't type- or token-identical to Ritalin, Wellbutrin or anything else. Indeed, advancements in medical treatment for ADHD may introduce vastly different medications in the future. While *Ritalin* is a contingently artifactual kind that is determined by its chemical structure but all known instances of it occur in laboratories, *ADHD medication* is essentially artifactual and members of the kind may have many different chemical compounds as their progenitors. Ritalin, Wellbutrin, and the like are only causally mind-dependent (they're produced in a lab) but ADHD medication is both constitutively and causally mind-dependent since its instances are produced in a lab (or

appropriated from naturally occurring compounds, as the case may be) but instances of those chemicals aren't ADHD medication without the requisite intention which partly constitutes them being members of such a kind.

We saw something similar in Chapter 3 with gunpowder and its progenitor (some specific mixture of sulfur, saltpeter, and charcoal) and with post-it note adhesive and glue. Gunpowder and glue are essentially artifactual kinds but the particular chemical kinds that serve as their progenitors may just happen to be contingently artifactual. Nothing would be gunpowder if there weren't guns and no one ever had the intention to use such chemical compounds in conjunction with guns to launch projectiles. But something can be an instance of the chemical kind (sulfur, saltpeter, charcoal) without any human involvement. Similarly, nothing is glue absent human intentions, but a great many substances can be appropriated (and subsequently created) as glue. This process started with our ancestors harvesting resin from trees for use as adhesives and lacquers and only recently did those same compounds start to be synthetically manufactured.²⁵⁹ The point is that we shouldn't elide the distinction between an artifact and its progenitors: the former can be essentially artifactual while the latter may be either natural (appropriating driftwood as a wine rack), essentially artifactual (assembling a car from a carburetor, chassis, tires, fuel tank, etc.) or contingently artifactual (producing methylphenidate as ADHD medication). Some of the examples that Khalidi suggests are both natural and artifactual are conflating two *distinct* kinds: the contingently artifactual progenitor and the essentially artifactual kind, e.g. *Ritalin* as opposed to *ADHD medication*.

Where does this leave us? With a principled way of distinguishing between artifacts and natural kinds. Natural kinds have mind-independent essences. By contrast, artifacts are

²⁵⁹ See Degano et al (2019) for evidence that Neanderthals used resin to craft their stone tools around fifty thousand years ago. Theophrastus and Pliny the Elder also documented human resin use.

necessarily, constitutively mind-dependent. Some cases appear to be both natural and artifactual, but by distinguishing between contingently and essentially artifactual kinds, we can sharply demarcate artifacts from natural kinds. Some kinds are only contingently artifactual: their instances may all be causally dependent on human thought or action, but this isn't necessary to be a member of such a kind. By contrast, the account of artifacts that I have developed, as well as accounts given by many others, are all of *essentially* artifactual kinds – kinds whose instances must be dependent on human thought or action. Specifically, essentially artifactual kinds have instances all of which necessarily involve constitutive mind-dependence, while contingently artifactual kinds have instances which may be causally mind-dependent, but are not constitutively so. This allows us to retain a principled distinction between artifacts and natural kinds.

6.2.3 Other Kinds

While I've argued that institutional kinds, as well as other social kinds, and natural kinds can be sharply demarcated from artifacts, there are a large number of others kinds which cross-cut the artifact category. While I can't give an exhaustive or even remotely complete account of what distinguishes all kinds from artifacts, I will say something about two such kinds – purely functional kinds and culinary kinds – which should provide a rough sketch of how other such kinds differ from artifacts. My choice of these two kinds is due solely to their being clear examples of each. I'll address them in turn.

Purely functional kinds are those kinds which are determined by their function. While I rejected function essentialism for artifacts in Chapter 4, it's clear that many if not most artifacts have a function and that we often roughly group artifacts by a common function. But I've argued

that no *artifact* kinds are *purely* functional. That is, even if an artifact kind, *particle accelerator*, say, necessarily involves a possession of a particular function (colliding particles), it has other features which are distinctive of artifacts, such as intention-dependence. This allows us to distinguish artifacts, even artifacts that necessarily have a function, from *purely* functional kinds. I'm thinking here primarily of biological entities like organs (the heart is *for* pumping blood) or other traits (wings are *for* flying),²⁶⁰ which exist as a result of their success in performing a particular function which causes them to be reproduced in future generations. Mental states, understood as functional states, would fall into this category as well. In these biological cases, there is no intention-dependence, so again we can appeal to the mind-dependence/independence distinction in order to distinguish artifacts from these functional kinds. It's worth noting that while kinds like *heart* and *wing* are functional kinds, they are also contingently artifactual kinds since there are synthetic hearts and artifactual wings on airplanes, hang gliders, and kites. Therefore, functional kinds overlap both natural kinds and artifacts.

Another functional kind is *transportation*: to be transportation just seems to be something that transports. But does this exclusively involve artifacts? There are certainly many cases of artifactual transport: cars, wagons, bicycles. Domesticated horses and camels are certainly transportation, but I argued in the previous section that they're only contingently artifactual. As a result, if we take transportation to be an artifact kind, then it seems clearly contingently artifactual. However, if we take it as a purely functional kind, then we need to distinguish it from artifacts. Cases that may suggest the latter are things like rivers used to float lumber toward a port or perhaps a one-off use of a buffalo as a means of transportation. But we may want to understand both cases as cases of appropriation such that they are indeed artifacts. However, if

²⁶⁰ Of course, you're probably thinking of penguins and ostriches, but evolutionary explanations of their flightlessness can be given, even if only as taking their wings as spandrels.

we take the lumber case as a case of non-artifactual transportation, then it seems we can say that the river is the transportation or means thereof, in this case, and so is not intention-dependent. Of course, the use of the river is intentional, so it looks like intentions won't help us distinguish transportation from artifacts. The simplest thing to do is take transportation to be a contingently artifactual kind.²⁶¹

Another purely functional kind is *gear*. Until the twentieth century gears (or cogs) were thought to be exclusively mechanical, technical artifacts that humans created for a variety of purposes, all of which function in the basic way of having grooved teeth on a (usually metal) cog interlock with the teeth on another cog in order to control motion in various machines such as watches or turbines. However, naturally occurring gears have been discovered in *Issus coleoptratus*, a species of planthoppers (Burrows and Sutton, 2013). Gears on the hind legs of juveniles are used to synchronize the motion of the hind legs and thereby ensure an almost perfectly straight forward trajectory. Interestingly, these gears are shed during moulting – only juveniles have them – adults of the species use a different mechanism to ensure jumping accuracy.²⁶² Therefore, like other organs and biological traits (heart, wing) *gear* appears to be a purely functional kind which is also contingently artifactual (as well as natural, or at least the specific gear mechanism in *Issus coleoptratus* is). Since gears aren't necessarily mind- or intention-dependent, we can distinguish them from artifacts on this basis.

²⁶¹ Alternatively we could deny that they're contingently artifactual and that they're cases of appropriation and instead maintain that they're merely cases of *being used as transportation*.

²⁶² It's thought that the loss of the gears in adulthood is because if the gear mechanism breaks, then the adult would be rendered almost completely lame since the gears aren't self-repairing (like human teeth). See Burrows and Sutton (2013) for discussion.

Like functional kinds, culinary kinds are often artifactual, such as *bread* and *pasta sauce*.²⁶³ But some culinary kinds, such as *vegetable*, aren't artifacts or at least aren't essentially so. These groupings seem to be based on our culinary interests and traditions. For example, we normally use sweet plants as desserts and savoury plants or plant parts for main dishes. Thus, tomatoes and cucumbers, despite biologically being *fruit*, are classified as vegetables. Fruits and vegetables aren't mutually exclusive kinds; one is biological the other is culinary and they overlap. *Fruits* are seed-bearing and they develop from the flowers of a plant. Fruits are thereby fully mind-independent (though some fruits can be contingently artifactual, like bananas or limes). *Vegetables* are often other parts of the plant, but may include fruits, such as tomatoes and cucumbers. Thus, we classify something as a vegetable based on our culinary practices. Nonetheless, despite such a classification clearly being relative to our interests, this doesn't make vegetables intention-dependent. Tomatoes and cucumbers (despite being strongly affected by domestication) occur naturally. Culinary kinds aren't necessarily mind-dependent even if many of them happen to (contingently) be artifacts.

This is similar to the kind *weed* (in the sense of plant pest in a garden, not marijuana, though the latter is contingently artifactual). A weed is simply some plant that has grown in a cultivated space (garden, hedgerow, farm field, lawn) which is undesirable or unwanted. As Zeke from Bob's Burgers puts it, "a weed is just the right plant growing in the wrong place" (Song 2017, S7E9).²⁶⁴ Like vegetables, being a weed is determined by our interests and practices, but the instances themselves (e.g. dandelions on one's lawn) aren't mind-dependent. Again, mind-

²⁶³ I take these kinds to be essentially artifactual. If all of the ingredients for an arrabiata happened to get chopped up and fell into a coconut near a forest fire and simmered to perfection, it wouldn't be a pasta sauce, though it could be appropriated as one.

²⁶⁴ For some context: he's trying to sell a cheap alternative to roses on Valentine's Day, so has picked a bunch of flowering weeds to sell to students out of his locker.

dependence, specifically intention-dependence, allows us to distinguish artifacts from these other kinds, even though the latter are determined by our interests and practices.²⁶⁵

There are many kinds of kinds, many of which overlap. Having distinguished artifacts from institutional and natural kinds, most of the important work is done. As with culinary and functional kinds, mind-dependence will usually enable us to distinguish artifacts from these other kinds, though in some cases attention will need to be paid to the specific nature of the mind-dependence relations involved, as with social and institutional kinds. In short, we can maintain principled distinctions between artifacts and natural and institutional kinds, and distinguish artifacts from kinds which may overlap the artifact category, such as functional and culinary kinds.

6.3 Distinguishing Artifact Kinds from Each Other

The second question we must address is what distinguishes artifact kinds from each other. The answer to this question might seem obvious, since computers are obviously not teapots, sandals, or test tubes, nor is there ever really any circumstance where we might confuse these kinds of artifacts. The criterial features which constitute each artifact kind seem sufficient to distinguish them from one another, at least in most cases. However, there are some cases where it's not so obvious what distinguishes between artifact kinds and relatedly, there are cases where it's unclear which kind a particular artifact belongs to. For example, why are *chairs* and *stools* two different artifact kinds and is a hot dog, say, a sandwich or some other kind? In this section,

²⁶⁵ In fact, vegetables and weeds are better candidates for Khalidi's second social kind in the sense that the kind or type seems mind-dependent in some way, but tokens of it are not. However, I think we could classify something as a weed or a vegetable without being in a social setting in any way, so I'm not sure they're best understood as social kinds.

I'll take up these two questions by giving a general account of what makes a kind an artifact kind. The short of it is, it's our often arbitrary and always contingent social practices, and the norms underpinning them, that determine what the artifact kinds are and when something is a member of one kind rather than another.

These two questions are in many ways parallel to the question in the philosophy of art literature which arises for buck-passing theories of art. Recall that Lopes' buck-passing theory of art states that the prospects for giving conditions for being art seem hopeless, and instead we should understand art as belonging to a particular art kind. As a result, the buck gets passed to theories of the arts rather than a theory of art. One salient question for such a buck-passing theory is what are the art kinds? That is, what makes a kind an *art* kind, specifically? Like the question I'm addressing, there are two component questions here: what distinguishes art kinds and what makes a particular artwork a member of one kind rather than another. With respect to the first question, Lopes (2014) argues it can't just be the medium used, since garages and cars are painted as much as canvass is, and a mass-produced Walmart coffee mug is ceramic just as much as a piece of *bizen yaki*. Lopes (2014, 17) calls this the 'Coffee Mug Objection'. With respect to the second question, there are some artworks that don't seem to fit into our familiar art kinds, like Barry's *Inert Gas: Helium* or Cage's *4'33''*, but any theory of art that analyzes being art as belonging to an art kind can't allow such artworks. Lopes (*ibid.*, 18) calls this the "Free Agent Objection".²⁶⁶ Lopes argues that ultimately the answer needs to be sought in our artistic practices, which are distinctly *appreciative* practices, with one corresponding to each art kind,

²⁶⁶ Lopes (2014, 16-18) calls these two objections the "Viability Challenge" to his buck-passing theory of art. Lopes (*ibid.*, 18-22) also argues that any theory of art, including his buck-passing theory must be *informative*. A similar challenge can be raised against any theory of artifacts, generally. However, I don't consider this objection since I take my account of artifacts in Chapter 5 to clearly be informative, as are any other recent accounts of artifacts in the literature.

i.e. our appreciative practices surrounding *dance*, *sculpture*, and *ceramic art* (Lopes 2014, ch. 8). However, this isn't so much of an answer as it is a promissory note. Thus, Xhignesse (2020b) offers a fuller account of this buck-passing, arguing that we need to understand what those practices are and what they involve. His answer, which is structurally parallel to my own for the artifact question, is that what makes a kind an art kind are the (arbitrary and contingent) social conventions that govern the associated artistic practices.

While I don't follow Lopes in taking either a theory of art or a theory of artifacts as hopeless (indeed, I've offered an account of the latter), the question of what makes a kind an *artifact* kind arises for my account and those of any others whose theories of artifacts involve reference to artifact kinds. As I mentioned at the outset, anyone who has a theory of artifacts that involves some version of the following schema

Artifact Schema: x is an artifact iff x is a member of an artifact kind K and...

needs an account of artifact *kinds*. Thus, we need to determine what the artifact kinds are and what makes them artifact kinds. I've already distinguished artifacts from other kinds, in particular natural and institutional kinds and we saw how it's the particular relations of mind-dependence that allow substitution of a kind for K in the artifact schema. Now we need to say what distinguishes artifact kinds from each other and in virtue of what are particular artifacts members of those kinds rather than any others. As a result, structurally similar problems to the Coffee Mug and Free Agent Objections arise for artifacts.

Nonetheless, there are important differences between the art kind question and the artifact kind question. Most obviously is the centrality of medium for art kinds compared to the centrality of function for artifact kinds. The most important feature constitutive of an art kind like *painting* is the medium used to produce the work, namely paint on a canvass. By contrast, most artifact kinds such as *pencil* are determined by possession of a particular function, namely

being for writing or drawing on a surface. While I've argued, as have many others, that artworks are all artifacts, they nonetheless exhibit certain features that make them uncharacteristic artifacts. While I wouldn't go so far as saying that they are *sui generis* artifacts, as Levinson (2007) does, they are certainly importantly different from other artifacts. Thus, while Xhignesse and I have similar views about what determines art kinds and artifact kinds, respectively, the details of our views will slightly differ. Nonetheless, it shouldn't come as a surprise that the two solutions are very similar, since I take artworks to be a kind of artifact.

First, I'll focus the question by considering various problem cases where it's most acute (§3.1). Second, in order to see how social norms can help us answer these questions, we need to know what a social norm is, as well as how they differ from conventions (§3.2). Third, I'll discuss a particular historical case, the social practice and concomitant norms surrounding *chopines* in Europe in the fifteenth to seventeenth centuries, in order to illustrate my account (§3.3). Fourth, I'll tie all these considerations together to offer an answer to the question of what makes a kind an artifact kind; social norms arise which come to constitute a social practice focused on an artifact kind, which in turn determine artifact kinds and what kind a particular artifact belongs to (§3.4). In this way, we have answers to the Coffee Mug and Free Agent objections. Finally, I'll offer a general observation about artifact kinds and artworks – they are instances of what Ian Hacking calls *interactive kinds* – which helps explain and flesh out the account I develop as well as unify artworks and other artifacts (§3.5).

6.3.1 Illustrating the Problem

It's generally easy in our daily lives to distinguish between different kinds of artifacts and generally we know what kind artifacts belong to just by a cursory visual inspection. If I go to the store intending to buy a new microwave, I know to go to the electronics section, I don't go looking for microwaves with the video games or TVs, and once in the appropriate aisle I can readily identify all the things in front of me that are microwaves. Thus, distinguishing between artifacts of different kinds and identifying the particular kind any given artifact belongs to, seems quite easy.

A simple explanation of what's going on in my microwave hunt is that I'm aware of what the constitutive features of microwaves are and what the constitutive features of most other kinds are that I might encounter when shopping for a microwave. For example, I know video games come in small disc form, while microwaves are around two feet wide. I know that TVs have a large display screen dominating the front which is the means of executing their primary function, while microwaves are for heating food, on a revolving plate, with a little front door and a bunch of buttons typically on the right of the door allowing the user to adjust the settings. Knowing all of these features makes it quite easy to distinguish microwaves from video games, TVs and whatever else.²⁶⁷

Nevertheless, things aren't always so clear-cut. There's very little overlap in the constitutive features of microwaves and video games, while there's slightly more overlap between microwaves and TVs. There's still more overlap between microwaves and toaster

²⁶⁷ Of course, usually there's a sign saying 'microwaves' near the microwave section and the boxes or display tags will say 'microwave' on them. These sorts of linguistic markers are often necessary when encountering artifacts of a familiar kind but which have new or different features than typical exemplars, e.g. a lip balm which comes in an egg shape that unscrews in the middle rather than the usual tube with a pull-off cap on one end and knob for extending the balm at the other.

ovens, yet how they execute their primary function is very different and we can usually distinguish between the two without being told what they are just based on their perceptible visual features such as shape and structure (the doors typically open in different manners). Yet in some cases the overlap of constitutive features is so significant that the kinds are almost indistinguishable. Consider the case of chairs and stools. Their respective constitutive features are almost identical:

Chairs: *Intended for seating a single person, made of wood, plastic, fabric, has a flat seat, often supported by four legs, has armrests and a back, used in a wide variety of settings, etc.*

Stools: *Intended for seating a single person, made of wood, plastic, fabric, has a flat seat, often supported by three or four legs, sometimes has armrests and a back, typically used in more informal settings, etc.*

Some of these features, such as having four legs, armrests and a back, are far more central for chairs than stools. Nonetheless, some chairs lack them (recliners, bean bag chairs, and curule chairs,²⁶⁸ respectively), while others are had by some stools (bar stools may have all three, though armrests are less common).

A common bar stool greatly resembles most standard kinds of chairs, even more so than some chairs do, such as bean bag chairs. For any given constitutive feature that bar stools have, a chair can be found that shares that feature. That is, we can't look at a particular stool and say it's a stool *because* it only has three legs, since we can find chairs which only have three legs.

Similar considerations hold for the other features. In virtue of what are some artifacts *stools*

²⁶⁸ Curule chairs usually involve two U-shaped pieces of metal, wood or plastic, with the U's attached at the bottom with their sides functioning as legs and armrests, respectively, and typically no back. They also often were designed to fold and were popular during Ancient Rome, before spreading to other parts of Europe.

while others are *chairs*?²⁶⁹ We can't merely appeal to the maker's intention and claim that S's intention to make a *stool* shows that S's creation x is a stool rather than a chair because we have to understand S's intention to make a stool as S having an intention to bestow stool-relevant features on x. But then we're back to the widely shared constitutive features of stools and chairs. S's intention to bestow features k₁, k₂, k₃, etc. on her creation could be indistinguishable from an intention to make a chair. Even if S only has the (*de dicto*) intention to bestow features k₁, k₂, k₃, etc., her resulting creation will belong to either the kind *chair* or *stool* (with perhaps some indeterminacy at the outset if there's disagreement).²⁷⁰

This problem is a more general version of Lopes' Coffee Mug Objection, the main difference being that the medium in the original art case plays a marginal role in the more general artifact case. Chairs and stools aren't centrally constituted by a particular material(s), but by their function – being for seating a single individual. Nonetheless, both chairs and stools share this feature, just as coffee mugs and *bizen yaki* are both ceramic. Thus, the most central features of each – seating an individual and being ceramic – are insufficient for distinguishing between them.²⁷¹

It's certainly true that in many cases it doesn't really matter whether something is a stool or a chair. If you're looking for new stools for your outside bar but find some chairs that would work really well in the space, then the fact that they're chairs rather than stools probably won't

²⁶⁹ I am assuming that stools aren't a subkind of chair since we generally treat them as distinct artifact kinds, in particular, distinct kinds of *furniture*, just as we do with sofas, ottomans, benches, and footrests. The difficulties of distinguishing between chairs and stools arise equally well with stools and footrests and chairs and ottomans, benches, or sofas.

²⁷⁰ For some artifact kinds, it could belong to both, depending on its features, i.e. we could say this thing you made is both a pallet knife and a spatula. However, I suspect that such hybrid artifacts generally evolve into their own distinct kinds over time, as seems to have happened with *spork*.

²⁷¹ Some non-art artifact kinds may also be centrally distinguished by material, such as sparkling wine or Peking duck.

stop you from buying them. In a number of cases, though, it matters a great deal what artifact kind a given artifact belongs to. For example, consider the following two cases:

Jaffa Cakes: A jaffa cake is a British confection consisting in a circular sponge base topped with orange jam with the top (including the entirety of the jam) covered in chocolate. Is this confection a cake or a biscuit (cookie)? If it's a cookie, then it'll be subject to an additional tax on chocolate covered cookies, but not if it's a cake. A number of features are appealed to in support of both: it's called a 'cake', the base is made of a typical cake ingredient (sponge), and when they go stale they become hard like cakes rather than soft like many biscuits/cookies. On the other hand, they are cookie-sized, are packaged like cookies, are placed in the cookie aisle in stores, and are eaten by hand, without a fork, whereas eating cakes usually involve utensils (Edmonds 2017).

Ford Transit: Ford's smallest van is the Transit, which is manufactured in Spain for export to the U.S. However, the U.S. imposes a 25% tariff on the import of vans and light trucks. To get around this tax, Ford builds the Transit with rear seats and windows in Spain, only to remove them once they arrive in the U.S., and thereby claims that they are cars (subject to a 2.5% tariff) when entering the American market. This has led U.S. Customs and Border Protection to file suit against Ford (Chan 2018).

In both cases, whether the artifacts in question are cakes or cookies, vans or cars, has very important practical consequences, namely, how the items should be taxed. Yet in both cases, appealing to the constitutive features of the kind is insufficient in distinguishing them for the same reasons given regarding chairs and stools. Nor are these isolated cases. The practice that Ford engages in, known as 'tariff engineering' (Chan 2018) is quite common. Other examples include Nike's subsidiary Converse, and a long-standing dispute about candles imported from China: shaped wax is imported without a wick and thereby classified as 'unmoulded wax' only to have the wicks added once they're in the U.S., thereby avoiding a candle tax (ibid.).²⁷²

²⁷² Another recent case occurred in Ireland where the courts ruled that Subway's rolls were not bread because they contained too much sugar. Notice that this distinct socio-legal practice governs what counts as bread *in Ireland* and not elsewhere. Thus, artifacts may count as a particular kind in one jurisdiction but not in another. See <https://www.bbc.com/news/business-54370056>.

The case of jaffa cakes and the Ford Transit are parallel to Lopes' Free Agent objection. In the art case, the problem is that there appear to be some artworks, such as Barry's *Inert Gas: Helium*, where the artist released a measurable quantity of helium into the air at a location near Los Angeles, that don't fit into our familiar art kinds. It's certainly not a painting, nor is it a sculpture or literary work. But, assuming that to be an artwork is to belong to an art kind, it must belong to *some* art kind, even though none of our familiar art kinds seem appropriate. The case of jaffa cakes is similar. I assume, as do many others, that to be an artifact is in part to belong to a particular artifact kind. Thus, jaffa cakes need to belong to *some* artifact kind, and the most plausible candidates are *cake* or *cookie*.²⁷³ The problem is which of these kinds do jaffa cakes belong to and why?

Granted, the case of tariff engineering is slightly different than the case of jaffa cakes, since it involves some post facto modification of the artifact (as in the case of candles from China). Nonetheless, the question still arises as to whether the vehicles imported into the U.S. are cars or vans since Ford intends to sell them as vans and the allegedly car-relevant features (rear seats and windows) are removed upon arrival. Of course, both cars and vans may or may not have rear seats and windows. Thus, in some cases, such as taxation, it really does matter whether a given artifact belongs to one kind rather than another. Given that the constitutive features don't appear up to the task of distinguishing between kinds, we are in need of some answer to the question of what makes a kind an *artifact* kind? After all, we do in fact distinguish between cars and vans, cakes and cookies, candles and formless wax, so in virtue of what do we do so?

In the case of the Ford Transit, U.S. Customs and Border Protection filed suit against Ford for willfully avoiding the import tax on vans and light trucks. Despite Ford's insistence that

²⁷³ Jaffa cakes obviously aren't carburetors or dish towels or lampshades or whatever.

the vehicles are cars, it's clear to all interested parties that they're vans and are produced as such. This isn't because of the constitutive features of vans but because Ford clearly has the intention of treating them and selling them as vans. But it may take an official court ruling to fully determine the case. By contrast, the British treat jaffa cakes as cookies (biscuits), despite the term 'cake' appearing in the name. This *de facto* position was sufficient – it didn't matter what they were, people could eat them however they wanted – until the question of taxation arose, at which point a *de jure* position was required to settle the dispute.

The problem here is normative. We have a socio-legal practice of taxing different kinds differently: cakes should be taxed one way, while (chocolate covered) cookies should be taxed another. This suggests that social norms play a pivotal role in determining kindhood and kind membership. That is, there are norms that prescribe how cakes and cookies in the UK should be treated. This includes norms prescribing what features are central to each, but also how they should be eaten (with or without utensils), in what contexts (as dessert or to accompany afternoon tea), by whom (posh people don't eat pre-packaged jaffa cakes), and how they should be taxed. In some cases, these norms are unofficial but embedded in our social practices, while in other cases they are codified into law by a juridical-institutional framework, as with taxation. With jaffa cakes, we have an artifact that doesn't clearly belong to either kind, though it greatly resembles exemplars of both. The question then is what *norms* should jaffa cakes be subject to, cake norms or cookie norms? Similarly, while both chairs and stools are for seating a single individual, they are distinct kinds, subject to distinct norms. In what follows, I'll develop an account of the norms and associated social practices operative in such cases which will yield

responses to these artifact versions of the Free Agent and Coffee Mug Objections.²⁷⁴ However, first we need to get a clearer idea of what a social norm is.

6.3.2 Norms and Conventions

In everyday speech, we usually use the terms ‘norm’ and ‘convention’ interchangeably. Both are used to refer to socially sanctioned rules that prescribe how agents should behave in a particular social context. For example, it’s a norm that when meeting someone you shake hands using your right hand; using your left is considered rude or inappropriate and to do so opens the agent to rebuke – their behaviour didn’t conform with the norm that governs behaviour in that particular context of interpersonal interaction.

Philosophical use of the terms ‘norm’ and ‘convention’ is more nuanced and technical. Some philosophers think only norms, but not conventions, are normative, while others think that conventions are principally for facilitating coordination while norms are for holding us accountable to one another (Southwood and Eriksson 2011, 196). There is significant philosophical debate about the relation between norms and conventions. Some philosophers, such as Lewis (1969, 99) think that all conventions entail norms, while others, such as Ullmann-Margalit (1977) and Verbeek (2002) take all norms to be or to entail conventions. Conventions may be thought to entail norms since not following a convention can lead to rebuke, while norms may be thought to entail conventions since adherence to a norm can lead to a convention that helps solve coordination problems.

²⁷⁴ We could call the artifact versions of these objections the Chair and Jaffa Cake Objections, but I don’t think it’s necessary since (hopefully) the problem is clear.

I won't take a stand on these complex issues here. My concern is getting clearer on what social norms are so as to explain the role they play in our artifact kind practices.²⁷⁵ Conventions are, following Lewis' (1969) classic account, taken to be solutions to coordination problems. A coordination problem is a situation where two or more agents must coordinate their actions, where an agent's choice of action depends on the choice of actions of other agents (Lewis 1969, 8ff.). For example, if we want to meet up for a drink, then where I go depends on where you will go and vice versa and we succeed if we both go to the same place. This is a state of *equilibrium* – no agent would have been better off had they acted otherwise unless another agent's behaviour was also different (ibid.). For Lewis, conventions are agents' continuously employed solutions to coordination problems.²⁷⁶

It should be clear that conventions, understood in the Lewisian sense as solutions to coordination problems, aren't particularly helpful in understanding what distinguishes between artifact kinds and what determines whether a particular artifact is a member of one kind rather than another, since these don't (always) involve coordination problems. Certainly, the issue of whether a jaffa cake is a cake or a cookie will involve some coordination problems between the many agents involved, particularly with respect to taxation, but generally such issues don't (as in the case of whether hot dogs are sandwiches or not) and moreover, distinguishing between chairs and stools clearly isn't a coordination problem, at least not on its own. Thus, conventions in the Lewisian sense aren't helpful for our present problem.²⁷⁷

²⁷⁵ The next several paragraphs largely follow Xhignesse's (2020b, 476-481) discussion.

²⁷⁶ In general, coordination problems can be solved by appealing to *salience* – some equilibrium stands out for some reason as especially good for all involved – or to *precedent* – one equilibrium state was reached the last time or on multiple previous times (Lewis 1969, 35-36).

²⁷⁷ For an alternative account of conventions, see Gilbert (1989, 2015) and for a comparison between her view and Lewis' see her (2008). Gilbert adopts a more holistic picture of how conventions arise and proliferate than Lewis' individualistic approach.

There are two other accounts that are more fruitful, Ruth Garrett Millikan's (1984) account of natural conventions and Cristina Bicchieri's (2006) account of social norms. On Millikan's account, conventions are behavioural patterns reproduced in virtue of precedent. Some pattern of behaviour is reproduced from an earlier pattern of behaviour if the new pattern is counterfactually dependent on the previous one – if the earlier pattern had been different in any relevant functional respects, so too would the later pattern differ (1984, 19-20). To be a convention on Millikan's account, the behaviours must be reproduced due to precedent involving counterfactual-dependence, otherwise they are merely accidental regularities. Further, Millikan's account doesn't require any sophisticated conceptual or doxastic apparatus; agents proliferate conventions simply because they are copying previous behavioural patterns – theirs or someone else's – and so learn from past experience. Particular conventions may arise for a variety of reasons, including evolutionary selection, ease or accessibility, or for completely arbitrary reasons (ibid., 23-24).²⁷⁸ What's important is they arise because specific patterns of behaviour have previously been used and are thereby copied, which establishes a precedent. Moreover, Millikan's account of natural conventions doesn't just apply to coordination problems, though some natural conventions may solve coordination problems so her account is thereby a broader notion of convention than Lewis'.

By contrast, Bicchieri (2006, 8ff.) offers an account of social norms whereby norms develop through imitation of others' behaviour and expectations of others' behaviour and likewise others' expectations of one's own behaviour. Thus, for Bicchieri, norms are rationally reproduced (i.e. imitated) behaviours. While Bicchieri doesn't think that all social norms entail

²⁷⁸ Millikan (1984, 24) gives the example of the convention of shaking hands with our right hands. This is 'natural' since most humans are right handed but for left handed individuals it is merely copied behaviour – copied *because* other individuals widely engage in that behaviour.

or lead to conventions (understood as coordination problems), she does argue that social norms transform situations of conflict into coordination problems (2006, 26). On Bicchieri's account, norms are perceived as involving two kinds of expectations: empirical and normative (ibid. 11-15). On the empirical side, individuals believe that all or most or some sufficiently large subset of the group or population conforms to norm N in situations of type S. On the normative side, individuals believe that all, most or some sufficiently large subset of the group or population *expects* them to conform to norm N in situations of type S (or additionally they prefer them to conform and will sanction them if they don't). Thus, social norms proliferate by individuals expecting everyone else to conform to the norm and expecting everyone else to expect them to conform to the norm, so the individual thereby imitates the behaviour of others that they take to be norm-conforming (in the appropriate context), often for fear of being rebuked.

The main differences between Millikan's and Bicchieri's account are in how the conventions/norms proliferate. For Bicchieri it must be via imitation but for Millikan this is just one of many ways they can be reproduced; Millikan just requires counterfactual dependence so reproduction need not be conscious or rational. This difference doesn't really matter for my purposes, nor does it matter whether we call these norms or conventions, though I prefer the term 'norm' and am sympathetic to the view that norms entail conventions. Thus, I will treat *norm* as the supercategory of informal rule that governs behaviour in groups and societies and will reserve *convention* for the technical Lewisian notion of a solution to a coordination problem. I won't commit myself wholesale to either Millikan's or Bicchieri's accounts. We just need to recognize that norms (or conventions, if you prefer)²⁷⁹ are patterns of imitated behaviour in particular contexts that we expect others to follow/reproduce and that others expect us to follow

²⁷⁹ Xhignesse (2020b, 480) talks of conventions but is also fine with talking of norms. Again, technical differences in terminology don't much matter here since we're getting at the same general phenomenon.

and we expect others to expect us to follow them, and so on. Expectations of conformity and sanction are especially important, as we will see below, though Millikan's account doesn't place much emphasis on this aspect of conventions and thus I'm more inclined towards Bicchieri's account. Bicchieri only uses the term 'norm' for *informal* rules like shaking hands with the right hand, excludes *formal* rules like legal rulings (2006, 8), the difference being that formal rules are supported by formal sanctions while informal rules are not – you won't be fined or thrown in prison for shaking hands with your left hand, though you may be reprimanded or shunned. I will likewise reserve 'norm' for these informal rules but we need to recognize that such norms can often become formalized through legal or institutional frameworks.

We now have a general idea of what social norms are: they are patterns of behaviour which are reproduced through precedent based on our expectations of how others behave, how they expect us to behave and we perceive them expecting us to behave, where if these patterns of behaviour aren't imitated in the appropriate context, then we are open to sanction. Examples of social norms are readily available since they govern most aspects of our social lives. We already saw that our professional interactions are governed by the hand-shaking norm. Other social norms include driving on the right in most countries (or driving on the left in the UK, India, Japan, and elsewhere), kissing on the cheek to greet someone in France and Switzerland, raising your hand to speak or vote in meetings, wearing a tie in certain social-professional contexts, with the kind of tie varying by context (e.g. black for funerals), standing during national anthems, applauding to signal praise or appreciation, not wearing white to a wedding unless you're the bride, picking up after your dog in public spaces, drinking coffee in the morning and brushing your teeth before bed, and so on. All of these are informal (or sometimes formal, as with driving on the right and picking up after your dog in certain places like parks) rules that we are expected

to adhere to and expect others to adhere to. They largely perpetuate due to precedent: we follow them, often with little conscious thought, simply because that's what others have done in the past, such as with waving as a form of greeting.²⁸⁰ However, they're not always so arbitrary: there are good public health and aesthetic reasons for why one should clean up after their dog. If someone doesn't follow the rule they *may* be rebuked. Importantly, failure to adhere to some norms don't always involve rebuke or sanction, this will vary by norm. For example, if a colleague doesn't shake your hand when you meet, they may not be sanctioned but in most cases, if you don't clean up after your dog (assuming someone has witnessed it), then you almost certainly will be. Norms may be formalized in legal rulings, so that a failure to adhere to the norm will likely entail formal sanction. This is the case with cleaning up after your dog in most public places. When norms are formalized, it's usually because they are less arbitrary and enforcing norm compliance is important for social functioning. While many norms are formalized in this way, the vast majority of social norms, such as 'don't stare at strangers' are informal.²⁸¹

Moreover, norms may be perpetuated even if many people don't follow them. Many brides are opting to forgo the traditional white wedding dress, yet there's still a significant number adhering to the traditional garment, and thus it continues, even if it's less ubiquitous than before. Similarly, when a critical mass of people eschew a norm and continuously do so over time, the norm may disappear. To use Xhignesse's (2020b, 481) example, a pervasive norm in the United States during the twentieth century was that a bride would adopt her husband's surname. While this practice is uncommon or explicitly barred in some jurisdictions (Quebec, Spain, South Korea), it was the norm in the US up until recently. The reasons for why it's fading

²⁸⁰ Indeed, greetings are culturally variable and also vary depending on whether it's a stranger or an acquaintance.

²⁸¹ This example is Bicchieri's (2006, 8).

are complicated, but feminism has had a large influence – women are recognized as autonomous agents neither dependent on nor belonging to, their husbands. Thus, the norm is quickly changing towards women keeping their own surnames after marriage. This isn't an isolated example – social norms change all the time and the pace of change is arguably increasing in step with globalization. It should thus be emphasized that social norms are not immutable, but can be fleeting or can become entrenched through the weight of precedent. Some norms may even ebb and flow, disappearing for a while only to reappear in future generations.²⁸² Whether a norm perpetuates is a matter of socio-historical circumstance.

Social norms also govern our interactions with artifacts. Such norms prescribe what features are kind-relevant, how members of the kind are to be used, how they are to be treated and regarded, and by whom and in what contexts. For example, the norm 'single seating with back support is normally a chair' prescribes a certain feature that is central to being a chair. This norm can be violated or ignored, as with curule chairs or stools that have backs. Artifact kinds have associated constitutive norms which determine the kind-relevant features and say, roughly, that "things with features k_1 , k_2 , or k_3 are normally members of the kind K ". Sometimes violating such constitutive norms carries little to no sanction, as is the case with chairs that have no backs while sometimes they carry very strong rebuke, such as a trainee pastry chef who cuts in rather than folds the butter while making puff pastry – a technique used for making rough puff or flaky pastry.

These norms also govern how artifact kinds should be treated. Fine China is accorded a certain amount of respect and care that mass produced ceramic mugs from Walmart are not, with the former being regarded as dainty, beautiful, and valuable while the latter is regarded as

²⁸² One example is whether male facial hair is fashionable; this seems to flip flop from generation to generation, with facial hair currently being in vogue.

gauche, cheap and expandable. Moreover, such norms dictate in what circumstances and by whom members of particular artifact kinds are to be used. One shouldn't bring fine China to a picnic nor allow young children to use it; plastic or rubber and perhaps disposable dishwear is more appropriate for such contexts.

Most importantly, such norms govern artifact function and how artifacts should be used. The overriding norm governing the use of chairs is that they are for seating a single individual, but there's also a norm about how this function should be executed – straddling a chair with the back between your legs is considered too informal for many situations. A chair that can't effectively seat a single individual, perhaps because the seat is broken, is a *malfunctioning* or *malformed* chair. By contrast, a chair that can seat someone but very uncomfortably is a *bad chair*. Similarly, there's a well-entrenched norm about what flathead screwdrivers are for (attaching screws with the appropriate corresponding slot) but there's also a widespread norm that flathead screwdrivers are ideal for opening paint cans, even though this wasn't their intended function.²⁸³ Nonetheless, this *accidental* function of flathead screwdrivers is so common that you probably wouldn't be open to sanction if you used a flathead screwdriver in this way.²⁸⁴ The use of flathead screwdrivers to open paint cans is reproduced through precedent as others see the efficacy of using flathead screwdrivers in this way and imitate it in order to bring about practical ends. Other accidental functions are equally well-entrenched, like standing on a chair to reach something high up. However, sometimes such uses are *misuses*. Using fine China as a doorstop will likely be sanctioned for non-arbitrary reasons: it's likely to break. By contrast, using a chair as a doorstop is less likely to be sanctioned since chairs tend to be more durable; this accidental

²⁸³ Millikan (1984, 1, 28) also makes these points, though in the context of her account of proper functions, as well as in her account of natural conventions.

²⁸⁴ One case where you may be open to rebuke is if the screwdriver isn't yours and you didn't ask its owner if you could use it in this way.

function of chairs is a less severe or more accepted violation of the intended function of chairs. Other artifact norms are more arbitrary – that white flags are used to surrender isn't due to any particular feature of white flags that makes them especially good for such a task, it's simply tradition.²⁸⁵

Artifact norms are no less mutable than other social norms. We've seen recently that the use of masks is now expected in most social settings, with individuals open to very strong rebuke if they fail to appropriately use these artifacts. Artifact norms can perpetuate through precedent and change and disappear. Home exercise equipment was originally developed in order to allow users to exercise at home, yet it increasingly became used to signify a certain status or lifestyle (in sync with the rise of social media influencers), but with the onset of the COVID-19 pandemic, it's again being used for its original function of home exercise.²⁸⁶ While function and use can change, so can the appropriate audience and context. Dangling earrings were usually only worn by women but are increasingly worn by men and while sparkling wine was often reserved for celebratory occasions, it's now regularly consumed in general social gatherings.

These norms, whether artifact norms or general social norms, give rise to social practices which surround and govern artifact kinds, through the weight of precedent. To see how this occurs, it will be helpful to consider in detail a concrete, historical case before attempting to answer our initial question about artifact kinds.

²⁸⁵ This is what Searle (1995) calls a status function since the performance of the function is independent of the material properties of the artifact. Given what was said regarding social kinds, we may treat surrender as an additional institutional property that the white piece of cloth has.

²⁸⁶ See Elder (2014, 35) for discussion of this and other examples.

6.3.3 A Historical Example: Chopines

Social norms, and artifact norms specifically, are well illustrated by fashion trends. Indeed, Xhignesse (2020b, 483-484) gives the example of the rise of a ‘tulipworld’ in Europe in the seventeenth century to illustrate how norms (conventions) give rise to social practices. Wearing tulips became fashionable and the nobility sought to wear certain varieties which were in turn cultivated for their rarity and beauty and displayed in tulip catalogues. Eventually people ceased caring about the bulbs and the tulips themselves and only cared about their monetary value, resulting in a market crash. Thus, a cluster of norms arose governing tulips and these norms came to constitute an entire social practice through the accumulation of precedent which lasted from 1610 to 1637 (ibid. 483). I’ll focus on a different historical case, though from a similar era: the rise and fall of chopines as a popular form of footwear in Europe.

Chopines, known in Italian as *pianelle* and in French and Spanish as *chapins*, were elevated shoes popular in Europe from the fifteenth to seventeenth centuries. The chopine developed from platform overshoes, such as clogs or poulaines, in Venice in the fifteenth century which had themselves been imported to Europe from the “Orient”.²⁸⁷ Chopines became fashionable aristocratic dress during the height of the Renaissance. Overshoes and chopines were similar in height with the highest extant chopine measured fifty-two centimeters, though more modest ones were around nine to fifteen centimeters. Clogs were predominantly worn by the poor and were usually made of wood since it was cheap, abundant, and durable. By contrast, chopines were mostly worn by nobles and were made from more expensive, less durable, but much lighter cork and signified wealth and social status (Muzzarelli 2006, 53-54). However, there were two important differences between clogs and chopines. Chopines were explicitly not

²⁸⁷ They may also have originated in Spain since many of the platforms were made from cork and Spain was the primary source of cork during the fifteenth century (Semmelhack 2008, 8).

overshoes, but were a single piece of footwear with the elevated platform to be worn directly on the feet, while overshoes were designed for daily shoes, slippers or stockings to be slipped inside and thereby protected from the mud of the unpaved streets of the time. Secondly, while elevated overshoes like clogs were unisex, chopines were exclusively worn by women with generally higher elevation and ostentatious décor, being covered in silks and embroidery.²⁸⁸

Because chopines were elevated platforms and often very high, they were very impractical footwear. Even with lighter cork platforms they were very difficult to walk in and balance often required the help of a noble woman's attendants. In addition to showcasing their wearer's wealth, they also came to be associated with female sexuality, making women appear taller and showing bits of ankle. The chopine eventually became associated with Venetian prostitutes who wore far more elevated versions. Thus, the chopine gained an erotic association (Semmelhack 2008, 12). This sexual dimension of the chopine, as well its elevated platform, raised the ire of the Church since it was viewed as an affront to God and showed its wearer's lack of humility. This led to regulation of the chopine by both Church decree and government laws, known as sumptuary laws, which dictated what features of chopines were allowed (Muzzarelli 2006, 54-56). While the Church had moral concerns, legislators were more concerned about the danger to women's health if they fell and the cost of materials required both to decorate chopines and the greater length needed for skirts to cover them. This included bans on using silk and gold or silver embroidery and the Venetian Major Council of 1430 even decreed that chopines were not to be higher than nine centimeters, although this was in vain (Semmelhack 2008, 12). Fines were levied against both the wearer and the shoemaker who violated these prescriptions. However, these sumptuary laws frequently changed, suggesting that

²⁸⁸ Though Vianello (2006, 81) suggests that chopines were very early on worn by men but this quickly changed as they became associated with female sexuality.

there was major pushback against these restrictions (Muzzarelli 2006, 59-61). Indeed, the Church proposed banning chopines altogether, but many men objected because the extreme height of the shoes and their concomitant lack of functionality allowed them to easily control the movements of their wives (Vianello 2006, 92-93).

While the chopine was popular throughout Europe well into the seventeenth century, it was gradually superseded by the introduction of the much smaller heeled shoe which originated in Paris. Unlike the chopine, heels were, like previous elevated overshoes, unisex, thereby retaining the height afforded by the chopine but without its gendered associations. Heels were already worn by men in the Middle East, where heeled shoes were common in cavalry units for their utility in keeping the foot in the stirrup. The main difference between chopines and heels, besides the former being explicitly gendered, was that heels were only partially elevated, with the elevation occurring only under the heel, setting the foot at an incline. Chopines, by contrast, had a platform that went the length of the foot (Semmelhack 2008, 14). *High* heels were increasingly popular, again being used to denote status, as well as to enhance the female form, in part by making the foot appear dainty, an ideal which gained prominence with the publication of Peurrault's *Cinderella* in 1695 (ibid., 21). By the end of the seventeenth century and certainly by the eighteenth, the chopine had ceased to be fashionable.

From its introduction, the chopine gave rise to, and was subsequently subject to, a variety of social norms which in turn came to constitute an entire social practice surrounding this form of footwear. The chopine was deemed a new, distinct kind of shoe from previous elevated overshoes, like clogs, though there's nothing necessary about this distinction. Indeed, there was no medieval distinction between hosiery and footwear; shoemakers made both and stockings were viewed as a type of shoe (Muzzarelli 2006, 57). Rather, the most distinctive feature of

chopines was their gendered status. Relatedly, chopines were viewed as status symbols – the higher and more lavish the shoe, the richer and more important the wearer. Of course, the elevation of chopines, in conjunction with their gendered status, led to their association with prostitution and female sexuality. To wear an extremely high chopine was to be regarded as a prostitute, or at least as deliberately sexualized. With the transition to the unisex heel, this erotic norm persisted. However, again, the gendered status of chopines was likely the cause (in conjunction with the difference in structure) of their distinction from heels. Men couldn't be associated with female dress, so heels were regarded as a distinct kind of footwear from chopines and were thereby subject to different norms. Unsurprisingly, these norms differed for heels that were expressly for men or women (Semmelhack 2008, 21 ff.).

Social norms governed all facets of our practices surrounding chopines and were often supported by formal rules about how such footwear should be made. Thus, these norms came to structure the market, regulating both the constitutive features of chopines, including height, materials, and decoration, and their function and use – they were intended to be public footwear, they weren't worn around the home. Moreover, they were expressly for women of noble status or who were prostitutes and as a result, a noblewoman could make quite a statement with the choice of higher chopines, which allowed for a form of female self-expression in a rigidly patriarchal society (Vianello 2006, 93). Thus, we can see that a particular kind of artifact, popular for a couple of centuries, gave rise to a set of social norms that governed its creation, use, and treatment. These norms governed what features were central to the kind, who could wear them and in what contexts, and how they differed from other similar artifact kinds. Moreover, these norms were not immutable, as they changed alongside changes in the associated social practice, and disappeared with the fall from fashion of the chopine. More importantly, there was nothing

necessary or essential to their rise – they just happened to be the norms that arose around chopines. Other norms could have arisen in their stead. Nonetheless, as a purely descriptive historical fact about our social practices in early modern Europe, these were the norms that governed chopines.

6.3.4 Artifacts and Social Practices

We've seen how social norms arise and come to govern artifact kinds in the case of chopines. These norms give rise to a particular *social practice* surrounding the artifact kind. Such norms govern how a kind should be created, used, treated, regarded, appreciated, reused, appropriated, recycled, and by whom and in what context. These norms are perpetuated through precedent and new individuals are introduced to these social practices by learning the norms that constitute them.

Whether we focus on kinds or social practices doesn't really matter, though in general talk of artifact kinds is more common. The point is that there is a cluster of ways to interact with a particular kind of artifact which are normative – *this* is how we use and treat this sort of thing in these contexts. In general, function/use will be central to any social practice surrounding an artifact kind, though this isn't always the case. While chopines are principally footwear and are thus to be worn on the feet, they are also to be used by women, when going out in public, as a way of displaying their sexuality, and if they are too high, they would be distasteful for a well-to-do woman and are only to be worn by prostitutes. This is how makers and users interacted with and treated chopines, and how others viewed and treated them. All of these norms constitute the distinct social practice that governs chopines. By contrast, for some kinds, such as art kinds, *appreciation* and *regard* are more important. Appreciating a painting, for example, involves not

touching it (as opposed to most other artifact kinds), displaying it in particular lighting, and standing a certain ideal distance from it to fully grasp its affect, as well as having knowledge of its provenance and the constitutive features of the kind *painting* and its subkinds such as *Impressionist painting*.²⁸⁹

For each artifact kind, there is a distinct social practice governing it. In some cases, these social practices may be very similar or may even overlap. Think of mittens and gloves, which have the same function and are primarily distinguished by their structure, with the former being more commonly worn by children, outfits worn to presidential inaugurations notwithstanding. However, in most cases the associated social practices are very different. We treat pacemakers and notepads, lampshades and fan belts, in completely different ways. These kinds are each governed by a distinct social practice. In making an artifact of a particular kind, a maker may explicitly intend to make something that belongs to or is intended to be governed by, a particular social practice. However, this need not be the case. In some instances, a maker may just intend to bestow certain kind-relevant features, but if she is in a certain social context, her creation will be subject to the other social norms governing the kind. The social context of creation is thus very important. A maker may intend to make a wallet, say, and thereby intend it to be used to carry identification and bank cards, cash, and pictures, but if her making is socially situated, the wallet will be treated as wallets are normally treated in that context. This includes their function, care (leather wallets or expensive brand name wallets require more care than others), general treatment (it's generally unacceptable to touch and rifle through a stranger's wallet unless you

²⁸⁹ See Lopes (2014, 130-133) and Xhignesse (2020b, 482-484) for discussion, both of whom emphasize that artkinds are crucially *appreciative* kinds. Lopes at least uses this to include function, a notion which he borrows from Thomson's work on normative kinds (2008, 19ff.).

are returning it to them), and regard (they are generally treated as a mini private space of their owners and are thereby accorded a particular respect that such privacy normally demands).²⁹⁰

Makers, users, and others who interact with members of an artifact kind have precedential reasons to adhere to the social practices governing that kind since they are *normative* – if they don't then they are open to sanction or rebuke for not following the social norms and thus not properly participating in the practice. As we saw, these practices, and the norms which constitute them, determine almost every facet of the artifact kind. Most immediately, there's a norm governing the kind-relevant features, those features which constitute the artifact kind, including functional, structural, and material features. Relatedly, there are norms governing by whom the kind is to be used or who it is for (mittens are for children, chopines are for women, salad forks are for people of a certain social status, etc.) and in what context (outdoors, in public, and at full dinner service, respectively). There are norms that say how the artifact kind is to be treated: historic buildings like the Parthenon should be preserved while an old block of Brutalist flats can be knocked down with thanks from the neighbourhood. In other cases, there's a norm that certain artifacts are *not* to be reused, such as some face masks or plastic straws. In some cases, as with flathead screwdrivers as paint can openers, there is a well-established norm for alternative or appropriational use. However, in many cases such alternative uses are forbidden or discouraged. You are *misusing* the fine China if you put it out for your five-year old's birthday party, you are *mistreating* your laptop if you use it as an

²⁹⁰ In general, it seems that the social practice into which the maker intended their creation to be inducted or subject to is the one that takes precedent. Moving an artifact from one social practice to another doesn't seem to change its kind, though it may come to fall under a further, distinct kind. The Irish ruling that Subway's sandwich rolls aren't bread only holds for rolls made by Subway in Ireland. But interestingly, almost everyone in Ireland or elsewhere will still regard those rolls as bread and they will be counted as bread if they are brought to another jurisdiction. In other cases, we may just say that an artifact belongs to multiple kinds, as with Thomasson's (2014, 54 and n9) example of chopsticks made in China that are exclusively used as hair ornaments in the US.

umbrella, and so on.²⁹¹ For any artifact kind, there is a social practice governing that kind. But it's worth emphasizing again that such practices can and do change – they are the result of contingent and often arbitrary historical circumstances and their norms are reinforced by precedent which can be changed or undermined.²⁹²

We can now give answers to the two problems we started with, the general artifact analogues of Lopes' Coffee Mug and Free Agent objections: why are chairs and stools distinct kinds when they have the same function and what kind do jaffa cakes belong to, cakes or cookies? Recall that, in the art case, the coffee mug objection asks why a piece of bizen yaki is ceramic art but a ceramic coffee mug from Walmart isn't, while the free agent objection is that there can't be any artworks which don't belong to an art kind, yet certain hard cases, such as Cage's *4'33''* or Barry's *Inert Gas: Helium* don't fit well into any established art kinds. We can now appeal to our social practices to address the general artifact versions of these questions in turn.

With respect to chairs and stools, they are distinct artifact kinds because we have developed different norms, and concomitantly different social practices, that govern these kinds. Thus, while the centrality of various kind-relevant features often plays an important role in distinguishing artifact kinds (such as the presence of armrests and a back for chairs as opposed to stools), the more important factor is that distinct kinds are subject to distinct social norms.²⁹³

In the case of stools, the norm governing stool use generally says that they are used for more informal occasions; they aren't used at the dinner table, living room, or as primary seating,

²⁹¹ See Saito (2007, Ch. 5) for discussion of such judgements in everyday contexts.

²⁹² More recent examples than chopines can be given, such as the now defunct practice surrounding pogs, marbles, jacks, and the very recent fad of fidget spinners, all of which have ceased to be widely produced, though at one time they were all very popular kinds of toys.

²⁹³ Note that the centrality of different kind-relevant features between chairs and stools is itself a result of different norms governing the two kinds.

except in certain situations, such as at a bar or when there are insufficient chairs at the dinner table. Stools are generally more informal pieces of furniture, used in workshops, studios, and bars, and in the latter case, these are often the most chair-like stools. By contrast, chairs are more varied but are more often used in formal settings than stools and for longer periods of time since they typically have back and arm support, making them more comfortable. Even though *this* stool is for seating a single individual and *this* armchair is also for seating a single individual, they aren't both *chairs* despite their shared function (parallel to the bizen yaki and Walmart mug both being *ceramic*) or any other shared features because they are subject to different social practices and norms. We treat chairs and stools differently and this is what makes them different artifact kinds.

Different norms have developed governing stools and chairs, and as a result, the associated chair- and stool-practices are different, so chairs and stools are distinct kinds. This could have been different – our practices and the norms underpinning them are often arbitrary and always contingent. Their arbitrariness and contingency isn't a way of denigrating them, though analytic philosophy certainly has a history of doing so with the arbitrary and contingent. Rather, it's simply an acceptance of features of our practices, which are the starting point for our inquiry into the nature of artifacts. If our social practices had developed differently, chairs and stools may not constitute two distinct kinds. Given the heavy overlap in their kind-relevant features, this isn't difficult to imagine. Perhaps our practices could have developed such that thrones constitute a distinct kind from chairs, rather than be a subkind of chair. This certainly isn't hard to imagine, since there are distinct norms governing the use and treatment of thrones as opposed to lawn chairs and stools. If a chair maker makes something for Queen Elizabeth II to sit on during formal occasions, she intends it to be subject to throne norms and thus be a part of the

social practice surrounding thrones. Queen Elizabeth II isn't going to be sitting on a short, three-legged stool without a back or armrests. To answer the question of why chairs and stools – or any other artifact kinds – are distinct kinds we must look to our social practices and the norms that constitute them.

As Xhignesse (2020b, 486-487) remarks, the question of what makes a kind an art kind can be asked either *synchronically* or *diachronically* and the same can be said for artifact kinds, generally. If we ask why chairs and stools are distinct kinds despite having the same function, we can answer *synchronically* by looking to our actual practices. We currently have distinct social practices around chairs and stools, so they are distinct kinds. Of course, chairs and stools are very similar kinds precisely because our social practices governing chairs and stools are so similar. The same holds for kinds like cakes and cookies, vans and cars, hammers and gavels, kilts and skirts, cushions and pillows, laptops and tablets, and so on. On the other hand, bowls and bracelets are radically dissimilar kinds because our current associated practices for each kind are so different, meaning the norms governing those kinds, such as what they are typically used for, are very different. But there's nothing *necessary* about chairs and stools being distinct kinds – it's just the practices that we happen to have.

By contrast, if we ask why chairs and stools are distinct kinds despite having the same function, we can also answer *diachronically* by looking at the history of the kind and the associated social practices. In the case of chairs and stools, this is quite difficult to do since they are such old artifact kinds, developing who knows how long ago. At best, we can look at what evidence we do have for their development which probably goes as far back as the ancient Egyptians. However, we have extensive documentation of the history of shoes, including chopines: we have ample evidence from both paintings and records of sumptuary laws. We can

answer quite unequivocally why chopines are a distinct kind of shoe from clogs and heels, the main reason being the social practice that arose which restricted them to women's footwear as well as their explicit use as footwear rather than overshoes and their platform rather than mere heel. For any artifact kind, our diachronic answer will be as informative as the evidence we have for the kind's origins is. In many cases, our artifact kinds developed over thousands of years so their origins are mysterious.²⁹⁴ Nonetheless, we can point to particular historical developments that differentiated between kinds. We have far better historical information for more recent inventions, like the telephone, radio, or airplane (cf. Xhignesse 2020b, 486-487). In many of these cases what distinguishes between kinds is the very different sets of kind-relevant features constituting the kinds which are determined by a constitutive norm. So why are laptops and tablets different kinds? Primarily on the basis of the manner in which they perform their intended function: tablets are hand-held devices while laptops rest on a flat surface. With the extremely quick pace of technological development, it's not inconceivable that these two devices evolve into a single artifact kind, just as we are seeing fusions of watches and phones and phones and computers, parallel to the Medieval lack of a distinction between hosiery and footwear (Muzzarelli 2006, 57). Our artifact norms and practices determine our artifact kinds and just like all social norms and practices, they are contingent historical developments which are often arbitrary and frequently change.

The free agent objection is less pressing for a general theory of artifacts. An artifact will belong to myriad nested artifact kinds, so it's generally easy to identify some at least very general artifact kind that any particular artifact belongs to such as 'utensil' or 'furniture'.²⁹⁵ In

²⁹⁴ See Xhignesse (2020b, 483) for similar remarks about art kinds.

²⁹⁵ Some artifacts will belong to multiple artifacts kinds which aren't 'nested'. For example, a Swiss army knife is simultaneously a *knife*, a *fork*, *scissors*, etc. It may also be deemed a multifunctional tool. The same holds for laptops, which are communication devices, writing implements, calculators, and many other things.

the art case we are more reticent to posit a new art kind when confronted with a putative free agent like Cage's *4'33''*. Instead, we try to subsume it under the social practice of some pre-existing art kind like music, even though it doesn't sit well there. It's only after many such alleged free agents give rise to a new social practice and concomitant art kind, such as *conceptual art*, that such works come to be so classified (Xhignesse 2020b, 487-488).²⁹⁶ By contrast, in the general artifact case, we are often very willing to simply posit a new artifact kind when confronted with a prototype that's importantly different from any pre-existing artifacts. A new kind, the *telephone*, was invented with its first member. No other communication device functioned in a similar manner, but the benefits of the telephone were immediately obvious. A new kind and thus a new social practice, however small and constrained it initially was, arose. Often function, or the particular way an artifact performs some function, is sufficient to institute a new artifact kind. Using gears to move the hands on a face to track the time differentiates one kind of timepiece, analogue clocks, from other timepieces such as water clocks, which measure the flow of water between vessels. The introduction of digital watches and atomic clocks was immediately accepted as the invention of new kinds of clock. Here we have an important dissimilarity between the art kind and artifact kind cases, most likely due to the particular norms governing our artistic practices (Xhignesse 2020b, 482-487). Our interests in most non-art artifacts are usually practical and are thus governed by functional norms. Our artistic practices tend to change far more slowly – artistic norms and artistic practices are often very deeply entrenched and resistant to innovation.²⁹⁷

²⁹⁶ See Dodd (2018) for discussion of *4'33''* as conceptual art.

²⁹⁷ At least when it comes to the introduction of new art kinds. In another sense, our artistic practices are far more varied and flexible than other artifact kind practices.

While there is no exact analogue of the free agent objection for artifacts, generally, the problem still arises, albeit in a different guise. Sometimes our norms and practices don't fully settle whether a given artifact belongs to one kind or another. This typically occurs with artifact kinds that have significant overlap in their kind-relevant features (it's unlikely to occur between, say, a skyscraper and a belt buckle). This is what happened with the jaffa cake: jaffa cakes are both cake-like and cookie-like in various ways, but our practices are such that it's unsettled whether they're one or the other. Basically, in such a situation, our practices haven't developed sufficiently yet to account for such a kind because up until now they haven't had to. Jaffa cakes have been around for a long time before the question of their cakey-ness or cookie-ness had to be settled. Note that the question needs to be settled (often by the courts) because practical, interpersonal, consequences depend on the answer. In the case of jaffa cakes, it's how to tax them. Because the norms of creation, use and treatment for cookies and cakes are so similar, it didn't really matter whether a jaffa cake was a cake or a cookie because they were generally treated the same. However, some aspects of our practices surrounding cakes and cookies – in this case, the levy of taxes – are sufficiently different that it must be decided whether they belong to one kind or another.

The question of whether jaffa cakes are cakes or cookies isn't an empirical question that can be answered simply by looking at a bunch of jaffa cakes. It's not like the preponderance of their constitutive features will yield an answer to which kind they are – they have some cake-like features and some cookie-like features. While their features are certainly relevant to answering the question, what's really going on is cooperative decision making about which set of practices to subsume jaffa cakes under – those of cakes or cookies. In cases like this, where the disagreement is entrenched (which is unsurprising, since the consequences involve potential

monetary gains and losses for the different parties), often a legal decision is required to settle the dispute in a way that binds the participants. Thus, the courts play an important role, through formal legal rulings, on *deciding* which artifact kind jaffa cakes belong to.

The jaffa cake belongs to an existing artifact kind already – pre-packaged dessert or something like that – but the question is which of two subkinds does it belong to? The problem of jaffa cakes isn't the problem of having an artifact that's a free agent, though it is similar. The problem is that our current social practices are silent on whether jaffa cakes are cakes or cookies. However, it's those very social practices which provide the answer by stipulating which kind jaffa cakes belong to. Thus, our social practices and the relevant groups or institutions that support them determine what the kind is.

With jaffa cakes, the Ford Transit, and similar cases, their respective kinds are *de jure* settled by the legal system. In other cases, our social practices provide *de facto* answers – through the accumulation of precedent the relevant social group will treat an artifact as belonging to a particular kind. This happened with hot dogs. A perennial debate is whether hot dogs are sandwiches. The introduction of the hot dog as a kind of street food is ultimately the introduction of a new prototype artifact.²⁹⁸ In prototype cases, new norms and practices arise over time which in turn decide whether the kind is actually just a variation on an old artifact kind or if it constitutes a new artifact kind altogether. The norms governing hot dogs and sandwiches are so similar that for most practical purposes it doesn't matter whether hot dogs are a distinct kind or a subkind of sandwich. If a problem arose about how to treat hot dogs (as sandwiches or as a distinct kind) similar to the problem of how jaffa cakes should be taxed, then it would matter and

²⁹⁸ The sausages originally used were German Frankfurters but coupling them with a bun or roll was an American invention, thought to have originated in the late 1800s in either the Midwest or at Coney Island. Of course, as with many foods, their history is highly debated. See the National Hot Dog and Sausage Council for the history of hot dogs: <http://www.hot-dog.org/culture/hot-dog-history>.

a decision would need to be made to settle our practices, probably by the courts or some federal regulator.²⁹⁹ Any formalized rule about hot dogs being sandwiches would have some downstream effects on our practices, at the least about how to tax them, but maybe in other ways of treatment or regard as well.³⁰⁰ Our practices may also shift over time on their own. For example, The American National Hot Dog and Sausage Council ruled in 2015 that hot dogs weren't sandwiches. However, this institution doesn't have legal authority to make this determination legally binding – this would likely lie with the Food and Drug Administration – but such a ruling seems to agree with most people's intuitions and thereby further supports the *de facto* status of the hot dog as a distinct artifact kind from the sandwich.³⁰¹ In all such cases, it's often arbitrary and always contingent about how the kinds are treated and what social practice they are subject to. The courts could conceivably rule either way on jaffa cakes – the kind-relevant features are as much cookie-like as cake-like – but future developments in our socio-legal practices may subsequently change the kind.

So what makes a kind an artifact kind? The answer is that our social practices and the concomitant social norms determine, through the weight of precedent, whether artifact kinds are distinct and to what kind a particular artifact belongs to. There's no "deep" metaphysical facts here; we don't need to uncover the fundamental building blocks of the universe to answer these questions. We just need to look to our social practices and norms surrounding artifact kinds.³⁰²

²⁹⁹ As it happens, I'm permissive about such things and would count hot dogs as a kind of sandwich, though in general I think our practices treat them as a separate kind of food.

³⁰⁰ For example, perhaps sandwich shops/delis would be more prone to sell hot dogs alongside more paradigmatic sandwiches like the Philly cheesesteak or ham and Swiss on rye or the Cuban.

³⁰¹ See Deutsch (2015) <https://www.usatoday.com/story/news/nation-now/2015/11/07/a-hot-dog-is-not-a-sandwich/75362898/>.

³⁰² See also Xhignesse (2020b, 486).

6.3.5 Artifact Kinds as Interactive Kinds

With the account of what makes a kind an artifact kind in place – social norms which give rise to social practices which govern the kind – I want to make a general observation about artifact kinds consonant with my account which will help elucidate my previous remarks, as well as help unify artworks and other artifacts. That is, artifact kinds are what Ian Hacking (1988, 2000) has called *interactive kinds*. Interactive kinds are kinds which change by their application and which in turn change those things that they're applied to. Hacking's examples are all of social kinds with *child abuse* and *multiple personality* being his favourite examples. In the cases of child abuse and multiple personality, the things falling under the kind (or type or category) are affected by that very categorization and in turn the things that fall under the kind affect the categorization itself. Hacking (1995) calls this a *feedback loop* or *looping effect*. Hacking argues that *only* social kinds are interactive kinds because the targets of the natural sciences are stationary, while the targets of the social sciences are always 'on the move' (Hacking 2000, 108). However, Khalidi (2010) argues that some natural kinds are interactive as well. I won't take a stand on this issue here. Since I've argued that artifacts are a social kind, I want to show how artifact kinds exhibit this kind of looping effect, although with some important differences from kinds like child abuse, multiple personality, race or gender.

Consider Hacking's example of multiple personality. The stages of the looping effect for multiple personality are nicely laid out by Khalidi as follows (2010, 337):

- (1) Introduction of the concept of *multiple personality* along with the associated label.
- (2) Certain people are classified as having *multiple personality* or as falling under that kind and are treated accordingly.

- (3) Some of these people come to identify with the kind *multiple personality* (whether consciously or not).
- (4) These people (or some of them) become further distinguished from other people, often acquiring new properties.
- (5) The kind *multiple personality* comes to be associated with a new set of properties, which leads us to modify our concept of *multiple personality* or the theoretical beliefs associated with it.

Here we see that the concept of *multiple personality* (and concomitantly the kind the concept represents) is affected by its application to new instances.³⁰³ Since multiple personality is a social kind, the properties of multiple personality are importantly dependent on and determined by, social groups. In this case, it's the community of psychiatric researchers who introduced and applied the concept and who first identified the kind's properties. However, the application of the kind to individuals – those patients diagnosed with multiple personality disorder – affected the individuals it was applied to, changing their properties. Through successive applications of the concept, the kind itself was taken to have new properties in virtue of the new properties instantiated by its members. Patients diagnosed with multiple personality disorder affected the properties associated with the kind. In turn, the kind, with its new associated properties, was applied to other individuals whose properties changed as a result and who in turn affected the properties associated with the kind, and so on.

This stepwise pattern occurs with other interactive kinds, such as child abuse(r), gender, race, homosexual(ity), and permanent resident, although there are some differences.³⁰⁴ Normally,

³⁰³ I'll talk of kinds, though Hacking and Khalidi talk of concepts which represent or pick out the kind. Semantically, we could also talk about the kind term which is used to refer to the kind by way of the concept. Nothing hangs on these distinctions here.

³⁰⁴ See Khalidi (2010, 337-338) on the differences between the looping effects of multiple personality and child abuse.

the looping effect occurs between classifier and classified, but it can also involve those who interact with the classified or reject or accept the classifier. This is the case for artifacts, since they aren't themselves agents, so they don't do the classifying. Instead, artifact kinds (the classifier) are applied to various entities (the classified) and both are interacted with by various agents. Consider the steps of the looping effect for an artifact kind:

- (1) A maker makes an artifact of a novel kind K with K -relevant features $k_1 \dots k_n$, which heralds the introduction of a new artifact kind and associated concept K .
- (2) K s are accepted by the relevant K -audience and additional makers begin making K s, copying the features $k_1 \dots k_n$, but also adding additional features $k_o \dots k_t$.
- (3) The kind K is applied to these artifacts and production becomes more widespread.
- (4) K s become further distinguished from other, similar artifact kinds K' based on their properties, and acquire new constitutive features $k_o \dots k_t$ that are bestowed in subsequent production or are identified or otherwise bestowed by users, consumers, sellers, reviewers, and others who interact with the kind.
- (5) The kind K comes to be associated with these new features $k_o \dots k_t$ which leads makers (and users, sellers, producers, etc.) to modify their concept of K s or their beliefs associated with the kind K .
- (6) The constitutive features of K s thereby come to include $k_o \dots k_t$ in addition to or instead of features $k_1 \dots k_n$.

This is in keeping with the contingent public norms and social practices governing artifact kinds. The kinds are often subject to change as they evolve and develop through various socio-historical pressures and processes. Because artifacts aren't agents, the looping effect occurs between the various agents who interact with the artifact kind and its members. This most often includes

makers/designers and users, but also buyers and sellers, reviewers, and legislators. Basically, what happens is that the kind-relevant features, as well as the other norms governing the kind, change through a looping effect. For various historical reasons, elevated overshoes like clogs were replaced or developed into chopines. Since clogs were made of cheap and plentiful wood, they were associated with the poor. Chopines were most often made from scarce cork, so came to be associated with upper class women but also with prostitutes. This association in turn affected the kind, as chopines were further differentiated by height, with those of more modest height being associated with ‘proper’ women and those of exaggerated height becoming associated with prostitutes (partly due to sumptuary laws which attempted to fix the features of the kind). For various historical reasons, chopines fell out of fashion, to be replaced with the unisex heel, which in turn was differentiated by properties like height, colour, and material to distinguish between male and female heeled footwear. In this way, the features constitutive of the kind, as well as the other norms governing the kind, determine who should use such artifacts and in what manner, but are in turn changed by the individuals that use those kinds of artifacts.

Since Xhignesse’s account of art kinds as a social practice is basically the same as my account of artifact kinds, generally, and I view art and art kinds as subkinds of artifacts, this entails that art kinds are also interactive kinds. What counts as *art*, and specific art kinds like *music* and *painting*, have been changing over the past several thousand years in the same way that footwear has. Duchamp’s ready-mades initially met resistance and befuddlement from the artworld but over time they were accepted as art and ready-mades became a new art kind with its associated social norms and practices. The application of the concept of *art* to Duchamp’s ready-mades changed them but they in turn changed the concept, expanding what counted as art.³⁰⁵

³⁰⁵ See Evnine (2013) for discussion of Duchamp’s cases.

This expansion and feedback loop only increased over the twentieth century. The main difference between artifact kinds (including art kinds) and other interactive kinds is that the former aren't usually applied to agents (compare this with institutional kinds that are, such as *permanent resident*). Thus, the artifacts themselves don't associate with the kind or kind concept or come to identify with it. Rather, it's the makers, users, consumers, sellers, merchandizers, product reviewers and shippers who associate *that kind of thing* with Ks.³⁰⁶ Makers, for example, may see that some other K-makers have started producing Ks with a particular (new) feature F and change their own making of Ks to follow suit. In this way, the feature F comes to be associated with the concept K as a constitutive feature, thereby changing the concept and kind, which in turn changes new instances of the kind.³⁰⁷ Alternatively, they may deny that Ks have F and insist this is a distinct kind. These sorts of social pressures are constantly exerted on artifact kinds, leading to innovation within the kind or the introduction of new kinds and the rigidification of old ones.

The observation that artifact and art kinds are interactive kinds is hardly new, though Hacking's concept of interactive kind has come to be very influential in many different domains. Interactive kinds are similar to both Weitz's (1953) idea of art as an 'open concept' and Thomasson's (2003b) view of 'strict' and 'loose' artifact kinds. Weitz argued that new instances

³⁰⁶ Product reviewers are an interesting parallel with art critics in their role as evaluators of the artifact kind.

³⁰⁷ This process may be very gradual or quite sudden, depending on the particular socio-historical circumstances. The rapid change in cellphones, smartphones and other handheld devices over the past twenty to thirty years is just one example. The first cellphones were large, shaped like landline receivers and had extendable antennas (as seen in the classic 1995 film *Clueless*). At the turn of the century, cellphones drastically shrunk in size and developed the flip phone structure but retained the standard dial pad. Later, the flip phone was replaced with the first smartphones which had a full keyboard and stationary screen, which were in turn replaced with touchscreens. During this time, the initial shrinking of cellphones continued but at some point, around 2008 to 2010 the newer iPhone models actually started increasing in size which each new iteration. Moreover, the original smartphone models with keyboard as well as the flip phone model were both near the end of the 2010s (by Blackberry and Nokia, respectively). This is just a very brief list of changes in the outward features of cellphones, but the changes to the internal hardware and, to an even greater extent, the software, have been equally drastic.

could be subsumed under the kind 'art', thereby expanding the concept or the kind could be 'closed', rejecting new instances, in which case a new concept would be introduced to cover them. Since, according to Weitz, closing the concept of art would undermine the creativity inherent to art, he concluded that art couldn't be defined. While I don't want to endorse Weitz's open concept argument against the definability of art, art as an open concept is similar to art being an interactive kind. New instances expand the kind in virtue of having new features not previously associated with the kind. In turn, these new features associated with 'art' come to alter previous members of the kind, e.g. Duchamp's *Bottle Rack* has new features as an artwork now that Cage's *4'33''* is included as an instance of the kind *art*.

Similarly, Thomasson's distinctions between strict and loose artifact kinds is parallel to my claim that artifact kinds are interactive kinds. Loose kinds have a broad disjunctive set of constitutive features, while those of strict kinds are very rigid – little deviation of the standard features of strict kinds is allowed. Chairs, for example, have all sorts of constitutive features, coming in virtually every shape, size, material, and they may or may not be used as seating. By contrast, there are a very strict set of features required for an (official) American flag, including dimensions, spacing and placement of the stars and stripes, and the exact hue of the textiles. The norms governing the kind may change during the feedback loop, thereby loosening or expanding the kind or they may become more entrenched, with no further changes accepted. For both art and artifacts generally, the role of experts is central, be they artists and art theorists and critics or architects and fashion designers and critics, respectively. All those who interact with the kind, but most centrally experts, participate in the feedback loop.

Therefore, we can understand artifact kinds, including artworks, as interactive kinds, subject to a feedback loop between our view of the kind's extension or membership and

concomitant application of the concept and the activities of makers, users, consumers and everyone else involved in the social practices surrounding the artifact kind. In this way, the kind changes as we apply it to new instances and new instances are subsequently changed by the evolving kind. This also brings us a step closer to unifying artworks and other artifacts since they both are subject to social norms which give rise to social practices, with the relevant group of individuals involved in those practices participating, knowingly or not, in a feedback loop between the artifact kind and members of that kind. Putting the point another way, the individuals that follow social norms and practices (or perhaps *don't* follow them) in turn change the social norms and practices, with new individuals participating in these changed practices and in turn changing them. As a result, the *social* dimension of artworks and artifacts is precisely what makes them *interactive*.³⁰⁸

6.4 Conclusion

The goal of this chapter was to answer the question of what makes a kind an *artifact* kind. This question needs to be addressed by anyone who offers a theory of artifacts involving the schema:

Artifact Schema: x is an artifact iff x is a member of an artifact kind K and...

³⁰⁸ Are all and only social kinds interactive kinds? Hacking argues that only social kinds are interactive kinds, but see Khalidi (2010) for a dissenting view. Xhignesse (2020b, 484) claims that all social kinds are determined by convention (or social norms) and from this we might infer that all social kinds are therefore interactive kinds. However, Khalidi's first social kind only depends on some social group, not any specific attitudes that group has towards the kind or its members. It's thus not clear if these kinds are interactive. If no one in the group has the concept of racism but some members of the group are racist while some members are the victims of racism, how could the kind be interactive? We might say that Khalidi's first social kind can be interactive if the group has the associated concept, but that they aren't otherwise or we could say that the kind can be interactive through unconscious associations and changes. I'm not sure what to say about such cases but we needn't settle the matter here, although I would at least sound a note of caution about Xhignesse's unsupported claim that all social kinds are determined by norms or conventions.

We can't substitute just any kind for 'K' and get a true instance of the schema, so we need to know what are the artifact kinds such theories make reference to. This question turned out to be several questions. On one hand, we can ask what distinguishes artifacts from other kinds, such as natural and institutional kinds. On the other hand, we can ask what distinguishes artifact kinds from each other. The former question was answered by appealing to the specific kinds of mind-dependence relations involved: artifacts are social kinds that depend either on their maker's intention to make something of that kind or also on social groups and public norms. By contrast, institutional kinds are necessarily *collectively* mind-dependent (about both the kind and its members), while some social kinds like racism and recession depend on social groups, generally, but not on any specific attitudes those groups may have about them. Natural kinds are, in general, *mind-independent* and can be distinguished from artifacts on this basis. However, we saw a slew of cases from Khalidi and others that purport to show that some artifact kinds have a mind-independent essence, so there's no sharp, principled distinction between artifacts and natural kinds. These cases can be resisted, however, by making fine-grained modal distinctions: theories of artifacts are concerned with *essentially* artifactual kinds – those kinds whose members *must be* artifacts – and not with *accidentally* artifactual kinds – those kinds which may or may not have artifacts as their members. Putative cases that straddle the divide are all of accidental artifactual kinds. Essentially artifactual kinds are constitutively mind-dependent while accidentally artifactual kinds are only causally mind-dependent.

The second question was similarly separated in two, parallel to the two issues Lopes raises for theories of art that involve the art schema, parallel to our artifact schema. On one hand, we can ask why two or more artifact kinds are *distinct* artifact kinds despite myriad similarities, such as the same function. On the other hand, we can ask what kind of artifact a particular

artifact belongs to. I argued that the answer is the same in both cases: our social practices determine what the artifact kinds are and also determine (i.e. stipulate or legislate) what kind any particular artifact belongs to. These social practices ultimately rely on various norms which govern the artifact kind – norms of creation, use, regard, and treatment – which we saw with the historical case of chopines in early modern Europe. Moreover, these practice-sustaining norms simultaneously give rise to feedback loops – the social practice changes the artifact kind and the artifact kind changes the social practice, all in virtue of the social group which interacts with those artifacts. Thus, what artifact kind we substitute for ‘K’ in the artifact schema will depend on both the maker’s intention to make something of a particular kind and the social practice and social norms her creation is subjected to. Put another way, the social context of creation partly determines the artifact kind.

CHAPTER 7: ON THE REFERENCE OF ARTIFACT KIND TERMS

7.1 Introduction

So far we've considered various features often attributed to artifacts, including their intention-dependence, physical modification, and function. I've developed my own intentionalist account, largely in keeping with other extant intentionalist views, but which recognizes the distinctly social dimension of artifacts. Moreover, I distinguished artifacts from natural and institutional kinds and gave an account of artifact kinds which appeals to the social norms which govern and ultimately determine the boundaries of such kinds, all of which was given via a descriptivist approach to metaphysics which starts with our practices surrounding artifacts and artifact kinds. Now that we have an account of artifacts on the table and an answer to the question of what makes a kind an artifact kind, we can now ask the corresponding semantic question: how do artifact kind terms refer? That is, now that we have an account of *chairs*, say, in virtue of what does the artifact kind term 'chair' refer to chairs? There has been a tremendous literature on this topic spawned largely in the wake of Kripke's and Putnam's development of the causal theory of reference in the 1970's. Putnam himself claimed that the causal theory could be straightforwardly extended to artifact kind terms like 'pencil', although he conspicuously offered no account of artifacts.

In light of Putnam's omission, the debate about the reference of artifact kind terms has proceeded in a haphazard fashion. While the parties to the debate agree about the commitments of the theories of reference on offer, there is little consensus on the nature of artifacts. The result is a great deal of wheel spinning in the proverbial mud. Whatever your account of artifacts, it will constrain, at least in part, what you can say about how the corresponding kind terms refer, as

well as associated epistemological issues. Given that I've offered an account of artifacts and artifact kinds, we're now in a position to understand how artifact kind terms refer. That is the goal of this chapter.

There are two general theories of reference afloat in the literature, the causal theory and the descriptions theory. These theories are also variously known as direct and indirect and externalist and internalist theories of reference, respectively. On the descriptions theory, terms refer by satisfying a description that speakers associate with the referent. Thus, 'water' refers to whatever satisfies the description 'clear, colourless, odourless liquid found in lakes and rivers' and other speakers acquire the term by learning the description. Such descriptions are taken to be analytic – metaphysically necessary and knowable a priori – thereby attributing to speakers a strong measure of epistemic privilege with respect to their referents. By contrast, on the causal theory terms refer in virtue of speakers standing in causal relations to a grounding or baptismal ceremony of an ostended sample and the reference of the term is fixed in things that share the sample's essence. Thus, the reference of 'water' is grounded in a sample of water which the original speaker is causally related to and 'water' refers to anything that shares the nature of that sample, in this case, anything that is H₂O. Subsequent speakers acquire the term by standing in a causal-historical relationship to the original grounding ceremony. Because the nature of the sample is empirically discoverable, it may not be known to speakers, who may thus be ignorant or in error of the nature of the referent. As a result, speakers have no measure of epistemic privilege with respect to the referents of their terms.

Often it seems like the debate unfolds with a cookie cutter approach: one is sympathetic to the causal theory or the descriptions theory and applies them wholesale to artifact kinds terms, ignoring those features that don't fit the mould. While both the causal theory and the descriptions

theory have a number of proponents, it's now generally recognized that neither theory in its original formulation is entirely adequate. As a result, some hybrid theory of reference is needed. This is a general difficulty that holds as much for artifact kind terms as it does for natural kind terms and proper names. There are a couple of hybrid theories of reference in the literature, involving different combinations of the various commitments of the causal and descriptions theories. Indeed, the theory of reference for artifact kind terms (and reference, generally) that I'll defend is explicitly hybrid, combining elements of both the causal and descriptions theories, although it is admittedly closer to the original causal theory than to the original descriptions theory. Nonetheless, I think it's the right approach because it fits all of the facts, i.e. our linguistic practices. In short, reference-fixing proceeds causally but grounders of a term need to associate some descriptive content with their intended referent. This content may be entirely false of the referent, so long as the associated content is *explicable* in virtue of grounders' causal contact with a sample. Reference-borrowing, by contrast, proceeds almost completely causally, except perhaps with speakers intending to co-refer to whatever other speakers are referring to.

The chapter is structured as follows. In §2 I consider the state of the debate on the reference of artifact kind terms up to the most recent descriptivist challenges. In §3 I argue that the causal theory just needs an account of artifact essences in order to be extended to artifact kind terms. While I will assume my own account, any account of artifact essences will do. With such an essence in hand, the initial grounding ceremony can fix the referent of the term in things that share that essence. In §4 I consider whether two other components of the causal theory hold for artifact kind terms, namely rigidity and indexicality. I argue that artifact kind terms are indexical in the sense that their reference is tied to local samples and that the social dependence of artifacts allows for cross-cultural reference, though some semantic decision will be required in

certain cases. Moreover, in virtue of the dependence relations between artifacts and their makers' intentions, artifact kind terms can refer rigidly, just like natural kind terms. In §5 I consider a general problem levelled against causal theories of reference – the qua problem – which motivates hybrid theories. I argue that causal theories do require some descriptive content to fix reference but that the associated description may be false of the referent yet reference fixing succeeds. As a result, my hybrid causal theory doesn't require that the descriptions are analytically associated with the kind term. What matters is that speakers are in an appropriate causal relation to the referent whereby their utterance is *explicable* even if it's false. Finally, in §6 I consider alternative approaches, namely Thomasson's hybrid account, and consider more directly the issue of epistemic privilege: prototype makers have a very limited measure of epistemic privilege, but the majority of speakers and users may be in ignorance or error about the nature of their term's referent.

7.2 Artifact Kind Terms: The Debate So Far

Debates about the semantics of artifact kind terms goes back to Kripke's (1980) and Putnam's (1975) introduction of the causal theory of reference. The causal theory explains the reference of proper names and natural kind terms in virtue of causal relations between speakers and the world. Putnam argues that the causal account can be extended straightforwardly to other words, indeed, "to the great majority of all nouns, and to other parts of speech as well", (1975, 242) including artifact kind terms like 'pencil' and 'chair'. However, in its general form, the causal theory faces some serious problems with reference fixing and the role of descriptive content. Moreover, while Putnam claimed it could be applied to artifact kind terms, he makes no mention of what constitutes membership in an artifact kind. This omission has raised problems

for his defense of the causal theory to artifact kind terms, which has led some to believe that the descriptions theory more accurately describes their reference.

On the causal theory, a term is first introduced into a language and its reference fixed by baptizing an ostended sample,³⁰⁹ e.g. ‘stuff like *this* is water’, so that ‘water’ refers to all and only things with the same underlying nature as the sample, namely H₂O, and thus ‘water’ is *indexed* to the underlying nature of the sample. The underlying nature is thereby part of the meaning of the term,³¹⁰ even though we may not know what that nature is. The term is not synonymous with some phenomenal description, like ‘clear, colourless, odourless, liquid found in lakes and rivers’ despite most speakers associating some such description with the term. Our term ‘water’ refers to H₂O in all possible worlds, so ‘water is H₂O’ is metaphysically necessary but knowable only *a posteriori*. Thus, Kripke and Putnam conclude that the descriptions theory is false for natural kind terms.³¹¹ We can borrow the term from another speaker when it is introduced in conversation or we are shown a sample, with such a causal-historical chain of transmission ending in the initial reference-fixing of the term.

Putnam argues that the descriptions theory is false for artifact kind terms, as well, by introducing a thought experiment where we discover that all pencils are organisms. While this is epistemically possible, pencils are in fact artifacts (in the actual world), so ‘pencils are artifacts’ is metaphysically necessary but epistemically corrigible (knowable *a posteriori*, so open to disproof), and therefore not *analytic*: “it follows that ‘pencil’ is not *synonymous* with any description – not even loosely synonymous with a *loose* description. When we use the word

³⁰⁹ This is usually how terms are introduced, although sometimes they may be introduced by a definite description, e.g. ‘Jack the Ripper’.

³¹⁰ That is, the underlying nature is part of the meaning in the sense of Putnam’s (1975, 268ff.) ‘meaning vector’ but not necessarily part of the term’s intension.

³¹¹ The descriptions theory has its roots in Frege. For early defenses of the descriptions theory see Searle (1958) and Geach (1962), for a more recent defense, see Jackson (1998) and see Devitt and Sterelny (1999, ch. 5) for good general discussion of these issues.

‘pencil’ we intend to refer to whatever has the same *nature* as the normal examples of the local pencils in the actual world. ‘Pencil’ is just as *indexical* as ‘water’ or ‘gold’” (1975, 243; Putnam’s italics). Thus, the reference of ‘pencil’ is fixed in actual pencils so refers to whatever shares the nature of *things like that*.³¹²

In response to Putnam, Stephen Schwartz (1978, 1983) argues that *artifact* isn’t part of the meaning of ‘pencil’ since we can imagine that somewhere non-local pencils aren’t artifacts but are instead tree branches that are broken off and used to write with, thereby claiming that ‘pencils are artifacts’ isn’t metaphysically necessary.³¹³ Rather, the nature of artifacts is determined by superficial characteristics like form and function (e.g. pencils are cylindrical writing instruments made of wood and graphite), and Schwartz takes these to be analytically associated with the term. There is no underlying essence for the kind to be indexed to.³¹⁴ In response to Schwartz, James Nelson (1982) and Hilary Kornblith (1980) argue that while superficial characteristics like form and function could determine the nature of artifact kinds, these are not analytically associated with the kind terms.³¹⁵ Nelson (1982, 362) introduces a thought experiment where all pencils turn out to be elaborately disguised alien listening devices, so associated descriptions of form and function are false and therefore not analytic, while Kornblith (1980, 112) discusses a case where Martian anthropologists ground a new term ‘glug’ in a sample iron doorstop while being in complete ignorance about the artifact, and therefore the

³¹² For an overview of the debate about artifact kind terms, see Olivero and Carrara (forthcoming).

³¹³ Although Schwartz is too quick here, since appropriation can handle such pencil tree cases. I discuss this further below.

³¹⁴ See also Abbot (1989, 80-83) for defense of superficial determinants of artifact kindhood which are simultaneously nonessential.

³¹⁵ See also Devitt and Sterelny (1999, 93-96) for discussion.

Martians don't need any associated description to successfully fix the reference of the term in doorstops.³¹⁶

In defense of Schwartz and the descriptions theory, Diego Marconi (2013, 2019) and Irene Olivero (2018, 2019) have argued that Putnam, Nelson, and Kornblith all fail to establish the possibility of ignorance and error about artifact kinds that's one of the hallmarks of the causal theory. Olivero (2018) argues that Putnam's pencil thought experiment just shows that we can be wrong about whether a term is a natural or artifactual kind term, rather than showing how artifactual kind terms actually refer. At the same time, Marconi (2013) and Olivero (2019) argue that the claims of a common essence advanced by Nelson and Kornblith fail, since there are putative counterexamples to the superficial features of form and function they propose and thus there's no underlying nature. Moreover, Olivero (2018) argues that Kornblith's Martian example merely illustrates the division of linguistic labour – the Martians' successful reference is allegedly parasitic upon the existence of human experts who must use some description to fix the referent of artifact kind terms. This doesn't establish that they can be in complete ignorance or error of the nature of the kind. Instead, Marconi (2019) argues for pluralism about reference for different artifact kind terms depending on their taxonomic status while Olivero (2018) opts for a more traditional descriptions theory for artifact kinds.³¹⁷

A more general problem, applicable to the reference of natural as much as artifactual kind terms, has also been levelled against the causal theory. Amie Thomasson (2007a, 2007b, 2020) has argued that some descriptive content is needed to fix the reference of terms in order to avoid the qua-problem. The qua-problem, so named by Michael Devitt and Kim Sterelny (1999, 90-

³¹⁶ Similarly, Daniel Putnam (1980) argues that the Martians would take traits pegged to a similarity paradigm to be the subject of empirical investigation about the kind and thus any claims they made would be metaphysically necessary even if they were epistemically contingent.

³¹⁷ For an overview of these more recent aspects of the debate, see Olivero and Carrara (forthcoming).

93), is that a sample artifact or natural kind instantiates multiple kinds, so an attempt to fix the reference of a term ostensibly must somehow disambiguate the intended referent *qua* some concept, category, or description. For example, the grounding of ‘kangaroo’ in a sample kangaroo is ambiguous without specifying that the referent is that kind of *animal* rather than referring to, say, all *marsupials*. In order to get around the qua-problem, Richard Miller (1992) has argued that, while we may have used, say, the sortal ‘animal’ to fix the reference of ‘kangaroo’, if we discovered that all kangaroos were actually robots we would not conclude that ‘kangaroo’ doesn’t refer, but that we were wrong that kangaroos were animals, and thus it isn’t *analytic* that kangaroos are animals. In response to Miller and others, Thomasson proposes a *hybrid* causal-descriptive view whereby the reference of a term is fixed by causal contact with a sample and the intended referent disambiguated by a general categorial or sortal term.³¹⁸ The categorial sortal that the grounder uses to fix the reference of a term is analytically related to the term and thereby knowable *a priori* by speakers, and thus Thomasson’s view is much closer to the standard descriptions theory of reference. Thomasson (2007b, 38-44, 48-53) argues not that we’d be revising our concept of *kangaroo* if we were faced with Miller’s case, but that we would be making a *semantic decision* that ‘kangaroo’ refers to those robots. In other cases, such a semantic decision may legislate reference *failure*.

The debate has tended to oscillate between two unhappy extremes. Causal theorists like Putnam, Nelson, and Kornblith have insisted that the causal theory of reference can be applied to artifact kind terms by positing some essential nature for artifacts, but they have difficulty in circumventing the qua-problem. By contrast, descriptions theorists like Schwartz, Marconi, and

³¹⁸ Devitt and Sterelny (1999, 96-101) also offer a hybrid theory of reference, though it’s substantially different from Thomasson’s, most importantly in that it gives different accounts of reference for different kinds of referring expressions, whereas Thomasson’s account is fully general, applying to proper names and natural, artifactual, and social/institutional kind terms.

Olivero and hybrid causal-descriptivists like Thomasson and Devitt and Sterelny fix the reference of artifact kind terms by analytically associated descriptions, so can avoid the qua-problem, but such views face Kripke's well-known problems of ignorance and error. A common assumption in the debate is that any associated descriptive content must be analytically related to the kind term. One of my main arguments here is that the causal theory of reference can posit a role for descriptions to solve the qua-problem without recourse to analyticity, similar to Miller's solution. Since I've already defended an account of artifact essences, the main tenets of the causal theory can be extended to artifact kind terms.

The causal theory and the descriptions theory both have a variety of components that explain how reference works, but these components can come apart and elements of both theories combined, as Thomasson's and Devitt and Sterelny's hybrid theories do. In asking how the reference of artifact kind terms functions, we should separate six distinct but related concerns:

- (i) Do artifact kinds have essences?
- (ii) Does the reference of artifact kind terms function indexically?
- (iii) Do artifact kind terms refer rigidly?
- (iv) Is some descriptive content required for either reference fixing or borrowing?
- (v) If some descriptive content is required, is it analytically associated with the term?
- (vi) If the descriptive content isn't analytic, is there any measure of epistemic privilege with respect to the referents of artifact kind terms?

Questions (i)-(iii) involve the main components of the causal theory, while questions (iv)-(vi) are about the main components of the descriptions theory (although the question of analyticity and epistemic privilege are simultaneously questions about the problems of ignorance and error).

Questions (i)-(iii) and (vi) are also specific to artifact kind terms, while questions (iv) and (v) are about theories of reference, generally.³¹⁹

The causal theory and descriptions theory offer answers to these questions, but in various cases they aren't satisfactory nor is either theory of reference appropriate for artifact kind terms wholesale. Thus, we need a hybrid view that combines elements of each, the exact nature of which will become clear as we address these issues in turn. In short, I will answer 'yes' to (i)-(iv), 'no' to (v), and a qualified 'yes' (but really more of a 'sort of') to (vi). How we answer some of them will constrain what answers we can give for others.³²⁰ Moreover, there are multiple potential hybrid views for both reference fixing and reference borrowing – they need not function in the same way. The view I'll defend advances a purely causal theory for reference borrowing but gives a hybrid causal-descriptivist view for reference fixing. To arrive at such a position, I'll address these six questions in turn.

7.3 Artifact Essences

The causal theory of reference requires that there be some essence to which the associated kind term can be indexed. The term 'water' is fixed by a baptism of a sample of water to whatever else shares that nature – H₂O. The same consideration holds for other natural kinds like gold or electron. All that's required for a kind term to be grounded in the kind is that there be some essential nature to which it can be indexed, thereby securing reference for that kind

³¹⁹ Olivero and Carrara (forthcoming) center their approach on (i) and (vi). See also Kripke (1980, especially 71ff.) and Putnam (1975) for discussion of (i)-(vi) in various guises.

³²⁰ E.g. if artifacts don't have an essential nature, then there's nothing to index the term to which could refer rigidly. Similarly, if the descriptive content isn't analytic, it's not clear where any epistemic privilege could come from.

(where the essence determines the kind, hence indexing to the essence fixes reference in the kind).

A pressing question, for both the metaphysics of artifacts and the semantics of artifact kind terms, is whether there is any essential nature to being an artifact and a member of a specific artifact kind. If there's not, then the causal theory doesn't seem promising as a theory of reference for artifact kind terms. But if there is, as Putnam suggested without elaboration, then it seems like one *prima facie* barrier to extending the causal theory can be overcome.

I've previously developed an account of artifact essences. My account is largely intentionalist – the intentions of artifact makers play a central constitutive role in being an artifact – and resembles intentionalist accounts by Hilpinen, Bloom, and Thomasson in various ways. I formulated the following Artifact Principle to capture the view:

Artifact Principle: Necessarily, for all x and all artifactual kinds K , x is a K if and only if x is the product of a largely successful intention that (Kx) , where one intends (Kx) if and only if one has a concept of the nature of Ks that matches to some extent that of some group of prior makers of Ks (if there are any) and intends to realize that concept by imposing some subset of K -relevant features $k_1, k_2, k_3 \dots k_n$ on the object.

From this principle, we have a robust account of the essential nature of artifacts and artifact kinds. For any given artifact kind like pencil, chair, or key, they can be substituted for 'K' above while the kind-relevant features of any given artifact kind can be substituted for the k_n s. In short, to be an artifact is to be the successful product of an intention to make something of a particular artifact kind, while being a member of a particular artifact kind is to be the successful product of an intention to bestow some subset of kind-relevant features on an object. For example, to be a *chair* is to be the successful product of someone's intention to make a chair where such an intention involves successfully bestowing a number of chair-relevant features on an object, such

as being made for seating a single person, made of wood, leather, nails, and glue, and having four legs, a back and armrests. *Mutatis mutandis* for any other artifact kind.

Given this account of artifact essences, we can straightforwardly extend the causal theory to artifact kind terms. In the case of ‘pencil’, the term is introduced into a language through the initial grounding ceremony of the term via an ostended sample pencil: ‘things *like these* are to be called ‘pencils’’ accompanied by a demonstration (pointing or gesturing). The term ‘pencil’ is fixed in the nature of the sample. That is, ‘pencil’ refers to all and only those things which have the same nature as the sample pencil, namely, *those things that are the successful product of an intention to make a pencil*. Successful products of an intention to make a pencil are those things that have some sufficient subset of pencil-relevant features, e.g. being made for writing, being made of wood or plastic with a graphite core, cylindrical, having an eraser attached to the end, etc. The same holds for any other artifact kind, e.g. ‘car’ refers to all and only the successful products of an intention to make a car, ‘flashlight’ refers to all and only the successful products of an intention to make a flashlight, etc. The point is that the artifact kind is individuated by a shared nature. Since we have a clear account of the essences of artifact kinds, we can straightforwardly extend the causal theory to artifact kind terms.

Of course, my account is not the only one on offer. I’ve previously discussed similar accounts from Hilpinen (1992), Bloom (1996), and Thomasson (2003b, 2007a, 2014), all of whom advance intentionalist accounts which acknowledge, in some form or other, a broad range of kind-relevant features. On these views the kind term would still be fixed to successful products of an intention to make that kind of thing. By contrast, we’ve also seen a slew of function essentialist accounts, including those of Dipert (1993), Baker (2007), and Evnine (2016). On these accounts, the kind term would be fixed to those artifacts that share a particular

intended function. For example, ‘bottle opener’ would be fixed to all those artifacts which have the function of opening bottles. These accounts also acknowledge the primary role of intentions in artifact creation since the function must be intended and successfully bestowed (presumably to some degree) on the maker’s creation.

There are also a number of realist accounts of artifacts and artifact kinds from Elder (2007), Soavi (2009b), Franssen and Kroes (2014), and Lowe (2014).³²¹ Things would work differently on these accounts since they individuate artifact kinds much more narrowly. For example, Elder argues that the kind chair isn’t a real kind, but that the Eames 1957 desk chair is. This complicates matters somewhat since ‘chair’ won’t refer to things with a shared essence. Rather, ‘Eames 1957 desk chair’ will be fixed in a sample Eames 1957 desk chair and refer to that kind of artifact in virtue of Eames 1957 desk chairs sharing an essence. On Elder’s account, this involves having a cluster of three features: a proper function, a historically proper placement, and a given qualitative make-up or shape (2007, 38-39). Presumably, the more general term ‘chair’ will refer disjunctively to all the different kinds of chairs, each with a unique essence (i.e. a distinct cluster of the above three properties), much like ‘jade’ refers to either jadeite or nephrite.³²² Given Elder’s account (and similar accounts by others), ‘chair’ would presumably refer to the disjunction of all kinds of chairs in virtue of them all sharing a function, even if this isn’t sufficient on these accounts to provide a common essence for all chairs.³²³ While I will assume my own account of artifacts in what follows, one needn’t accept my particular account in

³²¹ Losonsky (1990) offers a similar tripartite analysis of artifacts as Elder, albeit one that more heavily emphasizes the social situatedness of artifacts.

³²² Elder suggests as much in his (1989).

³²³ Lowe’s account is substantially different from the others. I’m not sure how reference for artifact kind terms would work there.

order to accept that artifacts and artifact kinds have an essence as required by the causal theory. Just substitute whatever your preferred account of artifact essences is into what follows.

Despite numerous potential candidates for a common nature for artifact kinds, there are two prominent objections against such a proposal. The first objection, levelled by numerous people in different guises, is that potential candidates for a theory of artifact essences aren't extensionally adequate and therefore don't constitute an essential nature for the kind. Consider first Schwartz's case of non-artifact pencils: "Can't we imagine that somewhere they grow pencils? Their pencil bushes have regular hexagonal branches, graphite cores, and so on. The people harvesting the pencils break them off about eight inches below the end on which nature has fixed an eraser, sharpen them up, and there you have it, a new pencil" (1978, 570). Schwartz's aim was to show that the kind *pencil* isn't necessarily an artifactual kind and therefore being an artifact isn't part of the nature of being a pencil. This would cause a problem for my account of artifacts (and others') since it analyzes being an artifact as being a member of a particular artifact kind like pencil, and thus the term 'pencil' couldn't be fixed in both artifactual and non-artifactual pencils.³²⁴ But my account doesn't need to grant Schwartz's point since even his pencil bushes would count as artifacts. There are two ways to secure this. First, he describes the case as involving sharpening the ends and breaking them off the bushes. Arguably, this would count as artifactualizing them. While I argued against physical modification as a necessary condition on artifactuality, there are cases where it's arguably sufficient and this seems like such a case. The branches were worked on in order to achieve some goal by producing a writing implement; *voilà*, artifact! Second, in denying that artifacts need to be the result of physical modification, I defended artifact creation by appropriation: artifacts can come into

³²⁴ Devitt and Sterelny give similar examples in support of this point (1999, 94-95).

existence by makers appropriating pre-existing objects. Schwartz's pencil bushes could plausibly be treated as cases of appropriating natural objects as artifacts, just as we'd 'harvest' a piece of driftwood as a coffee table or wine rack or whatever. As a result, Schwartz's case doesn't show that kind terms like 'pencil' don't refer to a class without a common essence.

In a similar vein, Barbara Abbott argues that artifact kind terms don't express essential properties because being a chair or pencil, say, aren't essential properties of any given chair or pencil. She gives the following case to support this:

There used to be in my family an ingenious type of child's highchair which could be unhooked at the back and folded in the front to form a low child's table with a low child's chair attached to it. It seems to me that in the latter state this object was no longer a highchair, while when it was in its highchair mode, there was no table to it (the surface which formed the table being, during the highchair mode, face down about two inches off the floor). (1989, 281-282)

The claim is that 'highchair' couldn't be fixed in highchairs because being a highchair isn't an essential property of the object in question. Thus, there's no *essential* nature in which to fix the reference of the term. As with Schwartz's case, we needn't agree with Abbott's assessment. This is where having a theory of artifacts prior to trying to settle how artifact kind terms refers is crucial. Any theory, mine or someone else's, has the explanatory capacity to handle these sorts of cases. Just because any given artifact can't perform its function at a particular moment doesn't mean it ceases being that sort of thing. A car with an empty gas tank is still a car. Indeed it's part of the normal functioning of a car that the tank needs to be refilled. Likewise, it's part of the normal functioning of that contraption that it doesn't function as a highchair when it's in table mode. But that doesn't mean it's not a highchair while it's in table mode. Artifacts can perform more than one function (e.g. laptops, Swiss army knives, aspirin); they needn't be able to perform those functions simultaneously. Compare a standard ladder which, when the two supports, one with steps on it, are folded together for storage, cannot be used as a ladder. I doubt

Abbott would want to say that it ceases being a ladder when in this configuration. In all of these cases, the maker's intention was for them to function in such a way and sometimes be in such configurations. Abbott's contraption was intended to be a highchair *and* a table. Intentionalist theories such as mine would therefore count it as the successful product of an intention to make such a thing.³²⁵ Therefore, Abbott's case doesn't present a problem for my theory of artifacts.³²⁶

Irene Olivero has also raised an extensional objection to intentionalist theories. Olivero argues (albeit briefly) that intentionalist theories like mine can't handle cases where a new function arises for pre-existing artifacts. She gives the case of vacuum tubes which were originally intended to function in various electrical signal amplifiers, such as radio receivers, transmitters, and televisions. However, it was later discovered that the waves emitted could be used to heat food and thus vacuum tubes became an important component of microwave ovens (2019, 117).³²⁷ The suggestion seems to be that intentionalist accounts would be forced to say that *mere use* entails the artifact falls under a new kind, e.g. using a kettle as a watering can would make the kettle a watering can because there's a relevant intention. This objection can be dismissed readily enough. I've already argued that intentionalist theories can accept a distinction between *being a K* and *being used as a K*. It's the *maker's* not the *user's* intentions that partly constitute artifacts. In some cases mere use becomes genuine creation i.e. appropriation, in which case the subsequent intention counts as a new maker's intention. This could be the case with recycling the lampshade into a birdbath (maybe it's both a lampshade and a birdbath). Only in

³²⁵ There's a further issue in the background, which I'm intentionally setting aside. Abbott is assuming something about the relation between the artifact and its matter, namely that the matter could exist but the artifact not, and she therefore concludes that the matter isn't essentially an artifact. However, this seems to assume composition as identity. If one adopted a phasal account of artifacts and artifact kinds, then this wouldn't be a problem.

³²⁶ Another assumption, related to the question of multiple functions, seems to be that any given artifact can't fall under more than one kind at once. An old lampshade turned upside down as a birdbath is arguably both a lampshade and a birdbath. Similarly, the contraption can be both a highchair and a table simultaneously, since this was clearly the intention of its maker.

³²⁷ Marconi (2013) also raises this sort of objection.

this latter case would an intentionalist theory say that the artifact falls under the new kind and thus only in that case would the corresponding kind term refer to that artifact – ‘birdbath’ didn’t previously refer to that lampshade but it did once the lampshade was appropriated as a birdbath.

Olivero raises extensional objections to functionalist theories as well, such as those by Dipert, Baker, and Evnine.³²⁸ She identifies *intended function* as the most promising candidate for artifact essences but then argues that these views can’t handle functionless artifacts such as works of art nor individual artifacts which aren’t intended to function as most members of their kind typically function, such as showroom artifacts (2019, 120).³²⁹ While I’ve argued that functionalist theories fail because of cases like these, it’s worth noting that the function theorist has ways to respond. She can argue that artworks have an expressive function, while showroom artifacts still have the function typical of their kind, it’s just superseded by an idiosyncratic maker’s function (Evnine 2016, 121-129).

In general, Olivero’s objections to theories of artifacts is too quick – she ignores the various ways that proponents of these theories can and have responded to the extensional objections she and others have raised. It’s up to the defenders of each theory to show how this can be done. On my own view, appropriation will play a large role in addressing those concerns. An alternative response is to simply conditionalize the theory of reference for artifact kind terms on the adequacy of any theory of artifact essences. This is, in effect, what I’m doing with my view – I’m assuming it’s correct and then seeing how the reference of artifact kind terms functions. Most importantly, this discussion shows the importance of having a theory of artifacts in hand *first* and *then* figuring out how reference for artifact kind terms works. The former will

³²⁸ Elder’s view, as well as those of Soavi and Franssen and Kroes, can be thought of as form and function proposals. Both Kornblith and Nelson argue that Schwartz was wrong that form and function couldn’t play the role of essence.

³²⁹ See also Marconi (2013, 2019).

entail an answer to the latter, but you can't ask whether artifact kind terms refer on an externalist semantics and then conclude that they don't because there's no consensus on the metaphysics of artifacts, yet this is in effect what Olivero does (2019, 119-122).

Having set aside extensional objections about artifact essence, there's a second objection which is less clearly articulated but is in the background of the previous challenge. This second objection is that the accounts of artifact essences on offer don't involve 'deep' or 'underlying' or 'hidden' features of artifacts, which is supposedly required by the causal theory. This is suggested most acutely by Schwartz: "I believe, of course, that there is no such underlying nature of pencils, nor is there a presumption of such a nature. What makes something a pencil are superficial characteristics such as a certain form and function. There is nothing underlying about these features. They are analytically associated with the term 'pencil', not disclosed by scientific investigation" (1978, 571). Schwartz is certainly right that there's no presumption that the nature of artifacts be underlying. As Abbott remarks, "it just seems to be common sense that artifacts are not defined in terms of their internal structure" (1989, 281). But what is the claim of no 'underlying' nature supposed to amount to? I take it that, by comparison with the water/H₂O case, the nature of a kind needs to be non-perceptible, i.e. not superficial and involve some 'deep' intrinsic properties, just as the molecular structure of water required scientific investigation of its microscopic intrinsic properties. Schwartz's claim is that form and/or function aren't non-perceptible, intrinsic properties so can't serve as the essential nature that the causal theory requires. While Schwartz doesn't discuss intentions, I assume that he would treat them as equally unsuitable 'deep' natures of artifact kinds. Thus, the objection is that form and function-theoretic accounts of artifacts, as well as intentionalist accounts, don't yield the requisite underlying nature.

There are several problems with this objection. First, the nature needn't be an *intrinsic* property – species, including Putnam's favourite examples of elm trees, beech trees, and tigers, are usually individuated by the extrinsic property of their evolutionary ancestry. Granted, there is an alternative view of species which individuates them by relations between organs governed by DNA, which is intrinsic. But there are other natural kinds which have extrinsic natures, including most geographic kinds. Mountains, for example, are those things that come about in a certain way, namely through the impact of tectonic plates. Since mountain is a natural kind and the causal theory applies equally to 'mountain', it's clear that the nature need not be intrinsic.³³⁰ If the nature can be extrinsic, as with species and geographic kinds, then the extrinsic nature of artifacts, be they intentional or functional, can serve just as well.

Interestingly, while Olivero ultimately rejects functionalist accounts as extensionally inadequate, she recognizes that functions are extrinsic and that these are suitable as the underlying nature: "functions are not something superficially or immediately detectable in artifacts (unlike, for instance, their shape, structure, material composition, etc.). In sum, functions seem to actually represent the 'underlying trait' that determines membership in artifactual kinds" (2019, 118). Olivero is certainly right that functions aren't readily apparent, but this brings us to the second problem with the objection: nothing about the causal theory requires that the essential nature be 'deep' or 'underlying' or 'hidden' or whatever. Putnam didn't help matters by using these descriptions, but they are really metaphorical and have more to do with the epistemic position of the term's grounder. That is, the grounder of 'water' doesn't know the nature of water, in this case because water is a chemical kind so the nature requires quite sophisticated empirical inquiry. Indeed, the monolithic focus on physical and chemical kinds has

³³⁰ Although Abbott (1989) argues that geographic kinds don't fit the causal theory.

obscured what's really at issue, having an essential nature, not that that nature has to be intrinsic or 'deep'.³³¹ The real issue with talk of a 'deep' or 'underlying' nature is epistemic – the nature requires empirical discovery – which I will defer until section 6.

Given an account of artifact essences, mine or someone else's, one initial requirement of the causal theory of reference can be readily met – the kind term is fixed in the nature of the kind through the initial grounding ceremony of a sample of the kind. There are two related aspects of the causal theory that follow from this for natural kind terms, namely indexicality and rigidity. It's a subsequent question whether these two aspects of the causal theory also apply to artifact kind terms, which I'll consider next.

7.4 Indexicality and Rigidity

We've established that artifacts and artifact kinds have essential natures. Two other central commitments of the causal theory are taken to follow from having an essence, namely that kind terms refer *indexically* and that they refer *rigidly*. In Putnam's example of water, the term 'water' is fixed through a grounding ceremony of a sample of water. The speaker may say something like 'stuff like *this* is called 'water'', accompanied by a demonstration. This sort of demonstrative reference fixing *indexes* the term to the nature of the sample – in this case H₂O. As a result, 'water' is fixed through the indexical reference (using 'this') to H₂O. Thus, water refers indexically to local samples of water. Further, 'water' is taken to refer rigidly – it refers to the same stuff as *this* across all possible worlds because the essence of water is *metaphysically necessary*. Thus, in Putnam's Twin Earth thought experiment, our term 'water' refers to *water* on Twin Earth while the Twin Earth 'water' refers to XYZ both on Twin Earth and on Earth (even if

³³¹ Perhaps talk of the nature being deep is really just about it being microscopic, but again, this is an epistemic notion.

there's no XYZ on Earth) because the terms are indexed to the nature of the local sample in which they were grounded – water and twater, respectively (1975, 229-235). However, indexicality and rigidity can come apart. Indeed, Putnam often seems to conflate the two.³³² A term could refer in virtue of a causal relation between the reference fixer and the referent but what the term is indexed to may not be metaphysically necessary and thus the term only refers to that kind of thing in the actual world. For artifact kind terms, we can ask two separate questions: Do artifact kind terms refer indexically and do artifact kind terms refer rigidly? I'll consider each in turn.

Given the discussion of the previous section, it should be clear that artifact kind terms refer indexically. A speaker fixes the initial reference of an artifact kind term like 'pencil' or 'horseshoe' in a sample of that artifact kind: 'things like *this* are called 'pencils''. The speaker has a causal connection with a sample pencil in virtue of which the kind term can be indexed to the nature of the sample. In this case, 'pencil' is indexed to those things that are the successful product of an intention to make a pencil. 'Pencil' is thereby fixed in the nature of a sample of local pencils and refers to all and only those things that share that nature. The term will refer indexically regardless of who the grounder is; sometimes makers may be the grounders of the term for their own creations while sometimes other speakers may introduce a term for some maker's novel prototype or invention, as commonly happens when new technologies spread through a culture.³³³ In either case, the essence needn't be known to the grounder but they would still have a causal connection with the sample. A subsequent speaker may acquire the term 'pencil' by borrowing the reference from another speaker, who borrowed it from a previous

³³² See LaPorte (2013) for discussion.

³³³ For example, fidget spinners were originally called 'spinning toys' and 'Torqbars'; the term 'fidget spinner' seems to have arisen from media usage.

speaker and so on until this causal-historical relation reaches the initial speaker's grounding of the term in the nature of a sample pencil. So at least in this regard, artifact kind terms seem to function just like natural kind terms – they refer indexically.

Recall that my account of artifacts includes disjunctive mind-dependence conditions: artifacts may depend either on the individual intentions of their makers or they may also depend on social groups and public norms. This allows for the possibility that an isolated agent like Robinson Crusoe can make artifacts, including new artifact kinds, while also recognizing that the vast majority of artifacts are socially situated and thereby have an important dimension of social dependence. This allows for important cross-cultural reference of artifact kind terms. If the nature of a particular artifact is to be the successful product of an intention to make something of that artifact kind, this may raise the concern that not all cultures will share the same concepts of the kind and thus any reference fixing in a sample of 'things like *this*' may only refer to artifacts within a local cultural context. The concept of Ks in one culture may be different from those of Ks in another culture so that there's only some overlap in the kind-relevant features. Similarly, it's in principle possible that some artifact kinds are created in causal isolation from a culture or linguistic community, as in Robinson Crusoe cases. How would the reference of artifact kind terms refer indexically in these cases?

We previously understood the intention to make a K to be *de re* rather than *de dicto*. As a result, we understood a maker's intention to make a K as an intention to bestow various kind-relevant features on an object; even if they lacked the term 'K' they could still be said to possess a concept of Ks in virtue of possessing the disjunction of kind-relevant features. Imagine two artifact makers S_1 and S_2 who are intending to make a K. S_1 's concept involves k_1, k_2, k_3, k_4 and k_5 as kind-relevant features while S_2 's concept includes k_3, k_4, k_5, k_6 and k_7 . They both succeeded

in bestowing the relevant features on an object, so they both succeeded in making an artifact of the kind they intended to make. But did they make something of the same artifact kind? In actuality, there is significant overlap in kind-relevant features across cultures, at least at present (largely due to globalization and shared knowledge). Things would have been much different two thousand years ago and this is precisely where epistemic problems arise where it's unclear whether some long-lost culture's artifacts are of the same kind of thing as we make. In cases where there's significant overlap, as with S_1 and S_2 , we can say they made the same kind of thing. Kind-relevant features also aren't all equal – there's a weighting or priority assignment to different features. Having the function of sitting a single person is more central to being a chair than is being made of wood or having armrests. In such cases, sharing the most central kind-relevant features will typically be the determining factor for whether we're dealing with one kind or two. As a result, the associated kind term 'K' can be indexed to the successful products of an intention to make a K, where this includes both S_1 's and S_2 's creation. However, since the possibility of significant difference in kind-relevant features but with some partial overlap exists, it looks like it may sometimes be vague whether two artifacts are of the same artifact kind, i.e. it's vague whether they are both the successful product of an intention to make a K or whether one is a K and the other is a K^* . In such cases, rare though they be, we may need to make a semantic decision about how our kind terms are going to refer. We might reason that the two kinds are *close enough* to be counted as one kind and therefore for one kind term to refer to both. Or we may decide that they're sufficiently different so that we need a separate kind term (and concomitant grounding ceremony) for them. Either way, some semantic decision on the part of the linguistic community may be necessary in some rare cases, but this doesn't show that artifact

kind terms don't refer indexically, only that what they're indexed to may sometimes be vague or indeterminate.

This sort of issue arises between languages, as well. The causal theory allows that the English 'water' and French 'eau' both refer to H₂O because they were both grounded in the same nature. Marconi (2013) argues that such cross-linguistic reference poses a problem for artifact kind terms.³³⁴ He points to the British English use of 'liquidizer' for what is called in American and Canadian English 'hand processors' and the corresponding Italian term 'frullatori a immersione' which translates as 'immersion blender'. The Italian term came about because they were perceived as being continuous with blenders, whereas Marconi claims English came up with a new term which focuses on shape and mode of use. Frankly, I don't see why this is a problem for artifact kind terms. All three terms were grounded in things with the same nature, namely, the successful product of an intention to make something that could be held in one hand with spinning blades on one end, that was electric, and which blends food using other kitchenware as the container (bowls, cups, etc.). Many artifact kind terms, in English or any other language, are shorthand descriptions, usually for the thing's function,³³⁵ but if the description differs between languages that doesn't entail that they refer to different artifact *kinds*.³³⁶ Hand processors, regardless of whether they're made in Britain or Italy, still possess the same disjunction of kind-relevant features. Just because some language privileges one feature over another *for the term* doesn't show that the weighting is different across cultures, but even if it did, the overlap of features is so great that they're clearly of the same kind. Two cultures may produce the same sort of artifact independently and the associated kind term, regardless of

³³⁴ Grandy (2007, 26-27) also argues that this is a problem, albeit for the causal theory generally.

³³⁵ See Baker (2007, 52) for examples.

³³⁶ Artifact kind terms can change over time even if the kind-relevant features stay roughly the same, as happened when 'bifocals' was superseded by 'eyeglasses' and eventually just 'glasses'.

language, will refer to that kind of artifact in both cultures, as well as to Crusoe's creations, if he makes such things, because they all share an essential nature.

This brings us to the issue of rigidity. Above I said we may on rare occasions need to make a semantic decision about the extension of our artifact kind terms given borderline or vague cases. This can also be expressed using semantic descent by saying that we need to make a decision about the boundaries of our artifact kinds. In the case where S_1 and S_2 have significantly overlapping clusters of kind-relevant features, we need to decide whether S_1 and S_2 are both K makers, i.e. whether the thing that S_1 makes is also a K or whether it's of a different kind K^* . Given such a scenario, do artifact kind terms refer rigidly? Recall that my account of what makes a kind an artifact kind involves social norms determining artifact kindhood – both whether two artifact kinds are in fact the same or distinct as well as which kind any given artifact belongs to. These social norms are contingent and often arbitrary – they could have been otherwise, as we saw in the case of chopines. This includes both counterfactual situations and temporal ones. That is, the norms governing artifact kinds *could* have been different but they also might change in the future (in actuality).

Given such an account of artifact kinds, it may be argued that artifact kind terms cannot refer rigidly. That is, our term 'K' may not refer to what our later term 'K' refers to and it may not refer to what we would refer to with the term 'K' if our social norms had been different. Thus, artifact kinds don't appear to have a metaphysically necessary nature so the associated kind term doesn't refer rigidly across possible worlds.³³⁷ While 'K' is indexed to local Ks, the nature of Ks may change. The indexicality of 'K' would naturally keep pace with such changes.

³³⁷ Marconi (2013) raises this concern.

If the norms change such that K bifurcates in the future into K and K*, then the reference of 'K' will no longer include K*s.

Despite the foregoing concern, artifact kind terms still refer rigidly. Rigidity involves the term referring to things with the same nature as the term was originally indexed to. In the case of artifacts, this is being the successful product of an intention to make a K. Therefore, we can say that the term 'K' refers to whatever has that nature (that essential property). Individual artifacts will have the extrinsic relational historical property of being the successful product of an intention to make a K, where production occurs in a particular socio-historical context. Once an artifact is produced, it retains that property, regardless of whether the norms governing Ks change. If they do change it doesn't make *that* artifact no longer a K. Rather, the extension of 'K' changes because the kind-relevant features change but each artifact produced is indexed to social norms governing the kind at a particular time. So if O is a K then O is *necessarily* a K. This just follows from the nature of the mind-dependence relations involved. An artifact O is rigidly *historically* dependent on the intentions of its maker. While the social norms determining the kind are contingent, the disjunctive account of mind-dependence I offered requires that the historical dependence on the maker's intention is *always* satisfied, regardless of whether the artifact is also socially dependent. As a result, artifacts will *always* have the property *being the successful product of an intention to make a K* so some artifact O will *necessarily* be a K. We can therefore say that 'K' refers to Ks across possible worlds and across time, what changes is new objects may enter the extension of K as the norms change (in addition to further Ks being produced). What doesn't change is that previous artifacts that are a K won't cease to be a K. Nonetheless, it may be argued that 'wine rack', say, won't refer to *that* piece of driftwood in all possible worlds, but then *that* piece of driftwood isn't *necessarily* a wine rack. In all possible

worlds where that very piece of driftwood is appropriated as a wine rack, it will have the historical property of being the successful product of an intention to make (appropriate) a wine rack. In those worlds where it is never so appropriated, it is not a wine rack so ‘wine rack’ doesn’t refer to *it*.³³⁸ The historical property which expresses the essential nature of artifact kinds is metaphysically necessary.

Finally, it may be argued that the distinction I and others invoke between *essential* and *contingent* artifact kinds shows that not all artifact kind terms refer rigidly. That is, ‘gear’ is contingently artifactual because some things in the extension of ‘gear’ are not artifacts, such as those found in the hind legs of *Issus coleoptratus* (Burrows and Sutton, 2013). As a result, ‘gear’ doesn’t refer rigidly to those things that are the successful product of an intention to make a gear since artifactual and non-artifactual gears won’t share such a nature. This much is true and holds for all contingently artifactual kinds such as ‘gold sphere’ or ‘path’ or ‘uranium-235’. However, the kind uranium-235 is still united by a common nature given by its atomic structure, it just so happens that some of its instances are mind-dependent and some aren’t. Similarly, all gears will share a functional (or structural) nature, with some being mind-dependent and others not. The rigidity of artifact kind terms is restricted to those artifact kinds which are essentially artifact kinds (which is the vast majority of them). However, the causal theory still holds for contingently artifactual kind terms, the difference being that the kind terms aren’t fixed in an *artifactual* nature, but a natural or functional nature. The difference between artifact kind terms and natural kind terms is that the boundaries of (essential) artifact kinds may be vague or indeterminate, as with cross-cultural artifactual comparisons (especially in archeological contexts). But the boundaries of species and geographic kinds are equally vague, so this isn’t

³³⁸ Cf. Devitt and Sterelny (1999, 94) and Abbott (1989, 280).

really a problem. Therefore, we can maintain that artifact kind terms refer both indexically and rigidly.

Since artifact kind terms can be fixed in an essential nature, they refer both indexically and rigidly. Thus, the main commitments of the causal theory appear to hold for artifact kind terms. The remaining commitment involves the possibility of ignorance and error about the nature of the term's referent, which I'll address in section 6. First, we need to get a handle on a more general problem for the causal theory: the qua-problem.

7.5 The Qua-Problem

So far I've argued that the causal theory of reference can be extended to artifact kind terms because (a) they have essences, (b) reference can be indexed to those essences via causal contact with a sample and as a result (c) artifact kind terms refer rigidly since artifacts of a given kind will have that essence as a matter of metaphysical necessity. Despite the attractiveness of the causal theory of reference, it faces a serious and fully general problem which applies as much to artifact kind terms as it does to names or natural kind terms. Ostensive reference is ambiguous: 'that' accompanied by a demonstration (pointing) doesn't specify what is being referred to. A sample can exemplify many kinds, so something needs to disambiguate the potential referents. For example, with respect to natural kind terms like 'tiger', a sample tiger exemplifies the kinds *mammal*, *animal*, and *physical object*. This is the *qua-problem*: to fix the reference of a natural kind term when it is introduced into the language, the speaker needs to disambiguate the intended referent *qua* some concept, category, sortal or associated description. That is, the speaker must intend that 'tiger' refer to these kinds of *animals*, rather than, say, all *mammals*. The concept or categorial term intended by the speaker in effect specifies which

similarity relation is relevant to the reference of the term. The qua-problem was so named by Michael Devitt and Kim Sterelny (1999, 79-81, 90-93) but it was recognized early on by Peter Geach (1962). Kripke (1980, 115n58) was aware of the problem but maintained that he didn't need to take a stand on the issue. Putnam implicitly recognizes it by requiring that speakers in his Twin Earth thought experiment intend to fix the referent of 'water' to whatever is the same *liquid* as *this* (the similarity relation). More recently, the qua-problem has been discussed by Richard Miller (1992) and finding a solution to it is a primary motivation for Amie Thomasson's (2003b, 2005, 2006, 2007a, 2007b, 2008, 2020) account.³³⁹

The qua-problem also arises for artifact kind terms: something can be a pencil, a physical object, a piece of wood, and a writing instrument, so saying 'things like *this* are to be called 'pencils'' is ambiguous between the kinds exemplified by the sample.³⁴⁰ Without disambiguation, the term 'pencil' could refer to (say) wooden objects, since they bear a similarity relation to the sample (assuming the sample is of a *wooden* pencil). Therefore, the speaker needs to associate some description with the intended referent in order to successfully fix the reference of the term, such as 'artifact', 'liquid', or 'animal', as the case may be. Thus, while the causal theory can be extended to artifact kind terms as I argued in previous sections, it needs to be amended to handle the qua-problem.

While some may infer that the qua-problem entails that the descriptions theory is correct, Kripke's well-known arguments against the descriptions theory suggest otherwise.³⁴¹ As a result,

³³⁹ Thomasson has written extensively on these issues and while her account has changed in various ways over the years, her view on the qua-problem has largely remained constant.

³⁴⁰ There is a related but less serious problem that was of interest to Quine (1950) and Wittgenstein (2009). Demonstrative reference is also ambiguous because the referent of 'that' accompanied by a gesture like pointing often doesn't specify what entity in one's visual field is the intended referent. This can be disambiguated by specifying more determinately the spatial location of the intended referent, e.g. 'by 'bicycle' I mean this entire two wheeled object, not just this part here'. Such cases involve epistemic uncertainty that can be easily dispelled; the qua-problem is more serious when multiple possible referents are spatially coextensive, since they can't be disambiguated in the same way.

³⁴¹ Namely, the problems of ignorance and error which I discuss in the next section.

the qua-problem motivates the need for a *hybrid* causal-descriptivist view and indeed this is what I'll defend. Others have offered hybrid views already including Devitt and Sterelny and Thomasson, but my view differs from theirs. There are many different ways for a view to be hybrid since elements of the causal theory and the descriptions theory can be combined in different ways. I have already defended the essence requirement and indexicality and rigidity. Now I'll argue that the causal theory needs some descriptive content requirement in order to avoid the qua-problem. However, the strength of such a requirement can differ between hybrid views. I'll defend a relatively weak version whereby *some* descriptive content is needed to ground the reference of a term but the descriptive content may be false of the referent. Since the descriptive content can be false but reference succeed, we need an explanation of how this can be so. We can appeal to two related concepts here: Richard Grandy's (1973) *principle of humanity* and the causal source of the content. What we end up with is a hybrid causal-descriptivist view of reference fixing and a fully causal theory of reference borrowing.

In most cases, grounders will associate some description with their intended referent. The question is whether we can give a *principled* solution to the qua-problem beyond merely requiring that speakers associate *some descriptive content* with what they intend to refer to. Considerations from a variety of cases suggest not, but more importantly, these cases show that reference can succeed even when the description is false of the intended referent. That is, reference doesn't succeed by satisfying the associated description but descriptions play a necessary role in reference fixing.

In many cases a single disambiguating concept or categorial sortal, like 'animal' in the tiger case, will be sufficient for reference-fixing. However, the associated description held by the grounder is often quite substantial due to causal contact with the sample, and sometimes such

substantial descriptive content is required for reference-fixing because the sample may contain multiple natural or artifactual kinds, so a single categorial sortal like ‘artifact’ will not be sufficiently disambiguating. This was the case for, say, ‘bicycle’; a high-level categorial term like ‘artifact’ is needed to disambiguate the reference, but since a sample bicycle is also a *vehicle*, a further description is needed, such as having two wheels and a seat, requiring forward momentum for balance, that picks out bicycles uniquely.³⁴²

However, in some cases the categorial sortal may be wrong or unknown, but the grounder has sufficient descriptive content to fix the reference. The reference of ‘Hesperus’ (and ‘Phosphorus’) was fixed by uttering ‘that *star* is to be called ‘Hesperus’’ (while pointing at the light in the sky in the evening). Hesperus turned out not to be a star, but a planet (Venus), yet ‘Hesperus’ was successfully grounded by the other descriptive content held by the grounder, including the spatial location of the referent, and perhaps further information such as ‘bright light in the sky’.³⁴³

Compare this with the case of ‘Neptune’ and ‘Vulcan’. Leverrier posited the existence of a *planet* ‘Neptune’ to explain the perturbations of Uranus’ orbit, and posited the existence of another *planet* ‘Vulcan’ to explain the perihelion of Mercury. Astronomical observations confirmed the existence of Neptune, so ‘Neptune’ successfully referred. However, even after Einstein’s theory of relativity explained the anomalies in Mercury’s orbit, astronomers continued to search for objects in close orbit to the sun that might be Vulcan and some asteroids were observed in the right location. Nonetheless, none of these came to be called ‘Vulcan’. Thus, the disambiguating sortal ‘planet’ was satisfied by Neptune but not by the asteroids, even though

³⁴² Note that in this case, the spatial location of the sample can’t help disambiguate the referent because the bike *qua* vehicle and *qua* bicycle are spatially coextensive. While we frequently appeal to the spatial location of the sample, in many cases this won’t be enough to uniquely determine reference.

³⁴³ See Kripke (1980, 28-29).

they were in the right spatial location. By contrast, ‘phlogiston’ was introduced to refer to a *chemical substance* thought to be released during combustion and responsible for rust. Like Neptune, phlogiston was posited as the cause of an observed phenomenon, and it was thought to satisfy some description like ‘chemical substance’. However, Lavoisier’s experiments showed that oxygen was responsible for both combustion and rust. Why did ‘phlogiston’ fail to refer, rather than refer to oxygen? The description ‘chemical substance’ was true of oxygen, but oxygen isn’t *released* from an object during combustion, but is already present in the air. As a result, ‘phlogiston’ failed to refer to anything, even though the associated sortal was satisfied.

The disambiguating content will typically be in the form of an indefinite description, but sometimes grounders may use a definite description. In Keith Donnellan’s (1966) famous martini example the definite description used to refer isn’t satisfied by the referent, yet reference is still successful. Donnellan argued that definite descriptions have two uses – attributive and referential – and that in the referential use the referent may not satisfy the definite description, yet the speaker still successfully refers: “Suppose one is at a party and, seeing an interesting-looking person holding a martini glass, one asks, “Who is the man drinking a martini?” If it should turn out that there is only water in the glass, one has nevertheless asked a question about a particular person, a question that it is possible for someone to answer” (Donnellan 1966, 287). The claim here is that despite the erroneous belief that the man was drinking a martini, the speaker nevertheless successfully referred.³⁴⁴ While no new term is being introduced in Donnellan’s case, it can easily be modified so the definite description is used to fix the reference of a new name. While the speaker’s belief that the man is drinking a martini is false, reference still succeeds.³⁴⁵

³⁴⁴ Donnellan’s aim is to show that Russell’s theory of descriptions is false, but see Kripke (1977) for a response which appeals to the semantics/pragmatics distinction. My hybrid view involves an appeal to pragmatics via Grandy’s principle of humanity, but I don’t see this as a problem – language is a social phenomenon.

³⁴⁵ Although he may be subject to correction: “Oh, you mean the man drinking water – he’s a teatotaller”.

In the artifact case, Kornblith's (1980, 112) example of Martian anthropologists visiting Earth illustrates how they can introduce the term 'glug' into their language for a sample iron doorstop without knowing anything about the referent. The context of inquiry helps disambiguate the referent, since the Martians are *anthropologists* and thus implicitly assume that the sample is an *artifact*, even if they don't know anything else about it. The spatial location of the sample plus the implicit sortal 'artifact' fixes the reference in *doorstops* as opposed to, say, *iron objects*. The term refers to whatever bears the relevant similarity relation to the sample.³⁴⁶ In the case of artifacts, reference is fixed in the *successful products of an intention to make a doorstop* which the iron doorstop shares with all other doorstops. The nature the term is indexed to need not be, and often isn't, contained in the grounder's descriptive content (as in the 'water'/H₂O case). Thus, the speaker needs to associate some description with their intended referent in order to avoid referential ambiguity. But because the grounder's descriptive content is a result of causal contact with the sample, the description can be wrong. In being determined by causal contact with a sample, unlike the descriptions theory, reference is not fixed by the fit or correspondence between the associated body of information and the sample; the associated description can be false and reference still succeed.

It may be claimed that the above is too vague – merely requiring that grounders need to associate some descriptive content with the intended referent isn't precise enough to avoid referential ambiguity. A more precise solution might take the form of Devitt and Sterelny's (1999, 91-93) suggestion that a sortal concept in conjunction with some more specific description is needed, and some degree of satisfaction of the description by the referent is

³⁴⁶ Cf. Thomasson (2005, 224ff.) for an objection to this point. The below appeal to the principle of humanity gets around her worry.

required.³⁴⁷ But the Hesperus case shows that the associated sortal may not be satisfied yet reference succeeds. When we consider the wide array of cases, a very general requirement on descriptive content seems to accurately describe our linguistic practices:

- (i) The sortal is false but reference is successful (Hesperus)
- (ii) The sortal is satisfied but reference fails (phlogiston)
- (iii) Reference is successful with the sortal and other descriptive content satisfied (Neptune)
- (iv) Reference fails with something in the right spatial location (Vulcan)
- (v) Reference succeeds with spatial location and implicit sortal satisfied (Kornblith's 'glug')
- (vi) Reference succeeds when the definite description is false (Donnellan's martini case)
- (vii) Reference succeeds when the categorial sortal is false (Putnam's tiger robots)

In some cases, the high-level categorial sortal isn't satisfied, in some cases just the spatial location of the sample is sufficient even if the grounder is wrong about everything else, while in others a highly specific description is satisfied. Whether the associated description is sufficient for reference fixing will depend on contextual factors.³⁴⁸ In the case of 'Vulcan', while there was a celestial object in the right location, the asteroids weren't the *cause* of the perihelion of Mercury, which was what led to the introduction of the name in the first place. However, 'phlogiston' was thought to be a chemical substance, and oxygen both satisfied this sortal and was the cause of the phenomenon that led to the attempted introduction of 'phlogiston'. Yet despite both the sortal being satisfied by something present in the sample *and* the kind that satisfied the sortal being the cause of combustion and rust, 'phlogiston' wasn't successfully

³⁴⁷ Geach (1962) and Thomasson (2007b, 2008, 2020) also adopt a categorial sortal requirement on reference fixing.

³⁴⁸ Reference will likely fail if there is already a term for the referent in the language. If the referent is unknown, then a new term may succeed in referring, despite the grounder's false belief.

grounded in *oxygen*.³⁴⁹ There are also likely important differences between proper names and kind terms. Identifying the relevant contextual factors that determine successful reference will need to be made on a case-by-case basis. As long as grounders are required to associate some disambiguating descriptive content with the intended referent, even if such descriptive content can be false, the qua-problem can be circumvented. However, this requires a hybrid theory of reference insofar as the causal theory needs some descriptive content for reference fixing.

One may object that it's mysterious how a false description could fix the referent of a term and thereby avoid the qua-problem. Here we can appeal to two related notions. First, is what Richard Grandy (1973) has called the *principle of humanity* and second is the causal source of the descriptive content. Grandy's aim is to give an alternative account to the principle of charity, which he argues has unintuitive consequences in various cases. The principle of charity asks us to interpret other people's utterances in such a way as to make them *true*. To give a trite example, if someone says 'I deposited a check at the bank today', you know 'bank' means financial institution, not a river bank, since the latter is not only obviously false, but perhaps nonsensical. By contrast, the principle of humanity says to interpret other people's utterances such that they are *explicable*, even if false. Grandy considers a variant of Donnellan's martini case:

Suppose Paul has just arrived at a party and asserts "The man with a martini is a philosopher." And suppose the facts are that there is a man in plain view who is drinking water from a martini glass and that he is not a philosopher. Suppose also that in fact there is only one man at the party drinking a martini, that he is a philosopher, and that he is out of sight in the garden. Under the circumstances the charitable thing to do would be to take Paul's remark at face value (homophonically), since that is simple and makes his remark true. But the natural thing to do is to understand him as having asserted something false, or at least to view the situation as one in which his utterance shows he has a false belief. (1973, 445)

³⁴⁹ This case poses a problem for Miller's (1992) purely causal solution to the qua-problem, whereby the cause of a speaker's ability to discriminate the intended referent fixes reference.

Grandy's point is that the principle of charity renders Paul's belief true, but this is highly counterintuitive. Grandy prosaically concludes that "since no reason could be given as to why Paul would have a belief about the philosopher in the garden, it is better to attribute to him an explicable falsehood than a mysterious truth" (ibid.). I take it to be uncontroversial that Donnellan was right that we can refer with definite descriptions without the referent satisfying the description. The principle of charity is unable to explain this, but the principle of humanity can do so easily: knowing the facts of the case, we can understand why Paul would believe that the man in plain sight is drinking a martini, since he's holding a martini glass. Thus, we can interpret Paul's referential intention so that he refers to the man drinking water because why Paul had the belief that it was a martini is perfectly explicable. As a result, Paul successfully referred despite the false description he associated with his intended referent.³⁵⁰ That is, because the man drinking water from the martini glass is clearly the cause of Paul's false belief, we interpret Paul as referring to that man.

In such cases, there is a causal connection between the referent and the associated description, with the former causing the latter. Paul's belief that the man was drinking a martini is caused by his causal connection with the man holding the martini glass. In cases where the associated descriptive content is false, reference can still succeed because the associated description, while false, was caused in the right way, namely, by the referent. This is similar to Gareth Evans' (1985) notion of a dominant causal source whereby the referent of a name is whatever was the dominant causal source of the information the speaker associated with the

³⁵⁰ The principle of humanity gets the trite case right, too: we take the speaker to believe that checks are deposited at financial institutions, not river banks, and so we interpret her as saying the former, which if she actually did deposit a check at a bank, makes her utterance both explicable and true.

name. Evans' account was intended to address cases of reference shifts such as the famous Madagascar case. Nonetheless, the role of the causal source of the speaker's description also plays an important role in determining initial reference fixing. It is likely rare that *every* belief the speaker has about the referent will be false. In general, speakers will correctly associate the right spatiotemporal location with their intended referents. In Putnam's example of tigers turning out to be robots, we are causally connected to the reference of the term 'tiger' and those referents are the cause of our belief that these things are *animals* (they look like other, similar animals). If it turns out that they are all robots, then 'tiger' still refers to *them* even though our initial description used to ground the term, *animal*, was false. Thus, we can explain the many false utterances about tigers being animals while still successfully referring. The principle of humanity and our causal connection to the referents of our terms allows for successful reference fixing despite massive error in the associated descriptive content used to ground the term.

The principle of humanity in conjunction with the causal source of the descriptive content can help explain the other cases where the associated description is false but reference succeeds. Take the case of Hesperus: knowing *now* that Hesperus is the planet Venus, we interpret the original grounding ceremony as referring to Venus even though the speaker thought Venus was a star because it is explicable why the speaker would have that belief given her circumstances. From the point of view of someone standing on Earth looking at the sky with the unaided eye, Venus looks just like a star, so the erroneous belief is understandable and in fact is caused by Venus.

Consider next a case of reference failure: 'Vulcan' failed to refer, even though there were asteroids in the right spatial location. 'Vulcan' was introduced as the name for a planet that was causing the perihelion of Mercury, and given the success of Neptune in explaining the

perturbations in Uranus' orbit, it is understandable that Leverrier would have a similar belief about Mercury. But once it was discovered that Einstein's theory of Relativity explains that the sun is responsible for the anomalies, then we conclude that 'Vulcan' doesn't refer to the asteroids because they were not causally responsible for the introduction of the name. Since we already had terms for the causes of the anomalies, 'Vulcan' didn't name anything (rather than naming the sun or the theory of relativity).³⁵¹ Thus, Leverrier's belief was explicable but false, and the new name failed to refer since the description associated with it didn't come about in the right way.³⁵²

This holds for kind terms, too. The term 'witch' doesn't refer, yet we can understand its introduction and attempted grounding in women with supernatural powers who commune with the devil, and are responsible for various maledictions in village life. We know that there is no one who satisfies that description, and the women who were claimed to be witches weren't responsible for the various events they were claimed to have caused. Thus, 'witch' doesn't refer. However, as with the martini case, specific uses of 'witch' in a definite description, e.g. 'Burn the witch!' while gesturing with a pitchfork, do succeed in referring to the particular unfortunate woman about to be burnt at the stake. Again, we can understand the speaker's utterance as referring to the woman who was burned, even though we know she is not a witch because the speaker's belief is explicable as a result of causal contact with her, the various deeds she allegedly did, and several inferential steps between them.

The case of 'phlogiston' is similar. 'Phlogiston' failed to refer even though the sortal 'chemical substance' was satisfied by oxygen. However, phlogiston was thought to be *released*

³⁵¹ In some cases, the name might be adopted as an alternative to the original, but given the naming conventions around theories, this would be unexpected in the Vulcan case.

³⁵² In cases where the description is true and reference is successful, there is no problem: 'Neptune' was thought to be a planet causing the anomalies in Uranus' orbit, there was a planet causing the anomalies, so 'Neptune' was grounded in Neptune. We can explain why Leverrier had the belief that 'Neptune' referred to a planet – there was a planet that was the cause of his belief.

from combusting bodies, but Lavoisier showed that this was false: oxygen is responsible for combustion (and rust). Thus, a substance released during combustion was not the cause of combustion, so ‘phlogiston’ failed to refer to anything. But given that oxygen isn’t visible, we can explicate the belief that something was being released during combustion. If we followed the principle of charity then we would have to interpret phlogiston theorists as referring to oxygen, since this would make their remarks true, even though it would be mysterious how they could have beliefs about oxygen. The principle of humanity says to interpret them as having an explicable false belief, which in this case means that they were referring to nothing. Of course, like the case of both ‘witch’ and Donnellan’s cocktail party, particular token-utterances of definite descriptions involving ‘phlogiston’ may have referred to oxygen, even though the associated description was false.³⁵³

Returning to the issue of artifact kind terms, the descriptive content held by grounders may not be the artifact kind’s essence. The invention of the first pencil occasioned the introduction of a new term for that kind of artifact. Uttering ‘*these* things are to be called ‘pencils’’, the grounder successfully fixes the reference of the term to the similarity relation that holds between all pencils using some associated description, such as ‘kind of artifact used for writing and drawing’ or ‘tool made of wood and graphite’. The term ‘pencil’ is being indexed to the essential nature of pencils, namely the successful products of an intention to make a pencil, but the grounder need not associate a description of the *essence* for reference to succeed. A similar explanation can be given in Kornblith’s ‘glug’ case. The Martian anthropologists are causally connected to a sample iron doorstep and their new term ‘glug’ is successfully fixed in

³⁵³ Philip Kitcher (1978) argues for a similar account of reference fixing in the case of phlogiston to account for reference across theory change. Kitcher’s basic idea is that it is not utterance-types that refer, but utterance-tokens, and what the token refers to is whatever was the cause of the utterance, so some tokens of ‘phlogiston’ failed to refer while others referred to oxygen. This is compatible with what I have so far argued.

doorstops via the utterance ‘things like this are to be called ‘glug’’. They have various correct beliefs about the sample including its spatial location and form. Given that they are anthropologists and assuming that the doorstep looks *worked on*, i.e. it appears to be the result of intentional action given its form, the Martians presumably believe (correctly) that it is an *artifact* so associate ‘artifact’ with their intended referent. Given that their associated descriptive content is caused by the sample doorstep and is correct, ‘glug’ is successfully grounded in doorstops. Note that the Martians can successfully refer to that kind of artifact without knowing that ‘glug’ refers to *doorstops*.

Such explanations work, *mutatis mutandis*, for the other cases raised in the artifact kind term debate. With respect to Putnam’s pencil organisms, ‘pencil’ was successfully grounded and still refers to *those things* even though the associated sortal ‘artifact’ is false because the grounding is explicable via causal contact with objects that appear to be writing implements.³⁵⁴ Similarly, in Schwartz’s pencil trees case, if we take the natural objects to be successfully appropriated as pencils, as I argued earlier, then the reference of ‘pencil’ still refers to pencils, including such appropriated natural objects because grounders had the right description and intention which came about via causal contact with sample pencils.³⁵⁵ Finally, in Nelson’s case where pencils turn out to be disguised alien listening devices, ‘pencil’ still refers to *them* because they are presumably both alien spyware and writing implements so are the successful result of an intention to make a pencil *and* the successful result of an intention to make spyware. Both ‘pencil’ and ‘spyware’ would refer to such things, just as Abbott’s highchair table is both a

³⁵⁴ The case is ambiguous as described by Putnam. If they were still used as writing implements, then they may be both pencils and organisms; by contrast, if their writing ability was a massive illusion, then they’d still refer to those organisms in virtue of the causal connection with the organisms which presumably caused the illusion.

³⁵⁵ In the alternative case where breaking them off and sharpening counts as making pencils, then ‘pencil’ clearly refers to those kinds of artifacts.

highchair and a table. Grounders have a correct description of the devices *as pencils* caused in the right way, so ‘pencil’ refers to *them*. It just so happens, unbeknownst to pencil users, that ‘spyware’ also refers to those devices.³⁵⁶

Where does this leave us? Grounders just need some disambiguating descriptive content, and in some cases their description may be false but reference still succeeds. In such cases, we can appeal to Grandy’s principle of humanity to show how the utterance is explicable in virtue of causal contact with the sample. This holds as much for artifact kind terms as it does for natural kind terms and names. Since artifact kinds have an essential nature and the associated kind terms refer indexically and rigidly, the semantics for artifact kind terms operates on the same model as that of natural kind terms; what differs is the ontology of the kinds in question. However, the need for some disambiguating descriptive content to fix reference makes this a hybrid theory, though it’s closer to the causal theory than the original descriptions theory.

While some associated descriptive content is required for reference-fixing, reference-borrowing appears to merely require the intention to co-refer. We can pick up a term in conversation from other speakers, ‘carabiner’ or ‘rheostat’³⁵⁷ for example, without knowing what they are.³⁵⁸ Yet we seem to succeed in referring to carabiners or rheostats simply by intending to refer to whatever other speakers are referring to, where the description we associate with the term is simply ‘the thing that so-and-so is referring to’.³⁵⁹ In many cases, we may correctly

³⁵⁶ An interesting variation on the ‘glug’ case would be if the Martians encountered Abbott’s highchair table instead of a doorstep. In such a case, would ‘glug’ refer to *both* highchairs and tables or only highchairs or only tables or would it only refer to artifacts which are both highchairs and tables? I’m not sure what we should say about such a case.

³⁵⁷ Kornblith (2007) uses these examples to illustrate the diverse range of artifact kinds. The examples normally appealed to are everyday objects like chairs and pencils, but there are many esoteric artifact kind terms that the average speaker may not know such as ‘spandrel’ and ‘tulwar’.

³⁵⁸ Except, perhaps, that they are some kind of countable physical object, although this may be a result of the term’s syntactic role in a sentence.

³⁵⁹ Even this requires a very general concept under which the term falls, namely *thing* or *object*, however the speaker need not know who they acquired the term from, they only need to intend to refer to the thing that the speaker from

believe that the referent is an artifact or tool or technology, usually as a result of conversational context, but this isn't necessary. Reference-borrowing for artifact kind terms, like natural kind terms, proceeds causally: successfully referring with an artifact kind term merely requires standing in a causal-historical relation to the speaker from whom the term was acquired, who in turn stands in such a relation to another speaker, eventually terminating in the original grounding of the term in a sample, while having the intention to co-refer to 'the thing that so-and-so is referring to'.³⁶⁰

This provides a solution to the *qua*-problem by hybridizing the causal theory of reference. However, the causal theory also requires the possibility that grounders be in ignorance or error about the nature of their term's referent. That is, grounders can't be in a position of epistemic privilege either in virtue of possessing an analytic description or in virtue of being artifact makers. Thomasson has proposed a stronger solution to the *qua*-problem that ties the descriptive content to the term analytically, which brings her hybrid theory much closer to the old descriptions theory while also arguing that makers have a certain measure of epistemic privilege with respect to their creations. I consider this in the next section.

7.6 Analyticity and Epistemic Privilege

I have so far argued that, in the face of the *qua*-problem, the grounder of a term must associate some disambiguating description with the intended referent, and that the causal theory, suitably modified, can be extended to artifact kind terms like 'pencil' by being indexed to the

whom they acquired the term was referring. But see Thomasson (2007b, 43) and Devitt and Sterelny (1999, 80) for discussion.

³⁶⁰ This account can be supplemented with Evans' (1985) dominant source view to address possible reference shifts. Dodd (2012) appeals to Evans' account in response to Thomasson on the *qua*-problem.

essences of artifact kinds. It remains to be seen whether there is any measure of epistemic privilege that speakers or creators may have, either in virtue of analyticity or in virtue of being the makers of the referents of the associated kind terms. The focus on epistemic privilege is crucial because it's often thought that whether the causal theory applies to a given sort of term it must be shown that speakers can in principle be in ignorance or error about the referents of their terms. Indeed, coupled with the essential nature requirement, these two conditions are often taken to be the central commitments of the causal theory from which the others, such as indexicality, rigidity, and a lack of analyticity, follow.³⁶¹ I'll consider the two potential sources of epistemic privilege – analyticity and the maker relation – in turn.

Given that the associated description can be false yet reference still succeed, as shown in a variety of different cases, my account doesn't entail that the descriptions are analytically related to their referents.³⁶² Putnam's pencil organism case was intended to show that the associated description could be false so not knowable *a priori* and therefore not analytic. While Schwartz points out that 'artifact' isn't part of the meaning of 'pencil', his further point that descriptions of form and function are analytically associated with 'pencil' is surely not. The descriptive content may contain contingent empirical truths, e.g. 'gold is yellow' or features of stereotypical samples that are not true of all members of the kind, e.g. 'pencils are for writing', 'tigers have four legs'. While the associated description helps determine the reference of a term, it isn't *necessarily* true of the referent. The requirement that speakers associate some description with their intended referent while grounding the term doesn't entail that those descriptions are analytic.

³⁶¹ Olivero (2018, 2019) and Olivero and Carrara (forthcoming) frame the debate in this way.

³⁶² Following Kripke, I understand analyticity to consist in metaphysical necessity and a priority.

Kripke (1980, 115fn.58) makes similar remarks in response to claims by Peter Geach that the qua-problem entails that the sortals used to disambiguate the reference of the term must be *a priori* true of the object. While Kripke professes agnosticism on the qua-problem he points out that Hesperus could have turned out to be a star rather than a planet, and Dobbin could have belonged to a species other than horse, even if ‘planet’ and ‘horse’ were used to disambiguate the referent when the names were initially introduced. As I discussed above, and as Kripke is aware, Hesperus was originally thought to be a star but turned out to be a planet, nevertheless, ‘Hesperus’ was successfully grounded.³⁶³ Speakers can be wrong about the descriptions they associate with a term,³⁶⁴ although some are far less likely to be revised than others.

However, Thomasson (2007b, 2008, 2020) proposes a hybrid theory which offers an alternative explanation of the cases considered in the previous section which retains analyticity. While general phenomenal or physical descriptions associated with a term can be false, Thomasson argues that the high level categorial or sortal terms used for reference-fixing, such as ‘those *animals* are to be called ‘tigers’’, are at least analytic, so that if tigers aren’t animals then the term wasn’t successfully grounded. We’ve already seen many cases such as Miller’s kangaroo robots or Hesperus/Phosphorus where the sortal was false but the term still referred.³⁶⁵ Thomasson (2003b, 603-4; 2007a, 68; 2007b, 48ff.) argues that despite our alleged intuitions, the terms were not successfully grounded. Rather, we are making a *semantic decision* upon discovering that kangaroos are robots to adopt a new use of ‘kangaroo’ to refer to those entities. Thomasson introduces her own example which is intended to illustrate this: “if I attempt to

³⁶³ But see Kripke’s (1980, 80fn34) earlier remarks concerning ‘Phosphorus’ and Donnellan’s distinction between referential and attributive uses of definite descriptions.

³⁶⁴ Excepting, of course, trivially true descriptions like ‘pencils are pencils’, but this constitutes one of the many criticisms of analyticity: there don’t appear to be any interesting or informative analytic truths that don’t reduce to trivial logical truths (cf. Devitt and Sterelny 1999, 101ff.).

³⁶⁵ Putnam discusses such cases involving cats, analogous to his case of pencil-organisms (Putnam 1975, 243-4).

ground the name ‘Orky’ as the name for an animal (swimming near my boat), my attempt to ground the reference may fail if all that has perturbed the water near my boat is a large clump of seaweed, or a strange event in the ocean current causing an unusual wave” (2007b, 39). Our intuitions in this case seem to side with Thomasson: “if the name ‘Orky’, as above, is introduced as an animal name, it seems an even clearer intuition that we would say that there was no Orky (not that Orky turns out to be a patch of seaweed) if there was only a patch of seaweed by my boat when I attempted to ground the reference of the name” (ibid. 49).³⁶⁶ Similarly, she imagines a case where ornithologists coin the term ‘Key sparrow’ to name a new kind of bird discovered in the Florida Keys, but which are later discovered to be sophisticated animatronics distributed by an overly avid bird-watcher (ibid.). Thomasson claims that the intuitions in both the Orky and Key sparrow cases are clearly that the terms don’t refer. She generalizes to all cases where there is revision of the categorial sortal used to ground the reference of the term, including the kangaroo robots and pencil organisms, despite our intuitions to the contrary (ibid. 50).

Thomasson thereby provides a principled solution to the qua-problem: general sortals are required to fix the reference of a term by disambiguating the intended referent and determining under what conditions the term applies (i.e. ‘tiger’ applies to this kind of *animal*). Where the sortal is discovered not to be satisfied, we make a semantic decision to either change the meaning of the term or decide that it doesn’t refer:

So what lesson should we draw from these intuitions? The right lesson seems not to be that reference survives any failure of associated basic application conditions (so that even the most basic application conditions must be empirically discovered), but rather that where such conditions fail, we have to make a *decision* about what to do with the term based on our surrounding practices and concerns. In some cases (e.g. ‘Orky’ and ‘Key sparrow’, where our interests lay in there being animals of a

³⁶⁶ I suspect that our naming conventions may be affecting intuitions in this case. If a child was naming the perturbation we may be inclined to accept that the name was successfully grounded, not dissimilar to naming imaginary friends. Nonetheless, names may be better examples than kind terms for Thomasson’s point as our conventions around naming a new kind and introducing a proper name for an individual seem to be quite different.

certain kind at a certain place) we might retain the term's original meaning but accept that the term failed to refer. In those other cases in which it seems we might continue to use the term despite the fact that the most basic, frame-level application conditions were not fulfilled, it seems reasonable to hold that this is the result of a semantic decision to alter the basic meaning-content of the term to adopt it to a new use. (2007b, 50)

Thus, Thomasson maintains that in the kangaroo-robot and pencil-organism cases, 'kangaroo' and 'pencil' failed to refer but after the discovery we made a (perhaps implicit) decision to use the same terms to refer to these kinds of things. As a result, 'kangaroos are animals' and 'pencils are artifacts' are analytic prior to these discoveries, but subsequent to the meaning change 'kangaroos are robots' and 'pencils are organisms' became analytic. The semantic decision is thereby a re-grounding of the term with a new meaning, done for pragmatic reasons.³⁶⁷

While this does provide a principled solution to the qua-problem and maintains analyticity between terms and the sortals used to ground them, Thomasson's solution has a major problem. Because her hybrid causal-descriptive view takes reference to be fixed by an associated general sortal or categorial term in conjunction with causal contact with a sample, reference-fixing is a result of the fit between the sortal term and the referent. Where the associated sortal isn't satisfied, the term doesn't refer. Therefore, because the referent of 'Hesperus' was fixed using the sortal 'star' and Hesperus turned out to be a planet and thus the sortal wasn't satisfied, it turns out that 'Hesperus' didn't refer *prior* to the discovery that Venus was a planet. It was only subsequent to our semantic decision to use 'Hesperus' to refer to Venus and thereby reground its meaning with the sortal 'planet' that 'Hesperus' referred to Venus.

Notice that this entails that prior to this semantic decision we weren't referring to *anything* when we used the name 'Hesperus'. But this is surely absurd – prior to the discovery we were talking about *that thing there* (accompanied by pointing) and we discovered that *it* was

³⁶⁷ See also Thomasson (2008, 77).

a planet, not a star. Thomasson's account entails that prior to discoveries of sortal failure there was a massive failure of communication. But it seems clear that we were talking about something with the name 'Hesperus' even though we erroneously thought it was a star; something we can point at in the sky and communicate about, even though it turned out to be a planet. Indeed, it seems the very possibility of *discovering* that Hesperus was a planet rather than a star *presupposes* that we were referring to the same object with the name 'Hesperus'. On Thomasson's account we would be discovering a new object all together, not discovering something new about an object we could already refer to. Things are even worse if we never make the requisite discovery. Imagine that prior to the invention of sufficiently strong telescopes, some calamity throws back science and technology to the dark ages and humanity never recovers. We never discover that Hesperus is a planet rather than a star, yet the sortal used to fix the reference of 'Hesperus' isn't satisfied, unbeknownst to us. As a result, any talk of 'Hesperus' is empty – the name was never successfully grounded, so we weren't talking about anything, even when saying 'Look, Hesperus is bright tonight' accompanied by a demonstration. Thomasson's solution seems to require that we discover our error, but surely, because we are fallible empirical inquirers, there are some cases where we never realize our mistake.

The problem arises with kind terms, as well: prior to the nineteenth century, heat was thought to be a substance, specifically a fluid, that could pass in and out of bodies. As a result, the reference of 'heat' was fixed using 'substance' or 'fluid'. On Thomasson's account any putative reference to heat failed because 'heat' was never grounded. In the nineteenth century heat was discovered to be molecular motion, and thus thermodynamics superseded the now-defunct caloric theory of heat, which took it to be fluidic. Of course, we were clearly referring to something prior to the nineteenth century. We all experienced a particular phenomenon and

called it ‘heat’, whether it was sitting by a fire, having a fever, or standing in the sun. We were wrong that a substance was being released from bodies, but we were very clearly *referring* to something. There was no semantic decision, either implicit or explicit, to say that ‘heat’ is now to be used to refer to molecular motion, because there is nothing necessary about heat being a substance – in fact, the claim is false! Examples can be easily multiplied, just substitute Putnam’s pencil-organism case or Miller’s kangaroo-robots. We were talking about *these things here that hop around*, and as it happens they’re robots, not animals. But we were certainly referring to kangaroos prior to this discovery.³⁶⁸

Note that the above is a version of Kripke’s (1980, 84 and *passim*) problem of error: speakers can be wrong about what they believe they are referring to yet still succeed in referring. There’s nothing analytic about the sortals used to fix the reference of a term. The grounder of a term needs to associate some descriptive content with the intended referent in order to avoid the qua-problem and thereby successfully fix reference. However, this doesn’t entail that the description is analytically related to the term. As a result, the grounder isn’t in any sort of privileged epistemic position: the associated description *could* turn out to be false. The associated descriptions are corrigible, and thus may be overturned by future empirical inquiry.³⁶⁹

The principle of humanity can explain the above cases without appeal to analyticity. If we discovered that kangaroos are robots or pencils are organisms, the beliefs of the original grounders of ‘kangaroo’ are perfectly explicable: seeing a kangaroo one would think it’s an animal since it resembles many other kinds of animal, so only very close and technologically sophisticated inspection would reveal that it’s a robot. Similarly, we can understand why

³⁶⁸ Miller (1992, 427 and fn. 6) makes a similar point against Devitt by arguing that surely Medieval Europeans could refer to magnets despite being in almost complete error about their nature.

³⁶⁹ Of course, in some cases it might happen that the associated sortal or other descriptive content is (metaphysically) necessary, but this would be discoverable and thereby knowable *a posteriori*, so it still wouldn’t be analytic.

someone would think that there's a marine animal that caused the wave near the boat, since the cause of that belief – a disturbance in the water – would suggest such a thing. But once we discover that there was no animal, only a bit of seaweed, we conclude that 'Orky' doesn't name anything. Thus, there is no need to appeal to analyticity to solve the qua-problem, as Thomasson does, especially since this runs into a serious and systematic version of Kripke's problem of error. Therefore, the descriptions associated with the intended referent are not analytic, and so long as they are sufficiently disambiguating or the cause of attributing such a description is sufficiently clear even if the description is false, then reference will succeed.³⁷⁰

We've seen that speakers don't have any measure of epistemic privilege with respect to the referents of their terms which stems from analyticity, since any associated descriptive content can be false. There remains the possibility that epistemic privilege, i.e. immunity from ignorance and error, can come from different quarters, namely from being the maker of artifacts.

Thomasson argues as much *contra* Kornblith. Recall that Thomasson's view is very similar to my own. On her view, artifacts are the successful products of a maker's intention to make that kind of thing, where artifact kinds are determined by a cluster of kind-relevant features, some strict and some loose, which makers intend to bestow on their creations. Thomasson maintains that makers have a very minimal level of epistemic privilege vis-à-vis their creations, namely that "those who successfully make Ks are guaranteed to have a substantially correct concept of what it takes to be a K, at least of that time and tradition" (Thomasson 2007a, 63). She continues, "*if* some individual *is* the maker of a certain kind of artifact, she is (qua maker) guaranteed to

³⁷⁰ There is something appealing about Thomasson's pragmatic approach since I also appealed to the need for occasional semantic decisions to determine the extension of our artifact kind terms in those rare cases where the essential nature is vague or indeterminate. In those cases her account applies, I just think they are rare. Nonetheless, there is a clear role for pragmatic consideration in any theory of reference and sometimes these will determine whether reference succeeds or fails.

have a largely correct conception of the essential features of the artifacts of the kind she is creating (at least of that time and tradition)” (ibid. 68). This much applies to my account of artifacts as Thomasson’s, although I only require that makers have a minimally, rather than substantially, correct concept of Ks. However, it doesn’t really give the maker any substantive *knowledge* about the thing they make, or at least not any that they can be guaranteed to have cognitive access to, because they may always be wrong about whether they were *successful*. Fanciful cases involving Cartesian demons are always possible, but even mundane cases show the same thing: a maker intends to make a K where features k_1 - k_3 are central and the maker intends to bestow those features on their creation. The maker may also falsely believe they were successful when they were not or they may erroneously think they failed when they didn’t. Either way, they may have the correct concept of Ks but they may always be wrong about whether they were successful in bestowing the kind-relevant features. As a result, even if they have the correct concept of Ks, they may always be wrong that they do. However, makers may not be the grounders of the term for the things they make. In the case where they aren’t, the grounders are not guaranteed any knowledge about the nature of the sample artifact.

Moreover, the overwhelming majority of makers (and users) certainly possess a false view of what makes something an artifact, i.e. they lack a correct theory of artifacts. They would never be in a position to *know* the conditional epistemic privilege that Thomasson has identified, namely that *if they are successful in making a K, then they have a correct concept of Ks*. The point is merely that even though Thomasson is correct about successful makers necessarily possessing the correct concept of the things they make, they are never guaranteed to have knowledge that (1) their concept is correct, (2) that they were successful in making a K, and (3)

that their theory of artifacts, if any, is correct.³⁷¹ As a result, the sort of epistemic privilege available to makers is extremely limited.³⁷²

We understood having a concept of Ks as having a grasp on what the kind-relevant features of Ks are. If an agent has a minimally correct concept of Ks, then she has a grasp of at least some of the kind-relevant features of Ks. Since successful makers are guaranteed a minimally correct concept of Ks, then they are guaranteed a grasp of at least some of the kind-relevant features. Certainly, the kind-relevant features can and do change over time. This is why Thomasson adds the caveat ‘at least of that time and tradition’. But I think makers are still more limited in the epistemic privilege they have. I’ve emphasized in various places the distinctly social dimension of artifacts and artifact kinds. Individual artifacts are socially dependent when created in a social context while artifact kinds are determined by the social norms governing the associated artifact practices. The overwhelming majority of artifacts are created in a social context because most makers exist in a culture or social group. Robinson Crusoe cases, where a maker can create artifacts while being completely causally isolated from other agents, norms, or cultures, are vanishingly rare.

What effect does this have on maker privilege? Imagine the first maker of Ks also introduces a new term into the language ‘K’ and grounds it in the things she just invented. She developed Ks to perform the function F such that F is the most central kind-relevant feature of Ks. In such a case, she is guaranteed to know that Ks are centrally F. However, such epistemic privilege is short lived: she will have invented Ks in a social context and she would have been subject to social norms. Most new artifact kinds aren’t created by single makers, but teams of

³⁷¹ I’m not assuming any particular account of knowledge here. Rather, it’s the higher order knowledge *about* their concept of Ks that they may lack even if they possess the correct concept of Ks.

³⁷² It is also limited insofar as it only applies to the maker in the sense of the agent possessing the concept, not the assembler or assembly overseer. See Kornblith (2007, 145-146).

makers whose designs are subservient to a boss or employer.³⁷³ Since her making is socially situated, Ks will be subject to new norms governing the kind and these norms are socially grounded. Such norms will take time to arise concomitantly with the spread and uptake of K usage and production. As a result of this, over time Ks may principally be produced to perform some other function F*, as happened with SUVs, aspirin, and vacuum tubes.³⁷⁴ That is, the K-norm may change as our K practices change which can affect what features are relevant or most centrally relevant to the kind. Thus, our maker will only know what features are constitutive of the kind early on in the making of Ks as quickly the K-norm which governs the kind will begin to change through natural social processes. Thomasson's caveat that makers are guaranteed a correct concept of Ks of that time and tradition is further constrained: prototype makers have armchair authority about the kind-relevant features of the kind they invented only initially, before the kind becomes embedded in social practices and subject to the concomitant social norms. Once this happens, makers can no longer unilaterally determine the nature of the kind and they thereby lose any epistemic privilege about the things they create, but of course knowing when exactly this has happened would be extremely difficult.³⁷⁵

The one case where inventors of Ks would retain complete control over the nature of Ks is in Robinson Crusoe cases where there's no possibility of social practices and norms shifting the constitutive features of the kind. Her original intention to bestow certain features is the only thing that would matter for determining the kind-relevant features. But ironically, since language is a social phenomenon, she couldn't introduce a new term for Ks into a *shared* language in such

³⁷³ I'm thinking of e.g. new iPhone technology where the engineers are working for Apple and thus their designs are subject to the demands of various company executives such as installing software which slows down the device's functioning over time. However, sometimes more simple artifacts are created by a single individual, as was the case with popsockets being invented by a single person (a philosopher).

³⁷⁴ The first example is from Elder (2014) while the latter two are from Marconi (2013).

³⁷⁵ Some makers try to constrain the kind through patents but patents are only binding because of the institutional framework which supports them. Over time even those kinds can, in principle, change through social pressures.

a scenario since she is causally isolated from other speakers (assuming Ks weren't simultaneously invented elsewhere).³⁷⁶ As soon as she did, by returning to society, say, she would lose any maker authority over the kind, thus rendering it impossible for her to have epistemic privilege over the nature of the term's referent.

The causal theory requires that the entire linguistic community can be wrong about the nature of a term's referent and I've agreed that, at least in some rare cases makers may have some extremely limited epistemic privilege which will quickly be lost due to the social dependence of artifacts.³⁷⁷ In light of the foregoing, it may be objected that there's still widespread epistemic privilege about artifact kinds because the *culture* itself determines the nature of the kind, and thus such general social mind-dependence guarantees knowledge of the kind *in the culture*.³⁷⁸ But there is no plausible 'we' or 'us' that has such epistemic privilege. Ordinary speakers and artifact users are quite often wrong about various features of artifacts, as Kornblith has shown with kinds like 'rheostat'. There is a division of labour – both metaphysical and linguistic – between users/reference borrowers and makers/grounders, even though the constitutive features of most artifacts are determined by social norms and practices.³⁷⁹ It's just that no one, not even the makers of artifacts (except the inventors right after they've invented) have armchair epistemic authority over such norms.³⁸⁰

Despite this social dependence, there's still room for empirical discovery about the nature of artifact kinds – a hallmark of the causal theory which follows from the possibility of ignorance

³⁷⁶ This assumes some quite implausible features of the case, namely that our maker was born socially isolated. If she was shipwrecked, say, she would have still been raised in a culture and linguistic community and thus her making would still be subject, albeit historically, to social norms. See Thomasson (2014, 56) for discussion.

³⁷⁷ Marconi (2019, 149-150) calls such a position pseudo-externalism. Since I'm explicitly advocating for a hybrid theory, in part because of epistemic privilege, my view is 'pseudo' externalist.

³⁷⁸ Marconi (2013) and Olivero (2018) suggest this line of reasoning.

³⁷⁹ Burge (1979) has shown that the division of linguistic labour is distinctly social with his famous arthritis example.

³⁸⁰ Elder (2014, 33-36, 40-43) makes this point in defense of realism about artifacts, but the epistemic claim holds without the background realist picture.

and error. Since the constitutive features of artifact kinds are partly socially dependent, and no one has armchair access to what those social dependence relations are, the norms and associated dependence relations can be discovered through empirical inquiry – not the inquiry of the physical sciences, but of the special sciences whose business it is to study human nature and culture, including anthropology, archeology, sociology, technology studies, history, linguistics, and empirical psychology. Just as anthropologists may investigate what norms govern a particular foreign culture, so too do they study what norms govern a culture’s – ours or someone else’s – artifact practices, such as what some artifact kind is *for*. These norms are open to empirical inquiry and are thus epistemically corrigible. Experts can and do get such descriptive inquiry wrong. Schwartz assumed that the causal theory required such empirical discoverability, but he failed to recognize that form, function, and material constitution, as well as other normative features of artifacts, are also subject to empirical inquiry.³⁸¹ While there is a limited element of epistemic privilege, the vast majority of artifacts are socially dependent and thus their nature – their *social* nature – is open to empirical inquiry by the special sciences. As a result, speakers can be mistaken about the nature of most artifact kinds. Making artifacts confers very little epistemic privilege.

7.7 Conclusion

The reference of artifact kind terms functions in a similar manner to natural kind terms. Artifact kind terms like ‘chair’, ‘pencil’, and ‘picture frame’ refer by being grounded in a sample

³⁸¹ I suspect the over-reliance on examples from the physical sciences, and the general denigration of the social sciences in the later twentieth century, has obscured this fact. This is why Schwartz places such heavy emphasis on the nature being *underlying* or *deep* – this was the standard epistemic status of the natures of the kinds studied by the physical sciences.

artifact of their respective kinds and the terms are thereby indexed to the metaphysically necessary nature of the sample. In the case of artifacts this essential nature isn't 'hidden' or 'underlying' but is an extrinsic historical property that holds between the artifact and its maker: being the successful product of an intention to make that kind of thing. Since the nature is metaphysically necessary, artifact kind terms refer rigidly. However, while the causal theory of reference can be extended to artifact kind terms, it must be suitably hybridized to handle the qua-problem. I argued that some descriptive content that the grounder associates with the referent is required but that such descriptions can be false and reference succeed so long as the descriptions are explicable in virtue of the causal connection between the speaker and the referent. Thus, the causal theory requires some descriptive content for reference fixing, even if a purely causal-historical connection is all that's required for reference borrowing. While the disambiguating descriptive content can be false and therefore is not analytic, there is still a minimal kind of epistemic privilege for the makers of particular artifact kinds: artifact makers are at least guaranteed to have a minimally correct concept of the kind they make simply in virtue of my analysis of artifacts. As a corollary, they may also have some infallible expert knowledge about the features constitutive of the kind, depending on their social context. As we saw, lone makers who fully determine the boundaries of an artifact kind without any social pressure or input are extremely rare. As a result, the vast majority of speakers have no epistemic privilege with respect to the referents of artifact kind terms. The theory of reference we end up with retains many important elements of the causal theory, but it is undeniably hybrid in virtue of requiring some descriptive content and the possibility that the linguistic community may not be wholly in ignorance or error about the kind. Most importantly, we could only arrive at this account of the reference of artifact kind terms with an account of artifacts and artifact kinds in hand. A

metaphysics of artifacts, accounting for both essence and mind-dependence, is needed prior to settling the corresponding semantic disputes.

BIBLIOGRAPHY

- 3M. "Adhesive in Post-it ® Notes" *Technical Bulletin* no. 1 (August, 1999), Rueil-Malmaison, France.
- Abbot, Barbara. "Nondescriptionality and Natural Kinds Terms" *Linguistics and Philosophy* vol. 12 no. 3 (1989): 269-291.
- Abell, Catharine. "Art: What it Is and Why it Matters" *Philosophy and Phenomenological Research* vol. 85 no. 3 (2012): 671-691.
- Armstrong, David. *Truth and Truthmakers*. Cambridge: Cambridge University Press, 2004.
- . *Universals: An Opinionated Introduction*. Boulder, CO: Westview Press, 1989.
- . *A World of States of Affairs*. Cambridge: Cambridge University Press, 1997.
- Arthur, W. Brian. *The Nature of Technology*. New York: Free Press, 2009.
- Baker, Lynn Rudder. *The Metaphysics of Everyday Life*. Cambridge: Cambridge University Press, 2007.
- . "The Metaphysics of Malfunction" *Techne* vol. 13 no. 2 (Spring, 2009): 82-92.
- . "The Shrinking Difference Between Artifacts and Natural Objects" *American Philosophical Association Newsletter on Philosophy and Computers*, vol. 7 no. 2 (Spring 2008).
- Barham, Lawrence. *From Hand to Handle: The First Industrial Revolution*. Oxford: OUP, 2013.
- Basalla, George. *The Evolution of Technology*. Cambridge: Cambridge University Press, 1989.
- Baxandall, Michael. *Paintings and Experience in 15th Century Italy*. Oxford: Clarendon Press, 1972.
- . *Patterns of Intention: On the Historical Explanation of Pictures*. New Haven: Yale University Press, 1985.
- Bell, Clive. *Art*. New York: Capricorn Books, (1914).
- Bicchieri, Cristina. *The Grammar of Society: The Nature and Dynamics of Social Norms*. New York: Cambridge University Press, 2006.
- Blocker, H. Gene. "Is Primitive Art Art?" *Journal of Aesthetic Education* vol. 25 no. 4 (1991): 87-97.
- Bloom, Paul. "Intention, History, and Artifact Concepts" *Cognition* vol. 60 (1996): 1-29.

- . “Theories of Artifact Categorization” *Cognition* vol. 66 (1998): 87-93.
- Borgo, Stefano and Laure Vieu. “Artifacts in Formal Ontology.” In *Philosophy of Technology and Engineering Sciences*, ed. Meijers, 273-308. Amsterdam: Elsevier, 2009.
- Braddon-Mitchell, David and Robert Nola, eds. *Conceptual Analysis and Philosophical Naturalism*. Cambridge, MA: The MIT Press, 2008.
- Bratman, Michael. *Intentions, Plans, and Practical Reason*. Cambridge, MA: Harvard University Press, 1987.
- Brock, Stuart. “A Recalcitrant Problem for Abstract Creationism” *The Journal of Aesthetics and Art Criticism* vol. 76 (2017): 93-98.
- Brock, Stuart and Edwin Mares. *Realism and Anti-Realism*. Stocksfield: Acumen, 2007.
- Burge, Tyler. “Individualism and the Mental” *Midwest Studies in Philosophy* vol. 4 (1979): 73-121.
- Burgess, John and Gideon Rosen. *A Subject with No Object*. Oxford, OUP: 1997.
- Burke, Michael. “Cohabitation, Stuff, and Intermittent Existence” *Mind* vol. 89 no. 355 (July, 1980): 391-405.
- Burrows, Malcolm and Gregory Sutton. “Interacting Gears Synchronize Propulsive Leg Movements in a Jumping Insect” *Science* vol. 341 no. 6151 (September, 2013): 1254-1256.
- Button, Tim. “Deflationary Metaphysics and Ordinary Language” *Synthese* (2016) DOI 10.1007/s11229-016-1212-z.
- . *The Limits of Realism*. Oxford University Press, 2013.
- Carrara, Massimiliano, Silvia Gaio, and Marzia Soavi. “Artifact Kinds, Identity Criteria, and Logical Adequacy.” In *Artefact Kinds*, eds. Franssen et al, 85-104. New York: Springer, 2014.
- Chakravartty, Anjan. *A Metaphysics for Scientific Realism: Knowing the Unobservable*. Cambridge: Cambridge University Press, 2007.
- Chan, Szu Ping. “When’s a Van a Van and When’s It a Car?” *BBC News* 18 October, 2018, <https://www.bbc.com/news/business-45875405>. Accessed 10 September 2020.
- Cooper, John M. ed. *Plato: Complete Works*. Indianapolis: Hackett, 1997.

- Cotnoir, Aaron and Donald Baxter, eds. *Composition as Identity*. Oxford: OUP, 2014.
- Craver, Carl F. *Explaining the Brain: Mechanisms and the Mosaic Unity of Neuroscience*. New York: OUP, 2007.
- Cray, Wesley. "Abstract Generationism: A Response to Friedell" *The Journal of Aesthetics and Art Criticism* vol. 75 (2017): 289-292.
- Cummins, Robert. "Functional Analysis" *The Journal of Philosophy* vol. 72 (1975): 741-765.
- . "Reflection on Reflective Equilibrium." In *Rethinking Intuition*, eds. DePaul and Ramsey, 113-127. Lanham, MD: Rowman and Littlefield, 1998.
- Danto, Arthur. *The Transfiguration of the Commonplace*. Cambridge, Mass.: Harvard University Press, 1981.
- Dauer, Francis. "Hot Not to Reidentify the Parthenon" *Analysis* vol. 33 no. 2 (December, 1972): 63-64.
- Davidson, Donald. "Knowing One's Own Mind." In *Subjective, Intersubjective, Objective*, 15-38. Oxford: OUP, 2001/1987.
- Davies, David. *Art as Performance*. Malden, Massachusetts: Blackwell, 2004.
- . "Descriptivism and Its Discontents" *Journal of Aesthetics and Art Criticism* vol. 75 no. 2 (2017): 117-129.
- . "The Primacy of Practice in the Ontology of Art" *Journal of Aesthetics and Art Criticism* vol. 67 no. 2 (2009): 159-171.
- Davies, Stephen. "Aesthetic Judgements, Artworks, and Functional Beauty" *Philosophical Quarterly* vol. 56 (2006): 224-241.
- . *Definitions of Art*. Ithaca: Cornell University Press, 1991.
- . "Non-Western Art and Art's Definition." In *Theories of Art Today*, ed. Noel Carroll. Madison: University of Wisconsin Press, 2000.
- Degano, Ilaria et al. "Hafting of Middle Paleolithic Tools in Latium (Central Italy): New Data from Fossellone and Sant'Agostino Caves" *PLoS ONE* vol. 14 no. 6 (2019): <https://doi.org/10.1371/journal.pone.0213473>
- Deutsch, Lindsay. "Is a Hot Dog a Sandwich? Council Rules Once and For All" *USA Today* November 7, 2015, <https://www.usatoday.com/story/news/nation-now/2015/11/07/a-hot-dog-is-not-a-sandwich/75362898/>. Accessed January 20, 2021.

- Devitt, Michael. *Realism and Truth*. New Jersey: Princeton University Press, 1991.
- Devitt, Michael, and Kim Sterelny. *Language and Reality: An Introduction to the Philosophy of Language*. Cambridge, MA: The MIT Press, 1999.
- Dickie, George. *The Art Circle: A Theory of Art*. Evanston, Illinois: Chicago Spectrum Press, 1984.
- Dipert, Randall R. *Artifacts, Art Works, and Agency*. Philadelphia: Temple University Press, 1993.
- Dodd, Julian. "Adventures in the Metaontology of Art: Local Descriptivism, Artefacts and Dreamcatchers" *Philosophical Studies* vol. 165 no. 3 (2013): 1047-1068.
- . "Defending the Discovery Model in the Ontology of Art: A Reply to Amie Thomasson on the *Qua* Problem" *British Journal of Aesthetics* vol. 52 no. 1 (January, 2012): 75-95.
- . "What Is 4'33'?" *Australasian Journal of Philosophy* vol. 96 no. 4 (2018): 629-641.
- . *Works of Music*. Oxford: OUP, 2007.
- Donnellan, Keith. "Reference and Definite Descriptions" *Philosophical Review* vol. 75 no. 3 (1966): 281-304.
- Dreyfus, Hubert L. *Being-in-the-World: A Commentary on Heidegger's Being and Time, Division I*. Cambridge, MA: MIT Press, 1990.
- Dutton, Denis. "Mythologies of Tribal Art" *African Arts* vol. 28 no. 3 (1995): 32-91.
- Eaton, Marcia. "Art, Artifacts, and Intentions" *American Philosophical Quarterly* vol. 6 no. 2 (April, 1969): 165-169.
- The Editors of Publications International, Ltd. "9 Things Invented or Discovered by Accident" September 2007.
HowStuffWorks.com.<<https://science.howstuffworks.com/innovation/scientific-experiments/9-things-invented-or-discovered-by-accident.htm>> Accessed 19 September 2019.
- Edmonds, David. "Cake or Biscuit? Why Jaffa Cakes Excite Philosophers" *BBC News*, 20 February, 2017, <https://www.bbc.com/news/magazine-38985820>. Accessed 5 September 2020.
- Elder, Crawford L. "Artifacts and Mind-Independence." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 27-43. New York: Springer, 2014.
- . *Familiar Objects and their Shadows*. Cambridge: Cambridge University Press, 2011.

- . “On the Place of Artifacts in Ontology.” In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 33-51. Oxford: Oxford University Press, 2007.
- . “Realism, Naturalism, and Culturally Generated Kinds” *Philosophical Quarterly* vol. 39 no. 157 (October, 1989): 425-444.
- . *Real Natures and Familiar Objects*. Cambridge, Massachusetts: MIT Press, 2004.
- Epstein, Brian. *The Ant Trap: Rebuilding the Foundations of the Social Sciences*. New York: Oxford University Press, 2015.
- Evans, Gareth. “Can There Be Vague Objects?” *Analysis* vol. 38 (1978): 208.
- . “The Causal Theory of Names.” In *Collected Papers*, 1-24. Oxford: OUP, 1985.
- Evnine, Simon. “The Anonymity of a Murmur: Internet Memes.” *British Journal of Aesthetics* vol. 58 no. 3 (2018): 303-318.
- . *Making Objects and Events*. Oxford: OUP, 2016.
- . “Mass Production.” In *The Nature of Ordinary Objects*, ed. Cumpa and Brewer, 198-222. Cambridge: CUP, 2019.
- . “Ready-Mades: Ontology and Aesthetics” *British Journal of Aesthetics* vol. 53 no. 4 (October, 2013): 407-423.
- Fine, Kit. “Essence and Modality” *Philosophical Perspectives* vol. 8 (1994): 1-16.
- Franssen, Maarten. “The Normativity of Artefacts” *Studies in the History and Philosophy of Science* vol. 37 (2006): 42-57.
- Franssen, Maarten and Peter Kroes. “Artefact Kinds, Ontological Criteria and Forms of Mind-Dependence.” In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 63-83. New York: Springer, 2014.
- Franssen, Maarten et al., eds. *Artefact Kinds: Ontology and the Human-Made World*. Dordrecht: Springer, 2014.
- Friedell, David. “Abstract and Concrete Products: A Response to Cray” *The Journal of Aesthetics and Art Criticism* vol. 75 (2017): 292-296.
- . “Abstract Creationism and Authorial Intention.” *Journal of Aesthetics and Art Criticism* vol. 74 no. 2 (2016): 129-137.

- Gaut, Berys. “‘Art’ as a Cluster Concept.” In *Theories of Art Today*, edited by Noël Carroll, 25-44. Madison, WI: University of Wisconsin Press, 2000.
- Geach, Peter. *Reference and Generality*. Ithaca, NY: Cornell University Press, 1962.
- Gelman, S. A. “Artifacts and Essentialism” *Review of Philosophy and Psychology* vol. 4 no. 3 (2013): 449-463.
- Gilbert, Margaret. *Joint Commitment: How We Make the Social World*. New York: OUP, 2015.
- . “Social Convention Revisited” *Topoi* vol. 27 (2008): 5-16.
- . *On Social Facts*. New York: Routledge, 1989.
- Goff, H. Douglas and Richard W. Hartel. *Ice Cream*, 7th ed. Boston, MA: Springer, 2013.
- Goodman, Jeffrey. “On Inadvertently Made Tables: a Broccean Theory of Concrete Artifacts” *Acta Analytica* (2020): <https://doi.org/10.1007/s12136-020-00438-w>.
- Goodman, Nelson. *Fact, Fiction, and Forecast*. Cambridge, MA: Harvard University Press, 1955.
- . *Languages of Art*. Indianapolis: Hackett, 1976.
- . *Ways of Worldmaking*. Indianapolis: Hackett, 1978.
- Gould, James L. “Animal Artifacts.” In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 249-266. Oxford: Oxford University Press, 2007.
- Gover, K. E. *Art and Authority: Moral Rights and Meaning in Contemporary Visual Art*. Oxford: OUP, 2018.
- Grafton-Cardwell, Patrick. “The Aesthetic Engagement Theory of Art” *Ergo forthcoming*.
- . “Debugging the Case for Creationism” *Philosophical Studies* vol. 177 (2020): 3509-3527.
- Grandy, Richard. “Artifacts: Parts and Principles.” In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 18-32. Oxford: Oxford University Press, 2007.
- . “Reference, Meaning, and Belief?” *The Journal of Philosophy* vol. 70 no. 14 (1973): 439-452.
- Griffiths, Paul. “Functional Analysis and Proper Functions” *The British Journal for the Philosophy of Science* vol. 44 no. 3 (September, 1993): 409-422.
- Guala, Francesco. *Understanding Institutions: The Science and Philosophy of Living Together*. New Jersey: Princeton University Press, 2016.

- Hacking, Ian. "The Looping Effects of Human Kinds." In *Causal Cognition: A Multidisciplinary Approach*, ed. Sperber, Premack and Premack, 351-383. Oxford: OUP, 1995.
- . *The Social Construction of What?* Cambridge, MA: Harvard University Press, 2000.
- . "The Sociology of Knowledge about Child Abuse" *Nous* vol. 22 (1988): 53-63.
- Hawley, Katherine. "Social Mereology" *Journal of the American Philosophical Association* vol. 3 no. 4 (Winter 2017): 395-411.
- Heckerling, Amy, Director. *Clueless*. 1995; Hollywood, California: Paramount Pictures.
- Heidegger, Martin. *Being and Time*, trans. Joan Stambaugh. New York: State University of New York Press, 2010.
- Heidemann, Dietmar. "Kant and the Forms of Realism" *Synthese* vol. 198 (2021): 3231-3252.
- Hick, Darren Hudson. "Using Things as Art" *Grazer Philosophische Studien* vol. 96 no. 1 (2019): 56-80.
- Hilpinen, Risto. "Artifact", The Stanford Encyclopedia of Philosophy (Winter 2011 Edition), Edward N. Zalta (ed.), URL<<http://plato.stanford.edu/archives/win2011/entries/artifact/>>.
- . "On Artifacts and Works of Art" *Theoria* vol. 58 (1992): 58-82.
- . "Authors and Artifacts" *Proceedings of the Aristotelian Society*, New Series, vol. 93 (1993): 155-178.
- . "Belief Systems as Artifacts" *The Monist* vol. 78 no. 2 (April, 1995): 136-155.
- Hinde, R. A. "The Concept of Function", in *Function and Evolution in Behaviour: Essays in Honor of Niko Tinbergen*, eds. G.P. Baerends, C. Beer, and A. Manning, 3-15. Oxford: Clarendon Press, 1975.
- Hobbes, Thomas. *De Corpore*, in *Part I of De Corpore*, trans. Martinich. New York: Abaris Books, 1981.
- Houkes, Wybo and Pieter Vermaas. "Actions versus Functions: A Plea for an Alternative Metaphysics of Artifacts" *The Monist* vol. 87 no. 1 (2004): 52-71.
- . "On What Is Made: Instruments, Products, and Natural Kinds of Artefacts." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 167-190. New York: Springer, 2014.

- Hughes, Jesse. "An Artifact is to Use: An Introduction to Instrumental Functions" *Synthese* vol. 168 (2009): 179-199.
- Ingarden, Roman. *The Ontology of the Work of Art*, trans. Meyer and Goldthwait. Athens, Ohio: Ohio University Press, 1989.
- Irmak, Nurbay. "An Ontology of Words." *Erkenntnis* (2018): <https://doi.org/10.1007/s10670-018-0001-0>.
- Irmak, Nurbay. "The Problem of Creation and Abstract Artifacts" *Synthese* (2020): <https://doi.org/10.1007/s11229-020-02672-6>.
- Irmak, Nurbay. "Software is an Abstract Artifact" *Grazer Philosophische Studien* vol. 86 no. 1 (2012): 55-72.
- Irvin, Sherri. "The Ontological Diversity of Visual Artworks." In *New Waves in Aesthetics*, 1-19. New York: Palgrave MacMillan, 2008.
- Iseminger, Gary. "The Work of Art as Artifact." *British Journal of Aesthetics* vol. 13 (1973): 3-16.
- Jackson, Frank. "Reference and Description Revisited" *Philosophical Perspectives* vol. 12 (1998): 201-218.
- Juvshik, Tim. "Abstract Objects, Causal Efficacy, and Causal Exclusion" *Erkenntnis* vol. 83 no. 4 (August, 2018): 805-827.
- . "Artifacts and Mind-Dependence" *Synthese* (2021a): <https://doi.org/10.1007/s11229-021-03204-6>.
- . "Artificialization without Physical Modification" *Res Philosophica*, vol. 98 no. 4 (2021b): 545-572.
- . "Function Essentialism about Artifacts" *Philosophical Studies* (2021c): <https://doi.org/10.1007/s11098-020-01594-w>.
- . "Relativity and the Causal Efficacy of Abstract Objects" *American Philosophical Quarterly* vol. 57 no. 3 (2020): 269-282.
- Kania, Andrew. "The Methodology of Musical Ontology: Descriptivism and Its Implications" *British Journal of Aesthetics* vol. 48 no. 4 (2008): 426-444.
- Kant, Immanuel. *Critique of Pure Reason*. Translated by Norman Kemp Smith. London: MacMillan Press, 1933.

- Keil, Frank C., Marissa L. Greif, and Rebekkah S. Kerner. "A World Apart: How Concepts of the Constructed World Are Different in Representation and in Development." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 231-245. Oxford: Oxford University Press, 2007.
- Kelemen, Deborah and Susan Carey. "The Essence of Artifacts: Developing the Design Stance." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 212-230. Oxford: Oxford University Press, 2007.
- Kelly, Jack. *Gunpowder: Alchemy, Bombards, & Pyrotechnics: The History of the Explosive that Changed the World*. New York: Perseus Books, 2004.
- Kerr, Eric T. "Engineering Differences Between Natural, Social, and Artificial Kinds." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 207-225. New York: Springer, 2014.
- Khalidi, Muhammad. "Interactive Kinds" *British Journal for the Philosophy of Science* vol. 61 (2010): 335-360.
- . "Mind-Dependent Kinds" *Journal of Social Ontology* vol. 2 no. 2 (2016): 223-246.
- . "Three Kinds of Social Kinds" *Philosophy and Phenomenological Research* vol. 90 no. 1 (January, 2015): 96-112.
- Kim, Jaegwon. "Multiple Realization and the Metaphysics of Reduction." In *Supervenience and Mind: Selected Philosophical Essays*, 309-335. Cambridge: Cambridge University Press, 1993.
- Kitcher, Philip. "Theories, Theorists, and Theoretical Change" *Philosophical Review* vol. 87 no. 4 (1978): 519-547.
- Korman, Daniel Z. *Objects: Nothing Out of the Ordinary*. Oxford: OUP, 2015.
- Korman, Dan and Chad Carmichael. "What Do the Folk Think about Composition and Does It Matter?" In *Experimental Metaphysics*, ed. David Rose, 187-206. London: Bloomsbury Academic Press, 2017.
- Kornblith, Hilary. "How to Refer to Artifacts." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 138-149. Oxford: Oxford University Press, 2007.
- . "Referring to Artifacts" *Philosophical Review* vol. 89 no. 1 (January, 1980): 109-114.
- . "The Role of Intuition in Philosophical Inquiry: An Account with No Unnatural Ingredients". In *Rethinking Intuition: The Psychology of Intuition and Its Role in Philosophical Inquiry*, ed. DePaul and Ramsey, 129-141. Lanham MD: Rowman and Littlefield, 1998.

- Koslicki, Kathrin. *Form, Matter, Substance*. Oxford: OUP, 2018.
- Kripke, Saul. *Naming and Necessity*. Malden, MA: Blackwell Publishing, 1980.
- . “Speaker’s Reference and Semantic Reference” *Midwest Studies in Philosophy* vol. 2 (1977): 255-276.
- . *Wittgenstein On Rules and Private Language*. Cambridge, MA: Harvard University Press, 1982.
- Kroes, Peter. “Technical Artifacts, Engineering Practice, and Emergence.” In *Functions in Biological and Artificial Worlds*, eds. Krohs and Kroes, 277-292. Cambridge: MIT Press, 2009.
- Krohs, Ulrich. “The Cost of Modularity.” In *Functions in Biological and Artificial Worlds*, eds. Krohs and Kroes, 259-276. Cambridge: MIT Press, 2009.
- Krohs, Ulrich and Peter Kroes, eds. *Functions in Biological and Artificial Worlds*. Cambridge, MA: MIT Press, 2009.
- LaPorte, Joseph. *Rigid Designation and Theoretical Identities*. Oxford: OUP, 2013.
- Levinson, Jerrold. “Artworks as Artifacts.” In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 74-82. Oxford: Oxford University Press, 2007.
- . “Defining Art Historically” *British Journal of Aesthetics* vol. 19 (1979): 232-250.
- . “Extending Art Historically” *Journal of Aesthetics and Art Criticism* vol. 51 no. 3 (1993): 411-423.
- . “What a Musical Work Is.” *Journal of Philosophy* vol. 77 no. 1 (1980): 5-28.
- Lewis, David. *Convention*. Cambridge, MA: Harvard University Press, 1969.
- . “Extrinsic Properties.” In *Papers in Metaphysics and Epistemology*, 111-115. Cambridge: CUP, 1999.
- . *On the Plurality of Worlds*. Malden, Massachusetts: Blackwell Publishing, 1986.
- . “Survival and Identity.” In *Philosophical Papers: Volume I*, 55-77. New York: Oxford University Press, 1983.
- Lopes, Dominic McIver. “Art without ‘Art’” *British Journal of Aesthetics* vol. 47 no. 1 (January, 2007): 1-15.
- . *Beyond Art*. Oxford: OUP, 2014.

- . *A Philosophy of Computer Art*. London: Routledge, 2009.
- Losonsky, Michael. "The Nature of Artifacts" *Philosophy* vol. 65 no. 251 (1990): 81-88.
- Lowe, E. J. "How Real are Artefacts and Artefact Kinds?" In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 17-26. New York: Springer, 2014.
- . "On the Identity of Artifacts" *The Journal of Philosophy* vol. 80 no. 4 (April, 1983): 220-232.
- Mackie, J. L. *Ethics: Inventing Right and Wrong*. Hammondsworth, Middlesex: Penguin Books, 1978.
- Mag Uidhir, Christy. *Art and Art-Attempts*. Oxford: OUP, 2013.
- Mahon, Bradford Z. and Alfonso Caramazza. "The Organization and Representation of Conceptual Knowledge in the Brain: Living Kinds and Artifacts." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 157-187. Oxford: Oxford University Press, 2007.
- Mallon, Ron. *The Construction of Human Kinds*. Oxford: OUP, 2016.
- . "Human Categories Beyond Non-essentialism" *The Journal of Political Philosophy* vol. 15 no. 2 (2007): 146-168.
- Malt, Barbara C. and Steven A. Sloman. "Artifact Categorization: The Good, the Bad, and the Ugly." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 85-123. Oxford: Oxford University Press, 2007.
- Mandler, Jean M. "The Conceptual Foundations of Animals and Artifacts." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 191-211. Oxford: Oxford University Press, 2007.
- Marconi, Diego. "Externalism about Artifactual Words and the Taxonomy of Artifacts" *Grazer Philosophische Studien* vol. 96 (2019): 130-153.
- . "Pencils Have a Point: Against General Externalism about Artifactual Words" *Review of Philosophy and Psychology* vol. 4 (2013): 497-513.
- Margolis, Eric and Stephen Laurence, eds. *Creations of the Mind*. Oxford: Oxford University Press, 2007.
- Marx, Karl and Friedrich Engels. *Collected Works*. New York and London: International Publishers, 1975.

- Mason, Rebecca. "Against Social Kind Anti-Realism" *Metaphysics* vol. 3 no 1 (2020): 55-67.
DOI: <http://doi.org/10.5334/met.30>.
- . "The Metaphysics of Social Kinds" *Philosophy Compass* vol. 11 no. 12 (2016): 841-850.
- McDowell, John. *Mind and World*. Cambridge, MA: Harvard University Press, 1994.
- McLaughlin, Peter. *What Functions Explain: Functional Explanation and Self-Reproducing Systems*. Cambridge: CUP, 2001.
- Merricks, Trenton. *Objects and Persons*. Oxford: OUP, 2001.
- Miller, Richard. "A Purely Causal Solution to One of the Qua Problems" *Australasian Journal of Philosophy* vol. 70 no. 4 (1992): 425-434.
- Millikan, Ruth Garrett. "In Defense of Proper Functions." In *White Queen Psychology and Other Essays for Alice*, 13-29. Cambridge, Massachusetts: MIT Press, 1995.
- . *Language, Thought and Other Biological Categories*. Cambridge, MA: MIT Press, 1984.
- . "Wings, Spoons, Pills, and Quills: A Pluralist Theory of Function" *The Journal of Philosophy* vol. 96 no. 4 (1999): 191-206.
- Mithen, Steven. "Creations of Pre-Modern Human Minds: Stone Tool Manufacture and Use by *Homo habilis*, *heidelbergensis*, and *neanderthalensis*." In *Creations of the Mind*, edited by Eric Margolis and Stephen Laurence, 289-311. Oxford: OUP, 2007.
- Moore, Steven Dean, Director. *The Simpsons*, "Mom and Pop Art", Season 10 Episode 19. United States: Fox Broadcasting, 1999.
- Muzzarelli, Maria Giuseppe. "Sumptuous Shoes: Making and Wearing in Medieval Italy." In *Shoes: A History from Sandals to Sneakers*, ed. Giorgio Riello and Peter McNeil, 50-75. New York: Berg, 2006.
- National Research Council. *Black and Smokeless Powders: Technologies for Finding Bombs and the Bomb Makers*. Washington D. C.: National Academy Press, 1998.
- Nelson, James. "Schwartz on Reference" *The Southern Journal of Philosophy* vol. 20 no. 3 (1982): 359-365.
- Novitz, David. "Art by Another Name" *British Journal of Aesthetics* vol. 38 (1998): 19-32.
- Olivero, Irene. "Putnam on Artifactual Kind Terms" *Review of Philosophy and Psychology* vol. 9 no. 1 (2018): 197-212.
- . "Function Is Not Enough" *Grazer Philosophische Studien* vol. 96 no (2019): 105-129.

- Olivero, Irene and Massimiliano Carrara. "On the Semantics of Artifactual Kind Terms" *Philosophy Compass*, forthcoming.
- Oswalt, Wendell H. *An Anthropological Analysis of Food-Getting Technology*. New York: John Wiley and Sons, 1976.
- Paley, William. *Natural Theology*. Indianapolis: Bobbs-Merill, 1802/1963.
- Parsons, Glenn and Allen Carlson. *Functional Beauty*. Oxford: Clarendon Press, 2008.
- Petroski, Henry. *The Evolution of Useful Things*. New York: Random House, 1992.
- Plunkett, David and Timothy Sundell. "Disagreements and the Semantics of Normative and Evaluative Terms" *Philosopher's Imprint* vol. 13 no. 23 (December 2013): 1-37.
- Predelli, Stefano. "Ontologese and Musical Nihilism: A Reply to Cameron" *British Journal of Aesthetics* vol. 49 no. 2 (2009): 179-183.
- Preston, Beth. "Ethnotechnology: A Manifesto." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 145-163. New York: Springer, 2014.
- . "Of Marigold Beer: Reply to Vermaas and Houkes" *The British Journal for the Philosophy of Science* vol. 54 no. 4 (December, 2003): 601-612.
- . *A Philosophy of Material Culture: Action, Function, and Mind*. New York: Routledge, 2013.
- . "Philosophical Theories of Artifact Function." In *Philosophy of Technology and Engineering Sciences*, ed. Anthonie Meijers, 213-233. Amsterdam: Elsevier, 2009.
- . "Why Is a Wing Like a Spoon? A Pluralist Theory of Function" *The Journal of Philosophy* vol. 95 (1998): 215-254.
- Putnam, Daniel A. "Natural Kinds and Human Artifacts" *Mind* vol. 91 no. 363 (1982): 418-419.
- Putnam, Hilary. *The Many Faces of Realism*. LaSalle, IL: Open Court, 1987.
- . "The Meaning of 'Meaning.'" In *Mind, Language, and Reality: Philosophical Papers Volume 2*, 215-271. Cambridge: Cambridge University Press, 1975.
- . *Representation and Reality*. Cambridge, MA: MIT Press, 1988.
- Quine, W. V. O. "Identity, Ostension, and Hypostasis" *Journal of Philosophy* vol. 47 no. 22 (1950): 621-633.
- . *Ontological Relativity and Other Essays*. New York: Columbia University Press, 1969.

- Reydon, Thomas A. C. "Metaphysical and Epistemological Approaches to Developing a Theory of Artifact Kinds." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 125-144. New York: Springer, 2014.
- Ritchie, Katherine. "The Metaphysics of Social Groups" *Philosophy Compass* vol. 10 no. 5 (2015): 310-321.
- . "What Are Groups?" *Philosophical Studies* vol. 166 no. 2 (2013): 257-272.
- Rohrbaugh, Guy. "Artworks as Historical Individuals" *European Journal of Philosophy* vol. 11 (2003): 177-205.
- . "Must Ontological Pragmatism Be Self-Defeating?" In *Art and Abstract Objects*, ed. Christy Mag Uidhir, 29-48. Oxford: OUP, 2012.
- Rorty, Richard. *Philosophy and the Mirror of Nature*. Princeton, NJ: Princeton University Press, 1979.
- Roversi, C., A. M. Borghi, and L. Tummolini. "A Marriage Is an Artefact and Not a Walk that We Take Together: An Experimental Study on the Categorization of Artefacts" *Review of Philosophy and Psychology* vol. 4 no. 3 (2013): 527-542.
- Ruben, David-Hillel. *The Metaphysics of the Social World*. London: Routledge and Kegan Paul, 1985.
- Sankowski, Edward. "Free Action, Social Institutions, and the Definition of 'Art'." *Philosophical Studies* vol. 37 (1980): 67-79.
- Saito, Yuriko. *Everyday Aesthetics*. Oxford: OUP, 2007.
- Scaltsas, Theodore. "Identity, Origin, and Spatiotemporal Continuity" *Philosophy* vol. 56 no. 217 (July, 1981): 395-402.
- . "The Ship of Theseus" *Analysis* vol. 40 no. 3 (June, 1980): 152-157.
- Scheele, Marcel. "Function and Use of Technical Artefacts: Social Conditions of Function Ascription" *Studies in History and Philosophy of Science* vol. 37 (2006); 23-37.
- Schick, Kathy D. and Nicholas Toth. *Making Silent Stones Speak: Human Evolution and the Dawn of Technology*. New York: Simon and Schuster, 1993.
- Schnurrenberger, Douglas and Alan Bryan. "A Contribution to the Study of the Naturefact/Artifact Controversy." In *Stone Tool Analysis*, edited by Mark G. Plew, James C. Woods, and Max G. Pavesic, 133-159. Albuquerque: University of New Mexico Press, 1985.

- Schwartz, Stephen P. "Putnam on Artifacts" *Philosophical Review* vol. 87 no. 4 (October 1978): 566-574.
- . "Reply to Kornblith and Nelson" *The Southern Journal of Philosophy* vol. 21 no. 3 (1983): 475-479.
- Searle, John. *The Construction of Social Reality*. New York: The Free Press, 1995.
- . "Proper Names" *Mind* vol. 67 (1958): 166-173.
- . "Social Ontology and the Philosophy of Society." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 13-17. Oxford: Oxford University Press, 2007.
- Semmelhack, Elizabeth. *The Heights of Fashion: A History of the Elevated Shoe*. Pittsburgh, PA: Periscope Publishing, 2008.
- Smart, Brian. "The Ship of Theseus, the Parthenon, and Disassembled Objects" *Analysis* vol. 34 no. 1 (October, 1973): 24-27.
- Soavi, Marzia. "Antirealism and Artifact Kinds" *Techné* vol. 13 no. 2 (Spring, 2009a): 93-107.
- . "Realism and Artifact Kinds." In *Functions in Biological and Artificial Worlds*, eds. Krohs and Kroes, 185-202. Cambridge: MIT Press, 2009b.
- Song, Chris, Director. *Bob's Burgers*, "Bob Actually", Season 7 Episode 9. United States, Fox Broadcasting: 2017.
- Southwood, Nicholas and Lina Eriksson. "Norms and Conventions" *Philosophical Explorations* vol. 14 no. 2 (June 2011): 195-217.
- Sperber, Dan. "Seedless Grapes: Nature and Culture." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 124-137. Oxford: Oxford University Press, 2007.
- Stecker, Robert. *Artworks: Definition, Meaning, Value*. University Park, PA: Pennsylvania State University Press, 1997.
- . "Methodological Questions About the Ontology of Music" *Journal of Aesthetics and art Criticism* vol. 67 no. 4 (2009): 375-386.
- Suits, Bernard. *The Grasshopper: Games, Life, and Utopia*. Boston: D. R. Godine, 1978.
- Sveinsdóttir, Ásta Kristjana. "The Social Construction of Human Kinds" *Hypatia* vol. 28 no. 4 (Fall, 2013): 716-732.

- Taborda, Hernando and Erik W. Cheries. "Developmental Origins of Biological Explanations: The Case of Infant's Internal Property Bias" *Psychonomic Bulletin and Review* vol. 24 (2017): 1527-1537.
- Thomasson, Amie. "Artifacts and Human Concepts." In *Creations of the Mind*, ed. Eric Margolis and Stephen Laurence, 52-73. Oxford: Oxford University Press, 2007a.
- . "Artifacts in Metaphysics." In *Philosophy of Technology and Engineering Sciences*, ed. Meijers, 191-212. Holland: Elsevier, 2009.
- . "Debates about the Ontology of Art: What are We Doing Here?" *Philosophy Compass* vol. 1 no. 3 (2006): 245-255.
- . "Existence Questions" *Philosophical Studies* vol. 141 no. 1 (October, 2008): 63-78.
- . *Fiction and Metaphysics*. Cambridge: Cambridge University Press, 1999.
- . "Foundations for a Social Ontology" *Protosociology* vol. 18-19 (2003a): 269-290.
- . "Geographic Objects and the Science of Geography" *Topoi* vol. 20 no. 2 (2001): 149-159.
- . *Norms and Necessity*. Oxford: OUP, 2020.
- . "The Ontology of Art and Knowledge in Aesthetics" *Journal of Aesthetics and Art Criticism* vol. 63 no. 3 (2005): 221-229.
- . *Ontology Made Easy*. New York: OUP, 2015.
- . "The Ontology of Social Groups" *Synthese* vol. 196 no. 12 (2016): 4829-4845.
- . *Ordinary Objects*. Oxford: Oxford University Press, 2007b.
- . "Public Artifacts, Intentions, and Norms." In *Artefact Kinds: Ontology and the Human-Made World*, ed. Maarten Franssen et al., 45-62. New York: Springer, 2014.
- . "Realism and Human Kinds" *Philosophy and Phenomenological Research* vol. 67 no. 3 (November, 2003b): 580-609.
- Thomson, Judith Jarvis. *Normativity*. Chicago: Open Court, 2008.
- Tuomela, Raimo. *The Philosophy of Social Practices: A Collective Acceptance View*. Cambridge: Cambridge University Press, 2002.
- . *The Philosophy of Sociality: The Shared Point of View*. New York: Oxford University Press, 2007.

- Ullmann-Margalit, E. *The Emergence of Norms*. Oxford: Clarendon Press, 1977.
- Van Inwagen, Peter. *Material Beings*. Ithaca: Cornell University Press, 1990.
- . “Meta-Ontology.” In *Ontology, Identity, and Modality*, 13-31. Cambridge: Cambridge University Press, 2001.
- Verbeek, B. *Instrumental Rationality and Moral Philosophy: An Essay on the Virtues of Cooperation*. Dordrecht: Kluwer Academic Publishers, 2002.
- Vermaas, Pieter E. “On Unification: Taking Technical Functions as Objective (and Biological Functions as Subjective).” In *Functions in Biological and Artificial Worlds*, eds. Krohs and Kroes, 69-87. Cambridge: MIT Press, 2009.
- Vermaas, Pieter E. and Wybo Houkes. “Ascribing Functions to Technical Artifacts: A Challenge to Etiological Accounts of Functions” *British Journal for the Philosophy of Science* vol. 54 (2003): 261-289.
- Vianello, Andrea. “Courtly Lady or Courtesan? The Venetian Chopine in the Renaissance.” In *Shoes: A History from Sandals to Sneakers*, ed. Giorgio Riello and Peter McNeil, 76-93. New York: Berg, 2006.
- Wahlberg, Tobias Hansson. “Institutional Objects, Reductionism and Theories of Persistence” *Dialectica* vol. 68 no. 4 (2014): 525-562.
- Weitz, Morris. “The Role of Theory in Aesthetics” *Journal of Aesthetics and Art Criticism* vol. 15 (1956): 27-35.
- Wiggins, David. *Sameness and Substance Renewed*. Cambridge: Cambridge University Press, 2001.
- Wilcox, John. “The Beginnings of L’Art Pour L’Art” *Journal of Aesthetics and Art Criticism* vol. 11 no. 4 (June, 1953): 360-377.
- Wittgenstein, Ludwig. *Philosophical Investigations*. P.M.S. Hacker and Joachim Schulte, eds. and trans. Oxford: Wiley-Blackwell, 2009.
- Wright, Crispin. *Truth and Objectivity*. Cambridge, Massachusetts: Harvard University Press, 1992.
- Xhignesse, Michel. “Failures of Intention and Failed Art” *Canadian Journal of Philosophy* vol. 50 no. 7 (2020a): 905-917.
- . “What Makes a Kind an Art Kind?” *British Journal of Aesthetics* vol 60 no. 4 (October, 2020b): 471-488.

Zimmerman, Dean. "The Constitution of Persons by Bodies: A Critique of Lynne Rudder Baker's Theory of Material Constitution" *Philosophical Topics* vol. 30 (2002): 295-338.

Zvolenszky, Zsófia. "Fictional Characters, Mythical Objects, and the Phenomenon of Inadvertent Creation" *Res Philosophica* vol. 93 no. 2 (April, 2016): 311-333.