Generalism – A Philosophical Analysis

Alexander Heath Jackson

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Summary

In modern society, can people viably be generalists, who translate information, methods, and techniques from external disciplines to improve their own? This thesis considers arguments from writers in the tradition of social theory like Smith, Hegel, and Durkheim, which claim that professional specialisation is an inherent feature of modern society because of its productivity and its role in socially integrating and developing the personality of individuals. This makes generalist positions appear unviable. Against this, the thesis highlights several issues with specialisation and the arguments supporting it, most notably overspecialisation, which presents specialisation as sometimes harmful to the factors it supposedly benefits, such as productivity, personality, and social integration. A taxonomy of different modes of work is then presented, to analyse potential alternative ways for work to function in modern society. This leads to the presentation of a model of generalism which translates methods and knowledge from one specialisation into another. It is compared to other modes of work and its benefits are highlighted. The thesis concludes with recommendations for how to make this kind of generalism useful within modern society and broaches the normative implications of doing so.

Statement of Originality

This is to confirm that this work has not been previously submitted to any university for a degree or diploma. To the best of my knowledge, this thesis does not contain any material previously published by others except where due reference has been made.

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Introduction

Can one work as a generalist, someone who translates extra-disciplinary knowledge and techniques to fulfil needs in their own discipline? Can generalism be viable in modern society? Initially the answer seems to be negative. Many arguments made by philosophers in the tradition of social theory seem to tie modern economies to specialisation and to exclude generalism. Specialisation in this thesis means restricting one's work to one sector of economic activity in the division of labour. However, closer examination of these arguments reveals problems with specialisation. Closer consideration of generalism shows that it can be both viable and helpful for remedying specialisation's shortcomings. However, for generalism to gain the support it needs to remedy those consequences and exist more broadly, it would need to be recognised and have its place within the social order.

The method I use in this thesis is twofold.

Firstly, I am reviewing classical arguments about specialisation and the division of labour from social theory, a discipline which seeks to describe the parameters, functions, and structures of modern society[1]. This involves critically analysing arguments from texts by theorists such as Smith[2], Hegel[3], and Durkheim[4], who argue that specialisation is a necessary condition for society to function and for individuals to exist in it. According to these arguments, generalism would not be viable, it would be unable to function within the structures of modern society. Chapter 1 presents these arguments to understand why generalism appears unviable. Chapter 2 analyses these arguments and shows that specialisation has problems which cast doubt on these arguments.

Secondly, I defend the advocacy of generalism through a taxonomy and analysis of modes of work in chapter 3. This taxonomy facilitates the examination of different kinds of work, different ways of marrying specialist and general skills, and their viability. The taxonomy is presented in the form of a table and discussion. The table enables the easy comparison and analysis of the distinguishing features of generalism, specialisation, and other modes of work. Since the table does not capture all the aspects of these modes,

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[1] When I refer to "society" or "modern society" in this thesis, I am referring primarily to western, capitalist, industrialised, liberal democracies. Referring to alternative systems would exceed the scope of this thesis.
[2] Smith, *The Wealth of Nations*.
[3] Hegel, *Elements of the Philosophy of Right*.
[4] Durkheim, *The Division of Labor in Society*.

an analysis follows the table, which reveals that even within the parameters of society as defined by these social theorists, there is a kind of generalist which can viably function, and who can even help remedy some of specialisation's shortcomings.

The normative implications of this analysis are drawn out in the conclusion, leading to an advocacy of generalism as something which needs recognition.

Chapter 1

An initial examination of literature about specialisation and the division of labour gives the impression that generalism is impractical or impossible. The arguments for specialisation make generalism appear unviable and deleterious to society[5] and individuals. The arguments appear in classical texts of social theory like Adam Smith's *Wealth of Nations*, Durkheim's *The Division of Labour in Society*, and passages from Hegel's *Elements of the Philosophy of Right*. This chapter will outline significant portions of these arguments for specialisation and analyse why they make generalism appear unviable. These arguments will be criticised in the next chapter.

This chapter analyses three of the main kinds of arguments for specialisation: the productivity, social integration, and personality arguments. These arguments claim that one must specialise because specialisation is productive and is also the means for social integration and personality development. I will present these arguments and examine their consequences as if they were my stance to show their implications for advocates of generalism.

Productivity

The premise of the productivity argument is that society requires a certain level of productivity to develop, sustain itself, and flourish. This is because specialisation creates wealth. For the purpose of this thesis, wealth is generally assumed to be good for society and people in it, because wealth comprises the material conditions necessary to improve one's welfare and fulfil one's needs. I refrain from discussing these problematic implications here, as it would exceed the scope of my argument. The level of productivity necessary to create the wealth which allows society to develop, sustain itself, and flourish has been (and continues to be) met through specialisation in the division of labour. Therefore, one must specialise or accept regression. Following this, advocating generalism is either absurd or impossible. There are four heavily interrelated modes of the productivity argument that promote the individual's obligation to specialise.

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[5]As mentioned in the introduction, while it is problematic to do so, "society" when used in this paper refers to western, capitalist, industrialised, liberal democracies.

Technical mode

The technical mode of the productivity argument claims that specialisation leads to technical progress, which increases productivity and wealth. Since productivity and wealth are assumed to be necessary conditions of social development, specialisation, as a condition of increased productivity, is itself a necessity. The technical mode largely details the technical aspects of specialisation and the division of labour, which increase productivity. Though it does not make explicit the normative obligations to specialise, these features are used by the other modes of the productivity argument as evidence for that obligation.

Historical mode

The historical mode asserts that specialisation was used by society to progress[6] as a historical fact[7]. To go back on specialisation would therefore be absurd and is impossible as it would mean revoking the course of history. To promote generalism would be to accept regression. Therefore, one must specialise, because modern society has historically relied on specialisation and continues to do so.

Analytical mode

The analytical mode examines specialisation through the analytically embedded concept of need-fulfilment as it appears in Hegel's *Elements of the Philosophy of Right* (§182-207). It posits that the logic inherent in need-fulfilment leads to and in turn requires increasing specialisation. Individuals cannot fulfil all their needs by themselves. Therefore, specialisation is instrumentally necessary as increased productivity allows individuals to fulfil their needs through trading their increased wealth. Specialisation also leads to the creation of the social institutions and systems necessary to facilitate further

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[6] "Progress" in this case involves technical progress and increased wealth generation. While this term is problematic due to its Eurocentric assumptions, this thesis' boundaries extend to western liberal democracies, as discussed in the introduction, which have been influenced by these authors advocating specialisation. While the examination of the term "progress" would reveal many pertinent flaws, doing so it outside the scope of this thesis.

[7] "History" is also problematic for similar reasons to the term "Productivity". For this thesis, the term "history" is referring to these writers' understanding of history represented in their literature.

increases in productivity, such as markets and professions. Therefore, individuals have a duty to specialise since it is the only logically the way in which they can fulfil their needs through fulfilling others' needs.

Normative mode

The normative mode of the productivity argument makes explicit the normative aspects of the other modes, thereby stating the normative reasons for the obligation for individuals to specialise. This include reasons such as society's progress being contingent on the productivity specialisation generates and the duty to specialise because specialisation is necessary for need-fulfilment. These reasons both necessitate specialisation and leave no room for generalism.

These modes interrelate, creating more complex expressions of the productivity argument for specialisation. This section highlights two significant accounts advocating the productivity argument: Smith's account of the division of labour in *Wealth of Nations*, and Hegel's account of need-fulfilment in *Elements of the Philosophy of Right*. Smith's account primarily focuses on the core technical features of specialisation along with some historical reasons for specialisation, while Hegel's account primarily focuses on the analytical and normative modes which promote specialisation. Hegel's explanation of the instrumental necessity of specialisation and the social characteristics of the division of labour bridges the productivity argument and the socially focused arguments for specialisation.

Smith's account of the division of labour

Smith's account of the division of labour in *The Wealth of Nations* outlines many of the technical aspects of the productivity argument, along with some historical examples of increased productivity. While these aspects largely do not explicitly state the normative obligations to specialise, these normative aspects are extrapolated to reveal specialisation's problems.

Historically, the division of labour has increased productivity wherever it has been observed[8]. As further negative evidence, Smith argues that the lack of increased

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[8] Smith, *The Wealth of Nations,* 9-11.

productivity in agriculture in his time was caused by a lack of the division of labour[9]. Smith posits that it is difficult to divide the process of farming to make its parts occur concurrently because they are seasonally dependent[10]. This historical understanding makes non-specialised work seem comparatively and unpalatably unproductive. Therefore, one must specialise.

The aspects of specialisation which cause an increase in productivity all stem from the division of labour, where operations are divided into parts, distributed among workers, and refined and simplified through division in the labour process[11]. As a process is divided into parts that will each be practised by individuals exclusively, certain elements of that process become unnecessary for the individual to perform in their occupation, such as the other parts of the process[12]. These unnecessary elements no longer need to be practised by the individual. This simplifies and refines work, making it more productive. There are three main features of specialisation which Smith highlights for their productive power: the resulting increase in skill[13], the removal of the gap in the day while switching tasks[14], and the invention of machines and optimisations by specialists[15].

Increased skill

Smith recounts that the pinmaking process was divided into drawing the wire, straightening it, giving it a head, and so on, with each of these parts becoming the jobs of individual workers[16]. In doing so, each part was simplified and the pinmaker's "dexterity" and efficiency in their task was increased, because their work was concentrated to solely practising it[17]. A worker whose job is focused on a small task develops their skill at it such that they become more productive by orders of magnitude. Specialised nailmakers, Smith says, could make 2300 nails each in a day, whereas a general blacksmith, who is not specialised in nailmaking, would struggle to make a thousand[18]. Without specialisation, the level of productivity enjoyed in modern life would be extremely

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[9] Smith, 11.
[10] Smith, 11–12.
[11] Smith, 13.
[12] Smith, 10.
[13] Smith, 13.
[14] Smith, 14.
[15] Smith, 15.
[16] Smith, 10.
[17] Smith, 13–14.
[18] Smith, 13–14.

difficult, if not impossible, to accomplish, and therefore one ought to specialise, given that productivity is a necessary condition of modern life.

Reduction of the gap in the day

Division of the labour process reduces a cause of lost productivity through removing the "gaps in the day"[19] where workers move between different parts and spaces in the labour process. When workers change their task, they must adjust to using a different set of skills and materials. This adjustment impedes a worker's productivity because it affects their speed and quality of work[20]. Smith claims that the habit of switching tasks enculturates a "slothful and lazy" attitude, because the constant switching of tasks disrupts optimal performance[21]. While the claims of slothfulness may be questionable, modern research on multitasking reveals that switching between tasks does reduce the performance of both tasks[22]. In specialised work, the time and quality sacrificed by switching tasks is reduced, making it more productive.

Optimisation of techniques and tools

As individual workers spend more time on their specific process, they are more likely to experiment with and optimise methods and tools which make their work more efficient, more productive, or easier to perform[23]. For example, Smith recounts the story of a boy who used to be employed to open and close a hatch on a 'fire engine'[24]. He discovered that he could tie the hatch to a part of the machinery so it opened and closed automatically, allowing him to expend his energy elsewhere[25]. A worker whose work involves the whole process rather than a divided part is less likely to improve any given part than when all parts are exclusively attended by specialists[26]. As such, specialisation tends towards technical progress and increased productivity. Since non-specialised work is unlikely to achieve the same levels of technical progress and subsequent increases in productivity, one ought to specialise.

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[19] Marx, *Capital*, 1: Chapter 14, §2.
[20] Smith, *The Wealth of Nations*, 14.
[21] Smith, 14–15.
[22] Harvard Health Commentaries, "The Myth of Multitasking"; "Multitasking: Myth? Necessity?"; Miller and Durst, "'Just Do It When You Get a Chance.'"
[23] Smith, *The Wealth of Nations*, 15.
[24] Probably a steam engine
[25] Smith, *The Wealth of Nations*, 15–17.
[26] Smith, 15.

While the examples used are for manufacturing, similar principles can apply to knowledge work and disciplines in the broader sense also. Doctors become skilled in medicine because of their persistent focus on it. Similarly, disciplinary techniques and frameworks can be developed in the same manner as developing tools. Such techniques can even be automated through programs and applications. Specialisation's logic involves technical features which increase productivity to the point where other kinds of work are often considered productively inferior and unviable when specialisation is a possible option. Therefore, to gain the benefits of increased wealth, individuals must specialise.

Specialisation as inherent in need-fulfilment

Rereading Smith allowed us to identify some of the technical and historical reasons for why specialisation is productive and therefore considered necessary. However, a deeper explanation of specialisation's technical structure and analytical necessity can be found in Hegel's account. Hegel largely draws on the historical and analytical modes, which cast specialisation both as the historical mechanism for societal progress and as a necessary result of the logic of need-fulfilment. An individual cannot fulfil all their needs alone[27]. Therefore, the individual must fulfil the needs of others, who they in turn rely on to fulfil their needs[28]. Needs and the means to fulfil them divide and multiply[29], which, coupled with the social dimension of need fulfilment, gives rise to the social systems and institutions dedicated to production for consumption, including the division of labour, without which fulfilling one's needs would be difficult or impossible[30]. As such, to fulfil one's own needs, one must specialise.

Needs divide and multiply

In Hegel's account, the logic of needs and their fulfilment necessarily leads to specialisation because of the innate tendency of needs to divide and multiply. Animal needs are different from human needs. One difference is in quantity: Humans have more needs because they can multiply them, as the means to fulfil needs themselves become needs[31]. Another distinction is that human needs become increasingly specialised and

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[27] Hegel, *Elements of the Philosophy of Right*, §182–83.
[28] Hegel, §182–83.
[29] Hegel, §198.
[30] Hegel, §197.
[31] Hegel, §190.

refined as they are multiplied[32]. To fulfil all these needs, specialisation develops for its productivity and to meets the specialised demands of the needs. Needs and means divide and multiply because the means themselves become needs[33]. For each division, techniques, tools, and specialisations naturally develop to increase efficiency. For example, food was once prepared with a sharpened rock. Yet in the modern day, it is the sole occupation of some to create different specialised cooking knives. After the efficiency of knives was demonstrated, preparing food without them became unimaginable, and therefore knives themselves became a need. However, because it is a need, it can be specialised, divided and multiplied to fulfil certain needs more productively, leading to paring knives, cheese knives, and carving knives, each a need itself. Techniques specialise, developing and changing the means to fulfil these needs, while the means themselves become needs. This cyclical relation produces continual specialisation. To fulfil all these needs requires specialisation, since the logic of need-fulfilment necessitates it. To turn one's back on specialisation would be like regressing to a state before knives.

The creation of new needs poses a problem for the concept of the productivity argument. If the purpose of the division of labour was to fulfil needs, it would not create more needs. This indicates that the division of labour performs a more important, social, function. However, the creation of new needs does not contradict the fulfilment of needs, as it increases the productive fulfilment of other needs.

Basic needs have a social component which becomes increasingly important, often largely taking over from the basic core of the need[34]. Needs are influenced by one's character, opinions[35], and desires to stand out and fit in[36]. The need for clothing can be fulfilled in a variety of ways[37], so some people dress in novel or unique ways to stand out, then others copy them to fit in[38], which increases the production and technical development of that kind of clothing. Those dressing to stand out then search for new ways to dress, leading to the development of more specialised sewing techniques,

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[32] Hegel, §191.
[33] Hegel, §191.
[34] Hegel, §194.
[35] Hegel, §194.
[36] Hegel, §193.
[37] Hegel, §192.
[38] Hegel, §197.

continuing this cyclical development. Despite more needs being created, this system leads to more technical development and subsequent productive need-fulfilment.

The social dimension of the division of labour and social institutions

Needs have another social dimension encompassing the social systems necessary to productively fulfil needs. Since one relies on others to fulfil their needs, specialisation's productivity becomes necessary. The social dimension of need-fulfilment and specialisation gives rise to social institutions, such as disciplines and corporations, which enable more productive need-fulfilment[39]. To enable this system of need-fulfilment, one must specialise.

The logic of needs strongly promotes socialisation. A dam cannot be built alone. Nor can one fulfil all their most basic needs alone; the fulfilment of one's needs requires the labour of others and the material goods their labour produces[40]. In this way, specialisation increases interdependence and reciprocity[41], tying the individual's welfare to the welfare of others, as they depend on others productively fulfilling their needs[42].

Hegel's understanding of specialisation as an interdependent social system leads to the emergence of social institutions. Estates are sectors of the economy doing the same type of work[43]. These social institutions are categorised by Hegel into three estates[44]: the "substantial" estate involves primary industries like agriculture and mining[45], the "formal" estate involving industry, manufacture, and merchants[46], and the universal estate, which include the public service, law, and knowledge work that manages the other estates to ensure they fulfil the needs of society holistically[47]. Each of these estates is vital to society's system, and specialisation is a necessary condition for their existence, since each estate fulfils particular productive functions. A society without specialisation would have extremely limited capacity to fulfil needs.

The claim that social institutions rely on specialisation is not restricted to philosophy. Several historians have identified that the administrative framework around

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[39] Hegel, §188.
[40] Hegel, §183, §192.
[41] Hegel, §198.
[42] Hegel, §183.
[43] Hegel, §188.
[44] Hegel, §202.
[45] Hegel, §203.
[46] Hegel, §204.
[47] Hegel, §205.

specialisation was a key component in state formation[48]. This framework could only become sustainable because of specialisation's productivity in fulfilling others' needs, which reciprocally allowed more people to specialise. As such, specialisation made individuals productive enough to enable them to fulfil other needs better.

Institutions created by specialisation, after a time, become the only way through which one can fulfil needs by becoming socialised in one of them. The system to fulfil needs is built around those institutions, which are themselves based in specialisation[49]. Each discipline, as a group of knowledge and techniques that fulfils a specific area of need, has its own practical and general (theoretical) education[50]. General education involves understanding the complex general relations between the types of knowledge involved in one's occupation, whereas practical education involves practicing the activities which fulfil others' needs through work, which allows individuals to apply their specialised skills in a variety of ways[51]. In order to have a relevant education and learn valuable skills, one must specialise, since education and skill development are directly tied to specialisation.

The social elements of the division of labour indicate that the fulfilment of needs is not its only role. As the next sections discuss, specialisation is the means for individuals to achieve social integration and develop personality. Even without the productivity argument, these arguments give strong reasons why one must specialise. Any of these alone is enough reason to specialise.

Social Integration

The social integration argument claims that one must specialise in order to be fully integrated into society[52]. This section uses Durkheim's account of the division of labour, which builds on the social elements in Hegel's account. There are several reasons why specialisation is the means to integrate into modern society. Specialisation cultivates interdependence. Furthermore, specialised work is the basis for individual rights and duties which ensure that needs are fulfilled and social solidarity is achieved[53]. Therefore,

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[48] Stevenson, "The Egyptian Predynastic and State Formation"; Köhler, "Theories of State Formation."
[49] Hegel, *Elements of the Philosophy of Right*, §206.
[50] Hegel, §197.
[51] Hegel, §197.
[52] Durkheim, *The Division of Labor in Society*, 401.
[53] Durkheim, 399–400.

to be a generalist would involve being outside of these systems of social integration, and a generalist would lack rights, duties, and solidarity.

A lack of social integration is detrimental to individuals for two reasons. Firstly, isolation and loneliness will negatively impact the individual, who has no capacity to meaningfully be involved with, benefit from, and contribute to society in a social sense. Secondly, the lack of social integration also inhibits one's ability to fulfil all their needs, as discussed in the previous section. As such, this thesis treats social integration as necessary for individuals to flourish.

Interdependence

The division of labour is often claimed to be beneficial because it promotes interdependence[54]. Interdependence is not an argument per se, it is a state of society. Yet, it warrants explanation because the social integration arguments rely on it. Interdependence is mutual dependence, which exists naturally since individuals cannot fulfil all their needs alone[55]. It is magnified, but also fulfilled, through the division of labour and specialised work. Interdependence refers to the magnified for in this thesis.

The necessary interdependence entailed in the division of labour is what gives it its social functions. Interdependence through specialisation is argued to be the basis of rights and duties,[56] solidarity[57], morality[58], and personality[59]. These features require specialisation to be benefitted from.

Rights and duties

Specialisation allows individuals to be integrated into society's systems[60] because these systems are founded on the division of labour. Thus, one must perform the role of an "organ" in the social body, performing specialised, restricted, tasks, so that they can contribute to society and receive benefits in turn[61]. If individuals refuse to fulfil

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[54] Durkheim, 401.
[55] Hegel, *Elements of the Philosophy of Right*, §189.
[56] Hegel, *Elements of the Philosophy of Right* §192, §197, §199; Durkheim, *The Division of Labor in Society,* 406.
[57] Durkheim, *The Division of Labor in Society*, 400.
[58] Durkheim, 408.
[59] Durkheim, 402.
[60] Durkheim, 401.
[61] Durkheim, 403.

specialised functions, they will not be part of the system which cares for them and they will suffer the consequences of lacking social integration.

Because individuals rely on others to fulfil their needs, they are duty-bound to specialise so they can be part of the social structures which fulfil their needs[62]. By performing these duties, an individual is recognised by others, granting rights and support. If one does not specialise, they are not granted the duties and rights which are necessary to participate in society. This duty held such importance for Durkheim that he treated it as a new categorical imperative: "Make yourself usefully fulfil a determinate function"[63]. The importance of the division of labour is not simply in instrumental need-fulfilment; the social functions it performs are just as, if not more, important[64].

While social contributions seem to be a logical basis for duties and rights, the emphasis that Hegel and Durkheim place on the exclusivity of work is noteworthy. To them, an individual's duties are to fulfil determinate functions[65] in one exclusive sphere of need[66]. Hegel's reason for why specificity is necessary is that something must be particular to be substantially real[67]. One cannot fulfil 'needs in general', nor can one be a 'person in general', one must be a specific person fulfilling specific needs as a matter of practicality. Without the specificity provided by specialisation, one is only a "private person", someone who does not participate in the system to fulfil needs, and hence is not integrated into society[68]. Specialists understand the need for self-limitation because of these reasons, and therefore understand their place in society[69]. Therefore, one must specialise if they wish to be socially integrated in society's systems, which are built on specialisation.

Durkheim's reason for why one must perform restricted, specific work is because individuals play the role of an organ in society's body[70]. The liver performs its function and not any other. No other organ performs the liver's function. It supports the body by performing its specific function efficiently, and the body in turn supports it. In a similar fashion, individuals play specific roles which support the rest of society and are in turn supported. The organs of society, the divisions of labour, are arranged by rules which are

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[62] Hegel, *Elements of the Philosophy of Right*, §207.
[63] Durkheim, *The Division of Labor in Society*, Introduction, 43.
[64] Durkheim, 173.
[65] Durkheim, Introduction, 43.
[66] Hegel, *Elements of the Philosophy of Right*, §207.
[67] Hegel, §207.
[68] Hegel, §207.
[69] Hegel, §207.
[70] Durkheim, *The Division of Labor in Society*, 403.

created by society collectively[71]. These rules are a complex system of markets, laws, and behaviours, rules, and institutions, which collectively balance how the organs interact, relate, and function together. Because these rules are created by society collectively, they will not be harmful to the individuals in it, Durkheim claims[72]. Therefore, one must not overstep the boundaries those rules set, instead fulfilling specific duties and gaining specific rights. However, if the individual fails to specialise and be irreplaceable to society, society will not support them.

As such, individuals must specialise to integrate into society, because the rights and duties which do so are based on specialisation. Individuals who do not specialise do not participate in society, which, as the next section explains, leads to their lacking solidarity.

Solidarity

According to Durkheim, organic solidarity can only be achieved through the division of labour. Durkheim details two kinds of solidarity: mechanical solidarity which comes from conformity, similarity, and tradition[73], and organic solidarity which comes from mutual interdependence through individuality[74]. Durkheim claims that mechanical solidarity comes from repressive laws which restrict individual freedom, while organic solidarity leads to restitutive laws which increase both individual freedom and social integration[75]. Organic solidarity is achieved through individuals playing the role of the organ as described above[76]. To achieve this solidarity, one must specialise; if someone lacks specialisation, Durkheim claims, their bonds to society will become loose[77].

Mechanical solidarity arises from repressive laws and is formed through social homogeneity. Societies with less division of labour have a strong collective conscience, Durkheim claims[78]. The collective conscience is the collection of beliefs, thoughts and habits common to everyone in a society. It pervades the whole society, establishing solidarity through conformity, despite differences in class. It creates a shared group identity by repressing anything which offends or challenges it, including anything

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[71] Durkheim, 407.
[72] Durkheim, 407.
[73] Durkheim, 70.
[74] Durkheim, 111.
[75] Durkheim, 398.
[76] Durkheim, 403.
[77] Durkheim, 402.
[78] Durkheim, 133.

individual or counter-cultural[79]. Solidarity is created through repressive laws which punish difference, creating a society where the individual's duty is to restrict their individual aspects and conform to society to achieve solidarity.

When the division of labour in a society is weak, the collective conscience is strong, as everyone shares more concrete, specific aspects than in a society with a greater division of labour. However, in societies with greater levels of the division of labour, the collective conscience is weakened and more abstract because of the individuality which specialised work provides. This leads to a weakening in ties to family, country, and tradition[80]. Thus, morality and solidarity require a new basis. Durkheim believes that the new basis of solidarity is the division of labour, as the division of labour provides solidarity through making individuals aware of their interdependence[81]. This interdependence does not come from mere economic exchange, it comes from the "durable system of rights and duties" it creates[82]. Individuals are irreplaceable to society because they fulfil specific needs. Therefore, each can strive to be the best in their field while supporting others to do the same, rather than everyone competing for the same goals, making individuals colleagues rather than rivals[83]. In these societies, individuality deepens one's bond to society rather than weakening it. These societies create restitutive restorative laws rather than punitive laws. Therefore, to achieve this kind of society and gain organic solidarity, one must fulfil specific needs through specialisation. "The ideal of human fraternity can be realised only in proportion to the progress of the division of labour", Durkheim claims[84]. Thus, people must collectively specialise and contract their horizons, or abandon this ideal.

Honneth expands on the claim that specialisation is necessary to achieve social integration and solidarity through his concept of recognition. In the third sphere of recognition, individuals are recognised through how their accomplishments in the division of labour fulfils society's needs[85]. Recognition creates solidarity because individuals are depended upon for their individual characteristics[86]. By being recognised as contributing to society's goals, individuals are granted material and social goods which

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[79] Durkheim, 98.
[80] Durkheim, 400.
[81] Durkheim, 400.
[82] Durkheim, 406.
[83] Durkheim, 276.
[84] Durkheim, 406.
[85] Honneth, *The Struggle for Recognition*, 89.
[86] Honneth, 121.

support them; these may include social insurance, pensions, education, political support, and symbolic goods like social appreciation and status[87]. Recognition in this form allows individuals to recognise themselves as "irreplaceable" to society[88], because they are valued and needed by society for their specific contributions towards society's goals[89]. However, this recognition can only come about through specialisation, so generalists would not gain solidarity, receive this support, and be able to relate to their concrete characteristics.

Personality

Durkheim argues that the development of a substantial personality requires specialisation. Personality refers here to the content of mental life. This includes one's identity, self-perceptions, and mental capacities to think and do things which reflect and express their individual identity. Individual parts of one's mental life are key components in resisting the influence of collective conscience, which otherwise restricts anything which differs from the norm and prevents the development of substantial personality. As such, to develop substantial personality, one requires the specificity that specialisation provides. Specialisation provides individuals with specific, individual knowledge and techniques which distinguish them from others and allows them to approach the world differently. Therefore, if the capability to develop substantial personality is to be preserved, individuals must specialise.

Specificity to develop substantial personality

Durkheim claims that collective conscience, even in its weakened state, will overwhelm and unconsciously influence the personality of anyone who lacks specificity from specialisation[90]. "To be a person means to be an autonomous source of action", Durkheim claims[91]. If an individual does not possess something empirical and concrete which is theirs and theirs alone, then their mental life only consists of repeating the same mental content shared by everyone else in society the collective conscience. Because that individual lacks anything individual and therefore outside the collective conscience, they

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[87] Honneth, 125.
[88] Honneth, 89.
[89] Honneth, 122.
[90] Durkheim, *The Division of Labor in Society*, 404.
[91] Durkheim, 403.

would be unable to understand its influence or think original thoughts. Collective conscience cannot influence something which is individual (except to suppress it) since for something to be part of the collective conscience, it must be shared, and thus not individual.

Specialisation is the means to gain these specific capacities as specialisations are not shared by others and are thus not subject to collective conscience[92]. Individuals can each strive to distinguish themselves through developing their specialisation, making them more unique and individual. These individual tools, frameworks, practical knowledge, and approaches become a foundation for a substantial personality, which lets them step outside the influence of the collective conscience and understand it.

Durkheim criticises non-specialists, calling them "dilettantes", as they only dabble in work without developing the substantial understanding of anything specific, which would let them break free from collective conscience[93]. Their mental lives consist of reproducing the collective conscience, which supplants their autonomy[94]. Non-specialists cannot resist this process because they have nothing individual to them. Instead, they fall into a "more or less refined egotism"[95], Durkheim claims. Their freedom is only apparent, and their personality is borrowed[96]. Following these arguments, to develop substantial personality, one must specialise to gain specificity.

A weakened collective conscience

Not only is specificity necessary for individuals to resist the collective conscience, it also weakens the collective conscience itself. Strong collective conscience is hostile to personality[97]. Specialisation creates a social structure which requires and develops individuality rather than limiting it, which weakens collective conscience. While a weaker collective conscience may initially lead to diminished solidarity and weaker ties to society (because of increased individual liberties)[98], the increased personality from specialisation increases interdependence and becomes part of the new source of solidarity[99].

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[92] Durkheim, 403.
[93] Durkheim, 402–3.
[94] Durkheim, 403–4.
[95] Durkheim, 402.
[96] Durkheim, 404.
[97] Durkheim, 402.
[98] Durkheim, 400.
[99] Durkheim, 406.

The collective conscience is weaker in societies with a greater division of labour, because they become larger and more diverse[100]. Diversity leads to less mental content being shared among all. As such, the shared content, the collective conscience, becomes more abstract and less concrete, entailing concepts and ideals. The abstract nature of the collective conscience makes it less able to influence and restrict an individual's concrete behaviour. This leads to fewer taboos and more individual freedoms[101]. Specialisation is what leads to this level of diversity in content and activity, along with the individual freedoms necessary for self-development.

However, the collective conscience remains pervasive even in highly individualist societies, despite being checked by specialisation[102]. Individuals still require individual mental lives to develop their individuality. If an individual lacks specificity from specialisation, they will not have enough individual content to be substantially different from the collective conscience to break free of its influence.

Following the reasons above, for individuals to be able to substantially develop their personality, they must specialise. This is because specialisation provides them with specific individual characteristic with which to develop their personality. If individuals fail to specialise, they will become unable to see how their thoughts and actions are influenced.

Chapter Conclusion

If one is to advocate generalism in any form, these arguments for specialisation present formidable problems. They lead to the conclusion that generalism is unviable, regressive, lacking in social integration and personality development, or even plainly impossible. However, these arguments also have their shortcomings, errors, counterarguments, and mitigations, which will be explored in the next chapters.

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[100] Durkheim, 147.
[101] Durkheim, 400.
[102] Durkheim, 404.

Chapter 2

This thesis will argue that generalism is a viable mode of work, because of its ability to translate information, methods, and techniques from one field to another. To do so, it must first address the arguments for specialisation discussed in the previous chapter, which contain points against generalism. This chapter aims to address these by showing their flaws, casting doubt on their claims, and arguing that specialisation may not be all it is claimed to be. These counterarguments align with the structure of the overspecialisation argument, which suggests that specialisation is less productive, less socially integrative, and less personality-forming than it is claimed to be; it may even be counterproductive in these aspects. Thus, this chapter lessens the normative obligation to specialise imparted by the arguments for specialisation (as presented in chapter 1), and in doing so creates a space where generalism could be theoretically viable.

The counterarguments casting doubt on the arguments for specialisation mainly take two forms. The first form analyses the arguments for specialisation, debunking or casting doubt on them by revealing that they contain factual or conceptual errors. The second form argues that not only are the arguments for specialisation incorrect, specialisation is in fact pathological[103] on the micro (individual), meso (small groups), and macro (society as a whole) levels.

The structure of the chapter follows the structure of the overspecialisation argument, while the two kinds of counterarguments are used when appropriate within it. The overspecialisation argument has strong historical roots, featuring in Marx's *Capital* (Chapter 14) and *Poverty of Philosophy* (Chapter 2), as well as alongside the arguments for specialisation that appear in Smith's *Wealth of Nations*. The overspecialisation argument primarily identifies specialisation as pathological because it stunts productivity, reduces personal welfare, and inhibits social integration[104]. While I do not necessarily subscribe to the pathological view, the content of the overspecialisation argument raises counterarguments of the first kind, which allows a wide critique of the arguments for specialisation.

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[103] This thesis uses the term pathological to mean "something which is intrinsically damaging to society and individuals within it". This term is currently at the centre of a rich debate (see Laitinen and Särkelä, "Four Conceptions of Social Pathology"; Honneth, "Pathologies of the Social: The Past and Present of Social Philosophy"; Honneth, *Freedom's Right: The Social Foundations of Democratic Life*; Zurn, "Social Pathologies as Second-Order Disorders.").

[104] Smith, *The Wealth of Nations*, 870; Marx, *Capital,* Chapter 14.

This chapter presents the two forms of overspecialisation, the personal and disciplinary manifestations, through which specialisation's problems are identified and the arguments for specialisation are addressed as they each become relevant. Identifying specialisation's problems provides grounds to be sceptical of the arguments for specialisation. The counterarguments presented in this chapter are not necessarily true components of a new social ontology. Rather, this chapter claims that the arguments for specialisation are insufficient, and that specialisation should not be the sole mode of work.

Overspecialisation

Overspecialisation is, broadly, a state where a division in labour becomes too divided, specialisation too specialised, and a field overly optimised. This leads to individuals and disciplines becoming stunted, less productive, and less integrated[105]. As overspecialisation comes from the logic of specialisation itself, the supposed beneficial effects of specialisation can be doubted.

The overspecialisation argument naturally implies that specialisation, whether intrinsically or in certain forms, is pathological to both individual workers and disciplines, and therefore to society holistically. The overspecialisation argument is a negative argument – an argument against specialisation. Writers arguing for the overspecialisation argument are promoting the view that overspecialisation exists, and that specialisation is pathological, not that overspecialisation is good.

There are two major forms of overspecialisation, the personal manifestation and the disciplinary manifestation. The personal manifestation of overspecialisation is where overspecialisation negatively affects individuals' productivity, non-specialised capabilities, creativity, authority, social integration, and personality[106]; the effects on the micro level. The mechanisms which cause it are the separation of necessary from unnecessary processes in an occupation, the narrowing of disciplinary scope, and the decrease of a worker's authority over their work while increasing their dependence on others[107].

The disciplinary manifestation of overspecialisation reveals the effects of overspecialisation on the meso (disciplinary) and macro (societal) levels. This form

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[105] Marx, *Capital,* Chapter 14; Smith, 870.
[106] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §3, §5.
[107] Marx, *Capital*, 1: Chapter 14, §3.

involves disciplines becoming isolated, insular, and introverted, failing to collaborate and communicate with other fields, even those studying the same subjects[108]. Disciplines become stagnant and less productive, sometimes failing to fulfil the needs they once did[109]. This form, discussed after the first form, argues that specialisation can lead to disciplines becoming less socially integrated and less productive[110].

These forms of the overspecialisation argument cast doubt on the claims that specialisation is maximally productive[111], that specialisation is as beneficial as initially apparent, and that only specialisation can be productive enough to be a viable mode of work in modern society. Instead, specialisation is cast as detrimental to workers, disciplines, and society, in the productive, social, and individual senses.

Personal manifestation

The personal manifestation of overspecialisation reduces one's skill in their abilities not involved in their occupation, their creativity and capability to improve their discipline, and their authority in their craft, leading to stunted productivity, personality, and social integration[112]. Smith and Marx claim that this occurs because specialised work, after being refined and optimised, lacks varied activity, so one's capability to perform anything but their specific occupation's work decays as it remains unused[113]. Furthermore, the reduction of a worker's authority over the labour process stunts their ability to experiment, thereby impacting on the ability to increase productivity and express one's personality. This argument casts doubt on the claims that specialisation is maximally productive, that it is the primary mode of social integration, and that it develops personality.

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[108] Bohm, "On Communication"; Casadevall and Fang, "Specialized Science," April 2014; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."

[109] Habermas, "The Relationship Between Theory and Practice Revisited," 2003; Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012.

[110] Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."

[111] Productive here being defined as it was in chapter 1, entailing the quantity of the result of work, but also including quality, and efficiency.

[112] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §3, §5.

[113] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §5.

Diminished skill in non-specialised areas

As the adage goes, "Specialists know more and more about less and less, until they know everything about nothing at all"[114]. As part of specialisation's process of self-refinement, the "unnecessary" parts for production in an individual's work are separated from the necessary parts[115] (henceforth referred to as simply "separation" or "separation of the unnecessary"). Through this separation, specialisation diminishes the scope of the worker's practice. This makes the worker knowledgeable regarding a narrow area, but less practised outside it. Consequently, while specialisation expands their productive "dexterity"[116] in one dimension, it tends to diminish their abilities in other dimensions because "unnecessary" skills remain less (or un) practised, wasting away like unused muscles[117]. Specialisation, even if it leads to increased productivity in one aspect, diminishes one's abilities outside it and restricts personal development by making them 'unbalanced'[118].

Smith's example of pinmakers demonstrates the separation within a single specialisation. The pinmaking process was divided into drawing the wire, straightening it, and so on, with a single subdivision becoming the sole occupation of a workman[119]. This is for productive reasons, as the previous chapter explained. Marx explans that the historical progression of this separation goes as follows: many specialists perform one process simultaneously, then the process is split into parts, with each becoming the sole occupation of a labourer, who becomes isolated and dependent[120]. This division makes the other parts of the process unnecessary to the individual, so the individual's ability in them diminishes.

This same reduction occurs in fields that were once interdisciplinary, as Marx's example of carriage-making demonstrates. Carriage-making once brought together many disparate disciplines: locksmiths, upholsterers, carpenters, etc.[121]. When workers specialised in carriage-making as a full-time discipline, each craft split from its original discipline, using only the relevant features[122]. Their work was reduced to a

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[114] Often attributed to Konrad Lorenz
[115] Smith, *The Wealth of Nations*, 10.
[116] Smith, 13-14.
[117] Smith, 870; Marx, *Capital*, 1: Chapter 14, §3.
[118] Marx, *Capital*, 1: Chapter 14, §5.
[119] Smith, *The Wealth of Nations*, 10.
[120] Marx, *Capital,* 1: Chapter 14, §1.
[121] Marx, 1: Chapter 14, §1.
[122] Marx, 1: Chapter 14, §3, §5.

"supplementary partial process" of a single object[123]. The workers became stripped of their independence from carriage-making and the authority they gained from being a member of their old craft as their "unnecessary" disciplinary knowledge and skills wasted away from lack of use. The once interdisciplinary field, now distinct, can be further refined as described as in the previous paragraph.

Reduced capability

The effects of this reduction of scope extend to the individual's physical and mental capacities and capabilities. Not only do individuals lose their non-specialised abilities, their bodies and personalities are developed in an unbalanced and harmful way. Smith, for instance, believed overspecialised workers were unable to use their body in war, as their body is not used vigorously except in their craft[124]. Their courage had likewise deteriorated, Smith claims. Marx saw that craftsmen were reduced to the parts of their body used to perform their work, becoming unbalanced and "disfigured"[125]. Consequently, because one's personality and individual welfare are negatively affected by specialisation's innate refinement, claims that specialisation develops personality and individual welfare can be doubted.

These effects also influence an individual's mind, both inside and outside their discipline, which also diminishes their capability to creatively improve the processes in their field through experimentation and optimisation[126]. Smith believes that the reduction of scope leads to a "torpor of the mind" which negatively impacts productivity. Specialisation is supposed to improve a field through specialists using their creativity in creating tools and techniques to remove impediments and optimise processes[127]. However, workers often have few, if any, impediments to remove, due to their field's current optimisation[128]. Workers whose work does not force them to exert themselves lose the habit of exertion. Specialisation also inhibits an individual's non-specialised activity[129]. Therefore, the individual's ability to creatively exert themselves, even to improve their specialised field, wastes away. The torpor makes one "as stupid and

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[123] Marx, 1: Chapter 14, §1, §3.
[124] Smith, *The Wealth of Nations*, 870.
[125] Marx, *Capital*, 1: Chapter 14, §4, §5.
[126] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §3, §5.
[127] Smith, *The Wealth of Nations*, 15.
[128] Smith, 870.
[129] Refer to the previous section

ignorant as it is possible for a human creature to become"[130]. This pathological form of specialisation undermines the specialist's exercise of creativity to improve their discipline, which was one of the technical reasons Smith gave for why specialisation is productive[131]. As a result of overspecialisation, the specialist becomes both less productive and less capable of restoring that productivity through creativity. Since one's creativity and therefore productivity is negatively impacted by specialisation's restrictions, which are purported to improve productivity, it can be doubted that specialisation is maximally productive, and this suggests that modes of work do not require maximal productivity to be viable.

Marx expanded on this degradation. A labourer's dexterity in work is developed at the expense of their "productive capabilities and instincts", Marx says[132]. As a worker concentrates their efforts on their craft and dedicates their body and mind to it, they become reduced to that singular part of themselves, with their other parts (their creativity, abilities, and cunning) wasting away, except where they are used as their workshop demands[133]. They are transformed into a "crippled monstrosity", whose abilities are reduced to their use as an appendage of their workshop[134]. This transformation stops personal and productive development. As Marx notes:

> *If it develops a one-sided speciality into a perfection, at the expense of the whole of a man's working capacity, it also begins to make a speciality of the absence of all development[135]*

The origin of this degradation is the simplification and optimisation of specialised labour, which is presented as a productive benefit of specialisation. Yet, when labour becomes simplified to the point where a specialist's creativity and disciplinary connections become unnecessary, these are separated from the discipline, despite this hampering their ability to optimise their field[136] and their disciplinary connections[137]. Overspecialisation affects one's social integration, personality, and productivity through affecting one's creativity.

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[130] Smith, *The Wealth of Nations*, 870.
[131] Smith, 15.
[132] Marx, *Capital*, 1: Chapter 14, §5.
[133] Marx, Chapter 14, 1: §5.
[134] Marx, 1: Chapter 14, §5.
[135] Marx, 1: Chapter 14, §3.
[136] Marx, 1: Chapter 14, §3, §5.
[137] Marx, Chapter 14, §1.

The previous paragraphs describe overspecialisation as cutting workers off from their discipline. More often, Marx claims, the worker is transferred to a different part of the process in the same field[138], though their scope is still narrowed to this field. Each field's distinct habits and styles are instilled in its workers, who become afflicted with "craft-idiocy": a state where one has high competency in one area, but little anywhere else[139]. Specialists suffering craft-idiocy are well-versed in their discipline but become less able to comprehend and relate to other disciplines, their methods, and capabilities, preferring to stay behind the 'hedges' they planted along their discipline's border[140]. This lack of understanding may even cause intolerance, Taggart claims, which hampers their social integration[141]. These limitations can lead to the stunting of one's personality and ability to socially relate, affecting their productivity whenever work requires cross-disciplinary discourse as well as their social integration and everyday lives.

Craft-idiocy stunts one's personality development through enforcing disciplinary boundaries, causing lower social integration. In a specific example, Gray and Polman claim that despite the fact that identities formed around athleticism can have positive qualities for self-identity, footballers often felt the negative consequences of being overspecialised, such as having "lower psychosocial maturation, lower interpersonal maturity, and lower career planning development"[142]. While they are excellent footballers, when they are not playing football, their personalities are stunted and disconnected from other parts of society. In this way, specialisation can lead to the destruction of personality and social integration.

The elimination of the "gap in the day"[143] has a similar effect to the reduction of scope, reducing one's ability to see themselves as a valuable member of society. Removing the gap in work makes work more optimised[144], but monotonous[145]. Individuals would delight even just to change activities[146], but are often restricted to

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[138] Marx, *Poverty of Philosophy,* "Chapter Two: The Metaphysics of Political Economy; Part 2: Division of Labour and Machinery."

[139] Marx; Gray and Polman, "Craft Idiocy, Erikson and Footballing Identities."

[140] Lemontey, quoted in Marx, *Poverty of Philosophy,* "Chapter Two: The Metaphysics of Political Economy; Part 2: Division of Labour and Machinery."

[141] Taggart, "The Price Society Pays for Specialization," 36.

[142] Gray and Polman, "Craft Idiocy, Erikson and Footballing Identities."

[143] As discussed in chapter 1's productivity section

[144] Smith, *The Wealth of Nations*, 14.

[145] Marx, *Capital,* 1: Chapter 14, §2.

[146] Marx, 1: Chapter 14, §2.

exerting themselves as their specialisation directs, their unused creativity atrophying[147]. One is reduced to a mere cog in the machine. Smith claims that individuals lose their understanding of what they are doing, why it works, and the motivation to improve it, and thus potential improvements are lost[148]. This also affects one's moral character: the ability to judge and understand "noble or tender sentiment" and society as a whole is lost[149]. Overspecialisation damages a worker's personality and productive ability, and social integration is lessened because of features of specialisation which are claimed to increase these things. This suggests there may be a flaw in the logic given for specialisation itself.

Reduced authority

Overspecialisation causes individuals to lose authority over their creative agency to make changes in their work (which is referred to as simply "authority" here onwards). The reasons for this loss of authority include previously mentioned reasons, like the reduction of scope[150], but also include the individual's dependence on others[151] and the creation of tools. The reduction of authority prevents workers from improving their discipline's productivity through experimentation and diminishes their individual expression through restricting the scope of their activity. The reduction of authority itself may even be a cause of overspecialisation's effects, explaining why these effects even appear in jobs which are not obviously overspecialised[152]. Because specialisation's features tend to lead to the reduction of authority and its subsequent effects, the claims about specialisation's benefits may be brought into doubt.

One of the causes of the reduction of authority is one's dependence on others[153]. A specialised occupation is a singular part of a divided whole, where specialists control increasingly fractional parts, so each operation reciprocally depends on the other operations in the same process[154]. This dependence imposes onto the worker the necessity of achieving their operation with timeliness and precision[155], which favours the use of tried-and-true disciplinary methods over experimentation, which is uncertain and

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[147] Marx, 1: Chapter 14, §5.
[148] Smith, *The Wealth of Nations*, 870.
[149] Smith, 870.
[150] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §3.
[151] Marx, *Capital,* 1: Chapter 14, §3.
[152] Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism,".
[153] Marx, *Capital,* 1: Chapter 14, §3.
[154] Marx, 1: Chapter 14, §3.
[155] Marx, 1: Chapter 14, §3.

potentially disruptive. A new product assembly method may not immediately fit in with the current production pipeline, causing jams and delays, even if, once optimised, it would be faster. Because the worker depends on others, causing such a disruption may be disallowed or even invite punishment. Specialisation paradoxically enforces a conformist conscience[156], inhibiting experimentation, which may lead to stagnation in production. As such, the worker's authority and potential productivity is reduced, despite both interdependence[157] and experimentation[158] being reasons given for specialisation's productivity. Contrary to the technical mode of the productivity argument, specialisation could be called self-defeating because it inhibits the productive features it supposedly promotes.

Even in 'merely specialised' areas, the pressure to achieve quotas limits one's ability (and authority) to experiment. These pressures limit the worker's ability to express individuality through work, which Durkheim claimed was another benefit of specialisation[159]. Instead, workers subdue their individual inclinations to experiment according to workplace policy, government policy, and others' requirements. This negative effect is in stark contrast to the positive ones associated with interdependence, suggesting that the positive ones should be questioned.

The separation of unnecessary work also reduces one's authority. Separation diminishes a worker's authority to perform the whole process[160] and to use their non-specialised skills[161]. The worker whose work is diminished from crafting shoes to simply polishing them loses the authority to suggest improvements about the whole shoe's design or even its stitching, because they are not the designer. While many specialists have the sense to listen to others' suggestions, there is no supporting logic or inherent authority for non-specialists' ideas under the framework of arguments for specialisation.

Separation can be destructive to one's authority in their own field. It is part of the process of simplifying work: specialisation in practice[162]. Marx claims that the reason behind this simplification (and specialisation's purpose) is to make the specialist's abilities, disciplinary connections, and creativity unnecessary by capturing them in

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[156] Marx, 1: Chapter 14, §3.
[157] Durkheim, *The Division of Labor in Society*, 401.
[158] Refer to chapter 1
[159] Durkheim, *The Division of Labor in Society*, 403.
[160] Taggart, "The Price Society Pays for Specialization".
[161] Marx, *Capital*, 1: Chapter 14, §1, §3.
[162] Smith, *The Wealth of Nations*, 10.

machines and automated tools, which can be operated with unskilled labour[163]. Workers are transferred to work on different parts of the process[164] until they are replaced with automation, which makes their authority unnecessary. This mechanisation is where the bulk of specialisation's productivity comes from[165]. Specialisation, in accordance with its logic, severely undermines the authority of its specialists. The scope of the worker's authority is reduced to a monotonously small field, and one's value is reduced to no more than a cog in the machine: replaceable, automatable, and isolated[166]. This isolation devastates one's social integration, as it is difficult to feel socially valuable when one's occupation resembles Charlie Chaplain's in *Modern Times* (1936). Even in more "complete" jobs, the disconnect from society caused by the reduction of authority has been observed[167], and it is simple to imagine the office worker's mind slipping into a torpor as their skills are commanded by employers who bury them in trivial work. As the reduction of authority most directly leads to these effects, such as the restrictions on experimentation and reduction in practise of external skills, it may be the vector which causes overspecialisation's effects. As specialisation's logic tends towards this reduction of authority, specialisation still appears to have self-defeating aspects when examined through this lens[168].

Since the authority shifts from individuals, where does it shift to? Where the watch was once the domain of a single artisan working for their client, it became the work of many labourers working for their boss, Marx claims[169]. One's creative authority diminishes as the fraction of the work they practice diminishes. At the same time, the authority, holistic connection, and scope of the project are transferred to the manager and the engineers[170]. Without authority, the worker becomes converted into an engine to drive the factory[171]. Engines do not direct the course of a vehicle and as such, become appendages of the workshop when it should have been the environment to magnify their productive power[172].

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[163] Marx, *Capital*, 1: Chapter 14, §1; Marx, "Chapter Two: The Metaphysics of Political Economy; Part 2: Division of Labour and Machinery."

[164] Marx, *Poverty of Philosophy,* Chapter Two, Part 2: Division of Labour and Machinery.

[165] Marx, *Poverty of Philosophy,* Chapter Two.

[166] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §3, §5.

[167] Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012.

[168] This is not to suggest that doctors should be allowed to experiment unsupervised, merely that specialisation's logic sometimes limits what is supposedly promotes.

[169] Marx, *Capital*, 1: Chapter 14, §3.

[170] Marx, 1: Chapter 14, §3.

[171] Marx, 1: Chapter 14, §5.

[172] Marx, 1: Chapter 14, §5.

The removal of the gap in the day signals to the worker that they do not matter to society as an individual, only their function; even Durkheim admits that specialisation presents people to society as the function they perform, not their truly individual selves[173]. Overspecialisation, however, leads to people not being as organs in the body of society[174], but cells in an organ: dependent, specialised, replaceable[175]. The worker becomes disenfranchised and overly dependent[176], doing work with little experimentation or individuality because of specialisation's demands of them. The claims that specialisation is maximally productive, that modes of work must be maximally productive to be viable, and that specialisation is the most effective (or only) way for individuals to socially integrate can therefore be doubted. While I do not necessarily believe that specialisation will always lead to the reduced authority, the mechanisms can easily become maladaptive.

Disciplinary manifestation

The second form of overspecialisation is a different phenomenon where overspecialisation affects disciplines themselves instead of just affecting individuals. The disciplinary manifestation of overspecialisation involves disciplines becoming isolated from other disciplines and society, looking inwards and failing to consult other disciplines and reap the benefits of their knowledge. This is referred to as "disciplinary introversion". Disciplines suffering disciplinary introversion stagnate, become subject to occupational conscience, and sometimes fail to fulfil the needs they once did[177]. This section will explore how disciplinary introversion is conceptualised and historically identified, how occupational conscience affects individuals and disciplines, and how changes in need fulfilment processes sometimes occur.

Disciplinary introversion

Disciplines sometimes lose their connections to society and instead become inwards-looking – introverted. Precisely what causes this introversion is uncertain. However, there are a few possibilities. Firstly, specialisation demands that individuals

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[173] Durkheim, *The Division of Labor in Society*, 407.
[174] Durkheim, 403.
[175] Unless, of course, those cells were to unite and act as a group.
[176] Marx, *Capital*, 1:5.
[177] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy"; Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012; Habermas, "The Relationship Between Theory and Practice Revisited," 2003.

work within restricted disciplines for productivity reasons[178]. As previously discussed, this is also what leads to craft idiocy[179], which gives members of a discipline knowledge and habits relating to it, to the exclusion of knowledge, collaboration, and communication with other disciplines. Disciplinary introversion could be diagnosed as a discipline suffering craft idiocy, where the discipline becomes concerned only with its own specialisation. Secondly, disciplinary introversion may stem from one's duty to restrict oneself to an exclusive field of work for social integration through interdependence, as Durkheim outlines[180]. The logical consequence is that fields have a duty to concern themselves with only their specialised area, to be exclusive and defined, and so spend less time and resources communicating with other fields. Regardless of the reason, scholars have seen disciplinary introversion's impact on several academic disciplines, which struggle to collaborate, communicate with, and use information from other disciplines studying the same topics[181], sometimes leading to a rejection of non-traditional methods[182]. These disciplines then experience the effects of overspecialisation, such as hampered productivity and disintegrating social integration[183].

An example of a discipline suffering disciplinary introversion is philosophy. While philosophy is the example used here, other disciplines, from the academy to the army, have suffered the same problems[184]. Frodeman, Briggle, and Holbrook[185] explore how because a philosopher's audience is most often other philosophers, and specialisation removes inefficient parts of a process, philosophers began to write about philosophers for exclusively philosophical audiences, rather than examining parts of the world and communicating with them, which it used to do historically[186]. Its disciplinary character became insular, looking inwards rather than outwards to progress. However, progress stagnated, and philosophy failed to benefit from others' work on the same topics, as Higgins and Dyschkant discuss. Metaphysicians have little to do with physicists, and are

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[178] Smith, *The Wealth of Nations*, 15.
[179] Marx, *Poverty of Philosophy*, "Chapter Two: The Metaphysics of Political Economy; Part 2: Division of Labour and Machinery"; Gray and Polman, "Craft Idiocy, Erikson and Footballing Identities."
[180] Durkheim, *The Division of Labor in Society*, 401.
[181] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy"; Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012; Habermas, "The Relationship Between Theory and Practice Revisited," 2003.
[182] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."
[183] Marx, *Poverty of Philosophy*, "Chapter Two: The Metaphysics of Political Economy; Part 2: Division of Labour and Machinery"; Gray and Polman, "Craft Idiocy, Erikson and Footballing Identities."
[184] Bohm, "On Communication"; Casadevall and Fang, "Specialized Science," April 2014; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."
[185] Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," .
[186] Frodeman, Briggle, and Holbrook.

often ignorant of physics itself, relying on intuition and other metaphysicians' work instead, they claim[187]. Many philosophers use philosophy's 'theoretical primacy' to block influence from psychology and physics rather than benefiting from interacting with them[188]. The severed communication harms both disciplines, as philosophical testing standards and theories are seen as curious obsessions by other fields, and philosophers' theories become less comprehensible to other disciplines studying the same topic as each increasingly specialises[189]. Disciplinary introversion, which comes from restricted boundaries, separation of unnecessary work, and exclusivity promoted by specialisation, causes a discipline's social integration to diminish through non-communication, and subsequently the disciplines lose potential productive improvements they would gain through communication and disciplinary openness. As such, one can doubt the claims that specialisation leads to social integration and optimal productivity.

Occupational conscience

Occupational conscience is a form of overspecialisation which affects individuals, disciplines and social institutions. As discussed in the first chapter, specialisation is claimed to be necessary for specialists to resist collective conscience[190]. This section argues that, on the contrary, specialisations, being collections of similar habits, practises, rules, and knowledge, create their own consciences which can be detrimental to personality and individuality, and consequently their productivity. Occupational conscience is named so here because like collective conscience, it overrides individual conscience with group conscience[191]. Occupational conscience restricts one's work to conform to its conventions; dissent might be punished with revoked credentials. It restricts one's work to conform to its conventions; dissent might be punished with revoked credentials. Durkheim had anticipated this critique of occupational conscience but rejected it for three reasons[192]:

Firstly, Durkheim claims that occupational conscience only affects occupational life; beyond their occupation, individuals have greater freedom from collective conscience[193]. Secondly, occupational conscience is shared by fewer minds and has less

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[187] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 360, 374.
[188] Higgins and Dyschkant, 375.
[189] Higgins and Dyschkant,.
[190] Durkheim, *The Division of Labor in Society*, 403–4.
[191] Durkheim, 303.
[192] Durkheim, 302–3.
[193] Durkheim, 302–3.

authority and power than collective conscience[194]. Thirdly, the same factors which undermine collective conscience, which are increased social volume (the number of society's members) and material density (reduced spatial[195] and technological[196] distance between members) also undermine occupational conscience[197].

However, this section disputes these three reasons:

Firstly, as Durkheim showed, occupational life affects personality because work allows individual expression and development[198]. If one is restricted in the kind of work they can do by occupational conscience, their ability to develop individuality is negatively affected, even if they can resist collective conscience.

Secondly, despite occupational conscience being shared by fewer minds, the minds sharing it (one's peers) are those whose recognition grants authority to practise their craft, particularly because crafts use sanctioning forces against dissenting individuals[199]. If a doctor is called a quack by the medical community (regardless of the legitimacy of their beliefs), society is quick to follow. Disciplines denounce things which offend their occupational conscience[200]. Making matters worse, experts appear to be more biased and inflexible than non-experts in novel situations[201], and studies on groupthink have demonstrated the power biases have over groups[202]. This casts doubt on the claims that disciplines are free from collective conscience and that it has no power over those who offend it. Occupational conscience, as another cause of disciplinary introversion arising from specialised disciplines, can lead to the rejection of non-disciplinary methods, shunning potential productivity, while also holding power as great as collective conscience over individuals' social standing and social integration.

Durkheim's third claim, that the same factors which reduce collective conscience also reduce occupational conscience, can be doubted both because of the effects of disciplinary introversion[203] and because groupthink magnifies proportionally to the size

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[194] Durkheim, 303.
[195] Eg. cities
[196] Communications technology. Eg. telephones
[197] Durkheim, 303.
[198] Durkheim, 402–4.
[199] Hegel, *Elements of the Philosophy of Right*, §193; Honneth, *The Struggle for Recognition*, 109.
[200] While often denouncing is directed towards poor practise, a reasonable target, it is the offense to occupational conscience, not necessarily the veracity of the thing being denounced which leads to rejection.
[201] Keestra, "Metacognition and Reflection by Interdisciplinary Experts"; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."
[202] Tsikerdekis, "The Effects of Perceived Anonymity and Anonymity States on Conformity and Groupthink in Online Communities."
[203] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy."

of the group[204]. This raises problems with the technical and analytical modes of the productivity argument, as specialisation's logic of exclusive disciplines leads to groups susceptible to groupthink and disciplinary introversion, impeding productivity through inhibiting experimentation, as described above.

This examination casts doubt on Durkheim's claim that occupational conscience cannot exist. Instead, this suggests that overspecialisation can negatively affect individuals, disciplines, and institutions. Similarly, the surrounding claims that one can resist collective conscience, develop personality, and socially integrate through specialisation can also be doubted.

Historical changes in need-fulfilment

Specialisation is presented as the way needs are fulfilled by the analytical and historical modes of the productivity argument. However, the means to fulfil needs have changed in the past, instead of adhering to one exclusive specialisation. These changes to need-fulfilment can occur either from disciplinary introversion making disciplines unable to fulfil the needs they once did, hampering their productivity, or from alternative means to fulfil needs displacing or being integrated into the discipline currently fulfilling that need.

The historical mode of the productivity argument claims that specialisation was the means used historically by society to progress, yet the historical use of alternative means to fulfil needs casts doubt on this claim. The use of alternative means, or changing the ways needs are fulfilled, is part of specialisation's logic. Specialisation replaces its means of need-fulfilment with more refined, divided, researched, and automated means, for the purpose of improving productivity[205]. The alternative means used do not only originate from disciplinary refinements, they also can originate outside a discipline, which leads to those means being co-opted into that discipline, Marx says[206]. Alternative means have been used to advance specialisations often enough for Marx to feel a need to document it, then the claim that specialisation is the only historical means through which society has progressed can be doubted. Of course, since these means were outside the

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[204] Tsikerdekis, "The Effects of Perceived Anonymity and Anonymity States on Conformity and Groupthink in Online Communities."

[205] Smith, *The Wealth of Nations*, 10–15.

[206] Marx, *Capital*, 1: Chapter 14, §1, §4.

discipline this was a historical usage of "translation", which is, as discussed in the next chapter, a defining characteristic of generalism. This means that some specialisations may have historically used generalism to progress, casting doubt on the historical mode of the productivity argument.

However, the means by which needs are fulfilled can even change disciplines entirely. For example, storage vessels were largely made with pottery until pottery was replaced with plastics. The means to fulfil that need changed materially, technically, and disciplinarily. 'Progress' in this case occurred by the need being fulfilled by means from outside the discipline responsible for fulfilling it at the time. The use of alternative means is not necessarily a permanent methodology switch as Joshua Knobe's use of psychological experimentation methods to examine intentionality and moral responsibility demonstrates[207]. Knobe's use of experimental methods in philosophy[208] served to both advance the study of a previously stagnant topic and to germinate a cross-disciplinary discourse between philosophy and the social sciences, counteracting philosophy's disciplinary introversion[209]. That field is still considered to be part of philosophy, primarily using philosophical methods. These instances of alternative means being used to fulfil needs cast doubt on the claim that progress historically occurred through specialisation alone, suggesting that ideas of generalism may not be as absurd as initially believed.

While the previously mentioned changes to need-fulfilment occurred due to the logic of productivity, changes can also occur as a result of disciplinary introversion, leading to the inability of certain disciplines to fulfil important functions. For example, Habermas claims that philosophy lost its ability to practically impart metaphysical meaning to people's lives due to extensive self-criticism[210] and a withdrawn, disciplinary-focused scope[211]. Philosophy gradually lost its authority to answer questions regarding the good life and practical applications of philosophy after Kant and Kierkegaard[212]. Through philosophy's self-criticism, which may be akin to specialisation's 'refinement', "objective reason" was pared down to "subjective reason", and philosophy itself was

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[207] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 381–82; Knobe, "Intentional Action and Side Effects in Ordinary Language."
[208] The next chapter's diagnosis of interdisciplinary research includes it as an instance of "generalism"
[209] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 383.
[210] Habermas, "The Relationship Between Theory and Practice Revisited," 2003, 277–85.
[211] Habermas, 285.
[212] Habermas, 277–80.

problematized through Marx's criticisms[213]. After Adorno and Horkheimer, philosophy was content to become purely instrumental, unable to "disclose [the] metaphysical meaning" to current events that people needed; instead, disciplines like therapists tried to fill this gap which philosophy left[214]. Through historical self-criticism, philosophy became unable to be 'practical', to fulfil the need of providing meaning, not because it lacked overarching frameworks, but because it lacked "perspective" to give people direction[215]. Perspective involves an understanding of and integration within society. Through philosophy's increasing inwards focus and narrowing scope as a discipline, philosophy became unable to fulfil the needs it was specialised to fulfil. Instead of merely being un-productive, it sought to fulfil other needs in alternative ways, performing specific differentiated functions[216]. Need-fulfilment changed, but not the means changing to fulfil the needs. Rather, the need which was fulfilled by these needs changed. The change of need-fulfilment in this way is most likely not exclusive to knowledge work, as materially focused disciplines could also lose their perspective and therefore their ability to fulfil the needs they were created to fulfil. The concept that specialisations can change the means they provide challenges the claim that historically, specialisation was always the way by which needs were fulfilled.

Normative counterarguments

The understanding of specialisation and overspecialisation in this chapter has cast doubt on the normative elements of the arguments for productivity: that one ought to specialise because of specialisation's innate productivity, its historical use, and its facilitation of need-fulfilment.

Firstly, the normative mode of the productivity argument relies on specialisation's productivity. However, if specialisation's productivity is cast into doubt, or other modes of work could be demonstrated to be productive, the normative compulsion to specialise, because it is the only viable mode of work, is also lessened. Given the above counterarguments, specialisation's status as maximally productive can be doubted. Furthermore, these rebuttals cast doubt on the claim that work must be maximally

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[213] Habermas, 280–82.
[214] Habermas, 287–89.
[215] Habermas, 283.
[216] Habermas, 285.

productive to be viable in society, as specialised work appears not to be maximally productive, yet exists and is considered relatively viable.

Secondly, specialisation is sometimes harmful to society and individuals through overspecialisation. Rather than obliging one to specialise, this suggests that one ought to avoid certain forms of specialisation, especially overspecialisation, and that specialisation alone may not be adequate to facilitate need-fulfilment in a socially-integrating and personality-developing way. This lessens the impact of the normative components of the social integration and personality arguments for specialisation, which claim that one ought to specialise because specialisation is necessary for substantial personality development and social integration. Instead, these counterarguments give good reasons to doubt that specialisation alone is the best approach to achieve these effects, suggesting that alone it does not meet several factors necessary for a healthy society.

As such, the legitimacy of the normative obligation to solely specialise can be doubted.

Chapter Conclusion

With the above analysis, I believe that it is reasonable to doubt many of the arguments for specialisation, particularly those which involve specialisation's historical exclusivity and its claims to maximal productivity. Specialisation is not necessarily afflicted by the issues addressed in this chapter. These issues, whose roots are the logic of an exclusive form of specialisation promoted in the arguments for specialisation, lessen the normative compulsion to specialise, leaving room for other modes of work to be explored, which will be done in the next chapter.

Chapter 3

Society involves a division of labour. However, for reasons outlined in the previous chapter, I believe that the division of labour in society requires more than just specialisation so all individuals can take part in it in healthy ways, so it is productive, and can resist specialisation's pathologies. A concept of generalism, which translates means to fulfil needs across disciplines may be useful to achieve this. To understand how and why a particular kind of generalism might achieve this where other suggestions fail and despite the general opposition to generalism, requires an understanding of its logic and how it brings together different factors.

While specialisation has its flaws, it has a substantial theory to justify it. Such a theory does not exist for generalism. This chapter aims to provide just that, by examining varieties of ways needs may be fulfilled beyond the traditional modes of specialisation. This chapter thus proposes a taxonomy of modes of work that entail various forms of specialisation and generalism. Constructing such a taxonomy allows us to consider alternative ways to fulfil needs within the division of labour which may avoid and possibly even remedy the problems of specialisation.

This taxonomy takes the form of a table and is followed by a discussion which focuses on how each mode of work requires different proficiencies at different levels of specialised skills. These skills and their combinations are the main distinguishing features between the different modes of work. However, though these modes can be distinguished from each other, this does not make them exclusive as if individuals could only belong to one or the other. As will be shown later, an individual can potentially use multiple modes if their proficiencies meet the minimum requirements to work in them. Hence, it is important for this taxonomy to be inclusive, displaying only the minimum distinguishing requirements for each mode.

The comparison between how these modes use particular kinds of skills, most notably the key skill of "translation", will show why generalism is viable and to what extent it avoids the shortfalls of other modes, particularly when attempting to counter the negative aspects of overspecialisation. The relationship between generalism and translation revealed by this analysis leads to normative implications that are broached in the conclusion. Since a specific kind of generalism turns out to be productive and

underpins non-pathological modes of working for individuals, it seems to deserve recognition and support in the organisation of society.

Factors of a Taxonomy

To create a taxonomy which can examine various modes of work, I must first discuss the factors which the taxonomy involves. This taxonomy is not the result of a full empirical study, it is the interpretation of the features of work and how they can be different. Regardless, this understanding can aid analysis of how certain styles of work may be viable, useful, or valuable to society.

Modes of work

A "mode of work" is a style of work which an occupation can follow, distinguished by how it uses different levels of increasingly specialised skills along with meta-skills. Specialisation and generalism are both examples of modes. There are specialist engineers and specialist bakers, but there are not 'just specialists'. Modes of work are distinguished by how they use different kinds of skills in different ways to perform their work. The specialist uses their specialised and hyper-specialised skills with precision, while the branch generalist synthesises specialised knowledge from multiple speculations, for example.

Skills

The modes of work can be identified by the way they utilise different levels of specialised skills and knowledge in their work. Skills can be broken up into large groups according to how specialised they are. This forms a "pyramid of specialised skills" (see diagram below) which is the foundation of the taxonomy. As skills become more specialised to the work the individual is performing, their scope narrows while their refinement and strength increase. The exception to this is with meta-skills, which influence how other levels of skill are used but are also applicable more broadly.
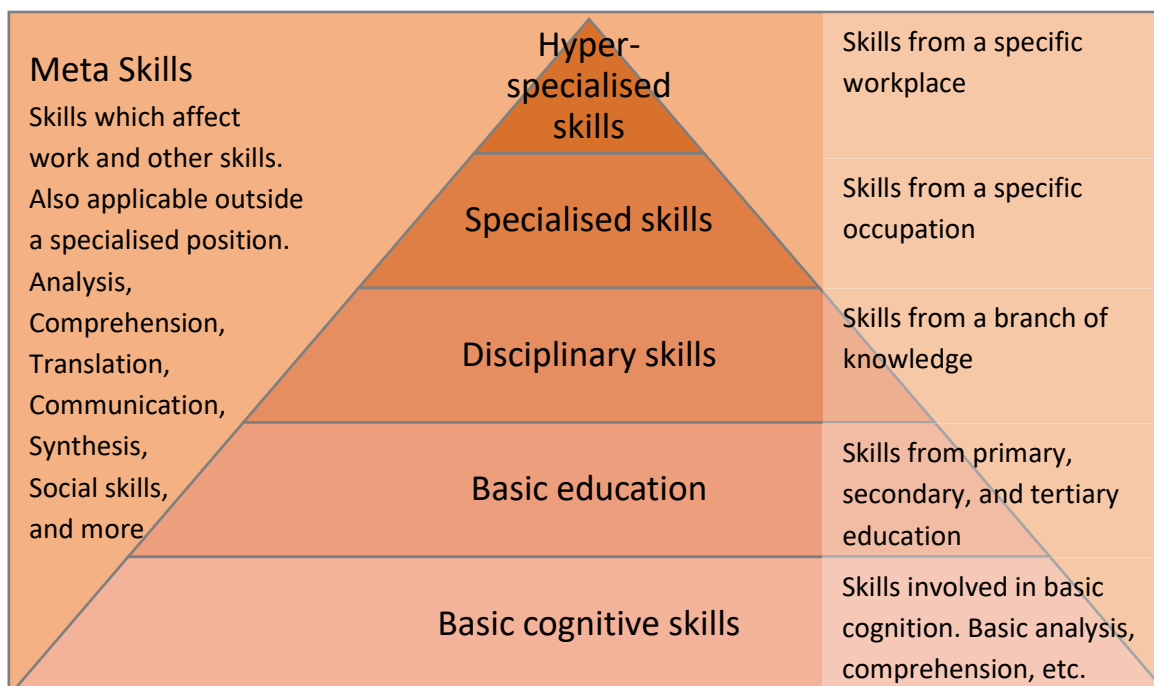
Figure 1 – The pyramid of specialised skills

While the 'common-sense' definitions of "knowledge is what is known, skills are what are done" are technically correct, they are misleading. Those definitions imply that skills are inherently flexible and widely applicable, while knowledge is static, concrete, and 'untranslatable'. Contrary to this, I claim that skills are not inherently translatable, nor is knowledge untranslatable. Rather, specialised skills and specialised knowledge require each other to be used. As such, they are treated here as the same, with the exceptions of meta-skills and basic cognitive skills, which are exclusively skills, and will be discussed later.

Levels of skill

Hyper-specialised skills are skills which are applicable to specific jobs within specific workplaces. For example, car repairs have become hyper-specialised, with each brand requiring their own skill set to repair. A mechanic who repairs Porches might be unable to repair a Mercedes-Benz. Knowledge can also be hyper-specialised, like a doctor's knowledge of their patients, which is vital for their current occupation but not applicable elsewhere. Hyper-specialisation can be very powerful (if not imperative), as it is developed specifically for its context. However, that makes its scope extremely limited.

Specialised skills are the skills which everyone in a specialisation are required to have and are what makes that profession distinct. These are the specialised skills of a

baker, an architect, and a plumber directly involved in their profession, even if hyper-specialised skills vary between workplaces.

Disciplinary skills are skills that everyone within a branch of knowledge possesses. For example, a mechanic will share basic engineering skills with a mechanical physicist and a professional engineer. There are many intermediary levels in this 'disciplinary' level because specialisations are split from other specialisations. Specialisations sharing a larger percentage of their disciplinary skills could be considered 'closer' than those which share less.

Basic education skills are taught at primary, secondary, and tertiary education institutions. These are similar, but broader than, disciplinary skills, since they are more widespread. The reason these are widespread is because in modern society, education is seen as a universal right, and education institutions are treated as pathways for students to begin specialisation, teaching them foundational skills for living in society, such as reading, writing, and arithmetic[217]. Educational institutions are the most prevalent teachers of 'common skills' in contemporary society, so this level is referred to as 'basic education skills'.

Basic cognitive skills, for the purpose of this thesis, come inherently from being sapient and alive[218]. They refer to skills such as basic comprehension, basic analysis, basic logic, creativity, synthesis, and other skills which could be claimed to be fundamental to cognition. Cognitive skills are exclusively skills because the existence of 'knowledge fundamental to all sapient creatures' can be doubted, and generating a non-problematic example of it is difficult.

Meta-skills

Meta-skills are further developed forms of cognitive skills. Meta-skills can modify how skills at other levels of specialisation are practised yet are also applicable beyond any specific discipline. Since they influence how other levels of specialised skills are performed while being applicable both inside and outside specialisations, and because they are the distinguishing features of several modes, they are important to discuss despite being represented as outside the pyramid of specialised skills. Meta-skills are cultivated

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[217] While this seems to restrict this analysis to societies with institutionalised education, similar skills are taught in other societies by other citizens who teach skills necessary for social life, playing the same role.
[218] Discussions of what 'basic cognitive skills' entail may be enlightening but will overly complicate and distract this thesis from its purpose.

in different degrees by different modes of work, different specialisations, disciplines, education, and as a result of general life events, which develop cognitive skills such as analysis, comprehension, social skills, and critical thinking[219]. Academia may cultivate analysis and comprehension, while social work may focus on social skills. Meta-skills may also develop from non-work origins, like how social skills can develop from social life. Meta-skills developed in work can be useful outside work, such as analysis which can aid one's problem solving, and meta-skills originating outside work can positively influence one's work, such as with social skills.

Meta-skills lie outside the pyramid of specialised skills, yet strongly influence the skills within it. Furthermore, they can become extremely developed (even to the extent of specialised skills), yet at their core, they operate on the same logic as the cognitive skills they are developed from. Hence, while they can be developed to become stronger and more consistent, anyone still has the capability to perform them since everyone possesses the basic cognitive skills which meta-skills are developed forms of. Thus, they can be both distinct and innate. These factors make meta-skills particularly significant for this thesis and will be discussed again later.

Meta-skills are distinguishing features for several modes, including "generalism". Given that generalism is the central topic of this thesis, it is worthwhile to briefly describe them.

Analysis is one's ability to analyse and examine a subject within or outside one's discipline, both with and without their disciplinary analytical tools. It tends to be developed by knowledge work and specialisations. The same circumstances also promote critical thinking.

Critical thinking is highly related to analysis, and involves one's ability to reason about a subject, enabling its analysis and manipulation. It is a developed form of basic logic.

Comprehension is one's ability to understand a subject, object, or system, and can be developed to enable quicker and more effective understanding.

Sensibility is the ability to take on multiple perspectives, understand how things will interact, and consequently form a judgment of how to act. Sensibility enables the individual to judge when synthesis and translation are appropriate.

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[219] Meta-skills are developed from cognitive skills, which are exclusively skills. This is why meta-skills are also exclusively skills.

Synthesis is the combination of knowledge and skills from several different specialisations, disciplines, or areas. It is often used to synthesise knowledge from several specialisations in a branch of knowledge.

Communication involves the ability to communicate concepts and knowledge from one place to another, whether originating from within or without one's discipline. It is a kind of translation often used by educators and humanities students.

Social skills, along with other "soft skills", are meta-skills useful in promoting social cohesion and communication, thus improving social integration and solidarity. They promote a healthy workplace environment which can boost workers' productivity. They can be developed from one's own social interactions, or from practising a profession like social work which requires developed social skills.

Translation

Translation is the ability to translate knowledge and skills from one specific discipline to another, to recontextualise disciplinary and specialised skills in a useful way. It is a meta-skill developed from the experimental aspect of creativity which wonders if something could be done differently. It translates knowledge and skills from one place to another. This is the mode of work which has been referred to as "generalism" throughout the thesis. Translation naturally enables the transcendence of disciplinary boundaries, which may be useful in countering overspecialisation.

Translation temporarily or permanently bridges different specialisations to enable the fulfilment of specific needs with alternative means. An example of both the temporary and permanent bridges is Knobe's use of scientific methods in philosophy, discussed in the previous chapter[220]. The temporary bridge was Knobe's specific use of scientific methods, which answered the question. The permanent bridge was the cross-disciplinary discourse it sparked.

Like with building bridges, translation becomes more difficult proportional to the distance it crosses.

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[220] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 381–82; Knobe, "Intentional Action and Side Effects in Ordinary Language."
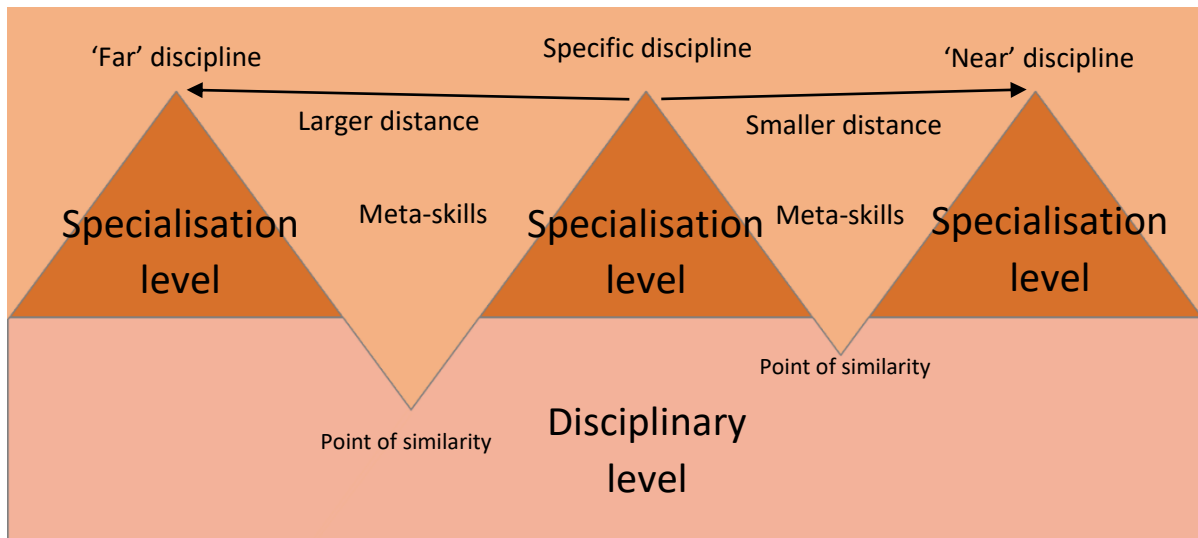
Figure 2 – Disciplinary closeness

Translations are more likely to be successful and easier to perform if they are between disciplines which are 'close' to each other, as less differences must be addressed.

This does not mean that it is impossible or even unreasonable to translate to disciplines which are 'far' from each other. While 'distance' may make a translation difficult, if a translation fulfils the need it was intended to, it is successful. Translations which are not obviously 'close' are often criticised for being glib[221], or lacking legitimate basis, like Barash's hypothetical example of "astro-dramaturgy"[222]. However, the outcome of a translation cannot be pre-judged; It is possible for translations from 'close' discipline to fail while 'far' ones succeed, even if it is improbable. Similarly, many successful translations, such as "eco-criticism" which combines ecology and literature[223], would likely be perceived as spurious if not for their historical success.

Miscellaneous factors

Modes of work are distinguished by using the analysis of skills and meta-skills. However, a few further considerations must be introduced before presenting the taxonomy.

Firstly, the taxonomy is presented as a table, which enables the presentation of modes by how they use skills, allowing for analysis and comparison. The analysis that

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[221] Editorial in Nature, "How to Avoid Glib Interdisciplinarity."
[222] Barash, "C.P. Snow: Bridging the Two-Cultures Divide."
[223] Barash.

follows allows us to identify which modes can be potentially productive, socially integrative, or otherwise useful to individuals and society. The taxonomy is a not a definitive empirical categorisation, nor even a complete list of all modes. It is designed to present a simplified categorisation of several kinds of generalism and specialisation (both real and hypothetical) to lead into a discussion of why certain kinds may be valuable.

Each mode of work is tabulated in terms of the minimum proficiency necessary in each level of specialised skill for it to be identified as distinct. This means that this categorisation is inclusive rather than exclusive. It is probable that real individuals will have higher levels of proficiency than presented on the table and could potentially be categorised as belonging to one of multiple modes. As individuals can potentially act using different modes in different contexts (occupations could also potentially require multiple modes in different contexts), this taxonomy is inclusive rather than seeking to draw sharp distinctions. There are a few exceptions to this inclusivity, such as the dilettantes and overspecialised workers, which are analysed for illustrative purposes.

The proficiencies listed in the table are both the minimum requirements to practise a mode and the skills these modes develop. Specialisation requires strong specialised skills but also develops them. Proficiencies are categorised as "strong", "moderate", or "weak", with "~" being used to denote that these skills are not relevant to categorisation. For example, the identification of a generalist in a branch of knowledge is not affected by the presence of hyper-specialised skills, which only indicate that they are currently employed in this context. Meta skills are an exception to this labelling, being listed by the skill name instead.

On the table, "specialised skills" are broken into two kinds: "specialised skills (disciplinary)" and "specialised skills (extra-disciplinary)", representing one's proficiency in specialised skills in one's current occupation and in other specialisations, respectively. Both aspects are distinguishing features for several modes, particularly for the most important one, method and knowledge translation.

Finally, the table does not have columns for "basic cognitive skills" and "basic educational skills". Individuals are assumed to have a basic education in this analysis; its presence or absence complicates matters, affecting everything in some situations but nothing in others. Such a discussion, while interesting, is left for another time. Similarly, individuals are assumed to possess cognitive skills. Discussing the implications of lacking

them in the context of this concept could provide enlightening but would distract from this thesis' purpose.

Taxonomy of Modes of Work

Mode of work	Meta skills	Hyper-specialised skills	Specialised skills (disciplinary)	Specialised skills (extra-disciplinary)	Disciplinary skills
Specialist	Critical thinking, Analysis	Strong	Strong	Weak	Moderate
Overspecialised worker	Analysis*	Strong	Strong	Weak	Weak
Generalist in a branch of knowledge	Translation*, Analysis, Synthesis, Sensibility	~	Strong	Moderate	Strong
Method and knowledge translators ("Generalists")	Translation, Synthesis, Analysis, Sensibility	~	Moderate	Moderate	Moderate
Dilettantes	Weak	Weak	Weak	Weak	Weak
Jack of all trades	~	Moderate	Moderate	Moderate	Moderate
Master of all	~	Strong	Strong	Strong	Strong
Humanities students	Analysis, Communication, Critical thinking, Synthesis*, Translation, Sensibility	Weak	Weak*	Moderate*	~
Marxian generalist	~	Moderate	Moderate	Moderate	Moderate
Managers	Synthesis, Analysis, Sensibility	Moderate	Strong	Moderate	~
Educators	Synthesis, Analysis, Education, Communication	~	Strong	Weak	Strong

Figure 3 – Tabulated form of the taxonomy

Discussion

Specialists

Specialists tend to work within one restricted discipline, and possess strong specialised skills in their discipline, and strong hyper-specialised skills, for their workplace. Specialists will have moderate knowledge of their broader discipline in part because of the structure of education and training. Specialists are not required to have extra-disciplinary specialised skills; once again, these are minimum requirements. Specialists develop certain meta-skills, notably analysis and critical thinking, in the course of their work. Certain specialisations may particularly develop certain meta-skills.

Overspecialised workers

Overspecialised work consists of performing limited, hyper-specialised tasks to near perfection with little variation in work. An overspecialised worker's hyper-specialised and specialised skills are strong since their work is comprised solely of them. They lack disciplinary and (extra-disciplinary) specialised skills since their work provides few if any opportunities to learn and practise these due to its "monotony"[224] and the propensity for overspecialised jobs (such as factory work) to be attended by individuals with less education and experience in other tasks. Overspecialised workers may also lack meta skills, except for a stunted form of analysis only usable in the context of their hyper-specialised work[225]. Overspecialisation can be understood as the individual's non-hyper-specialised skills atrophying from lack of use. The 'pyramid' becomes taller but narrower.

As previously stated, overspecialised work is not an inclusive mode, and is discussed for illustrative purposes. Rather than being distinguishes be minimum proficiencies, the distinguishing feature of overspecialised workers are their lack of other proficies. Furthermore, possessing strong hyper-specialised skills does not necessarily make a specialised worker overspecialised. If individuals classify for any other mode, they should not be classified as dilettantes, since they do not lack proficiencies.

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[224] Smith, *The Wealth of Nations*, 870.

[225] Smith, *The Wealth of Nations*, 870; Marx, *Capital*, 1: Chapter 14, §5.

Dilettantes

Similarly, the dilettante is into an inclusive mode, as it is also defined by its lack of proficiencies. Dilettantes are individuals who refuse to specialise, only dabbling, taking up an "exclusively general" culture[226]. Dilettantes lack any specific skills due to their exclusive generality. While some people who classify as dilettantes may exist, this mode is most often a mischaracterisation of generalists (or non-specialists) used to denigrate them.

The jack of all trades and the master of all

The jack of all trades is proficient in multiple disciplines to the extent that they possess a moderate, even if not masterful, understanding of them. The master-of-all is a variation possessing strong proficiencies. While it is not true to the name, this analysis does not require an individual to be proficient in every specialisation; the number of disciplines makes that unreasonable. While meta-skills are marked as not relevant, it is almost certain that that the jack of all trades will have developed meta-skills, possibly including translation, since each discipline develops certain meta-skills.

Marxian generalists

Marxian generalists[227] were proposed by Marx in *The German Ideology.* In a communist society, individuals could "hunt in the morning, fish in the afternoon, rear cattle in the evening, criticise after dinner… without ever becoming hunter, fisherman, herdsman or critic."[228]. They require enough proficiency in the skills they perform but are not restricted by discipline. They do not necessarily use translation or other meta-skills beyond when required for their task. While they may struggle to work in multiple fields simultaneously with society's current employment structure, so long as they fulfil specific needs they may contribute. Since their depth comes from Marx's suggestions for structural changes too expansive to cover in this thesis, they should be re-examined later.

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[226] Durkheim, *The Division of Labor in Society*, 402.
[227] Not Marx's term
[228] Marx, *The German Ideology,* Part I, "Private Property and Communism".

Generalists in a branch of knowledge

Generalists in a branch of knowledge, or "branch generalists", synthesis information and techniques from multiple specialisations in their branch of knowledge, using whatever is most useful in their specific context. It is best represented by the General Practitioners (GPs) in the branch of medicine. GPs use knowledge and techniques from many medical specialisations to evaluate an individual's medical problems. This allows them to prescribe or synthesis the most appropriate solution. If the issue is beyond their capabilities, they can refer the patient to relevant specialists. Branch generalists only translate from specialisations in their branch to their specific context as opposed to translating between specialisations which may transcend branches of knowledge.

The general acceptance of certain kinds of branch generalists, like GPs and general labourers, is notable because of their difference to specialists, suggesting flaws in the logic presented in chapter 1 about which kinds of work are accepted.

Humanities students

This category involves individuals who are valued for (and work using) their strong meta-skills, particularly analysis, comprehension, communication, and critical thinking. While this category includes a wider group than solely humanities students, finding a name properly reflecting that is difficult. This mode is valued by employers for meta-skills most commonly associated with the humanities, including the above and other "transferrable" skills[229]. This mode is mostly valued for its meta-skills outside the context of the discipline they were developed in[230]. Hence, it has been classified as requiring "weak" specialised and "moderate" extra-disciplinary specialised skills despite probable actual abilities.

Synthesis, translation, and sensibility are associated with Habermasian philosophers, a version of this mode which is discussed in depth later[231]. Habermas believes that philosophers have an intrinsic connection to "law, morality, and art"[232]

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[229] "Value of Humanities | Deloitte Australia | Deloitte Access Economics Report, Higher Education"; Tenner, "Is Philosophy the Most Practical Major?"; "What Can I Do With A Philosophy Degree? | Belmont University | Nashville, TN."

[230] When practised within, this mode will resemble a specialist with these meta-skills

[231] Habermas, "The Relationship Between Theory and Practice Revisited," 2003, 289.

[232] Habermas, 287.

which gives them the sensibility to understand and analyse problems which span multiple disciplines and synthesise solutions[233].

Managers

"Managers" are an interesting, potentially maladaptive type of generalist. They manage how other workers act and interact and can facilitate the division of labour. Their work involves the management of different workers and jobs in a whole process to make them interact productively. As such, managers analyse the various parts of the system so that they result in a holistic product; in this way, they are a kind of generalist. Managers can also be maladaptive, since they split off, restrict the scope of and take the authority of the whole process for themselves, causing the overspecialisation of the specialists they manage, as discussed in the previous chapter[234]. Of course, not all managers are maladaptive, nor are they the sole cause of overspecialisation.

Educators

Education involves a kind of translation, but it is not the same as "translation" proper. Educators (ideally, but not necessarily) have strong specialised skills in the discipline they teach and in education itself. Education involves teaching skills and knowledge by building those knowledge and skill from the ground up in the individual, in terms of the pyramid of skills.

Method and knowledge translators, or "generalists"

Method and knowledge translators translate specific knowledge and techniques from one specialised area to fulfil needs in another. They are generalists in the genuine sense, since translation, their distinguishing feature, transcends disciplinary boundaries. Translation requires analysis, synthesis, and sensibility to judge the appropriateness and carry out a translation. These allow generalists to fulfil needs using means alternative to traditional means, even if that includes the synthesis of multiple fields. Examples of these generalists are interdisciplinary workers, such as experimental philosophers who use scientific means to provide answers to philosophical questions[235].

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[233] Habermas, 289.
[234] Marx, *Capital*, 1: Chapter 14, §3.
[235] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 381–82.

Method and knowledge translators require moderate proficiency in the disciplines and contexts they translate to and from. Increased proficiency in either will improve the quality and impact of their translations. However, the requirements are only listed as "moderate" because a unique approach may be valuable and generative despite the flaws coming from a lack of specialised knowledge[236].

Comparisons

Generalists, humanities students (in this case Habermasian philosophers), and branch generalists all use translation, but in different ways. As previously discussed, branch generalists translate from an exclusive set of disciplines. A GP does not translate metaphysics to their practice. The Habermasian philosopher translates things outside their discipline, but they are exclusively outside what they translate. Method and knowledge translators are inclusive in both these dimensions, translating specific skills and knowledge from their field to other areas, which can lie outside a branch of knowledge[237]. Method and knowledge translators may not be do not stand in a field of "generalism" like the Habermasian philosophers, they work within specific fields or create new ones through synthesis.

There are strong similarities between the jack of all trades, humanities students, and generalists. The jack of all trades who develops meta-skills, particularly translation, has the same proficiencies as a generalist, as does a humanities student who develops translation and specialised skills. Generalism may not be immediately apparent in society, but there are many places from which it can develop.

The potential value and viability of the modes

One purpose of this taxonomy was to identify and discuss which modes are potentially viable. The features of these modes as previously discussed lead me to these conclusions when examining whether they will function viably within modern society.

Specialists already exist and are considered productive and socially integrated, though overspecialisation casts doubt over whether this is always the case. Furthermore, it can be considered viable both because of its historical prominence and because its ability to productively fulfil specific needs. Educators also currently exist and function

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[236] Casadevall and Fang, "Specialized Science," April 2014.
[237] This is not to suggest that they generalists only have one field, only that they are often part of the areas they translate to and from.

adequately within modern society. Branch generalists also exist, notably GPs. They have a 'swiss army knife' of skills, fulfilling specific needs in a broad area while calling the aid of specialists where they cannot. While existence implies viability, it is possible that certain branches of knowledge lack corresponding branch generalists due to a lack of recognition that such a position could reasonably fulfil needs. Dilettantes are largely caricatures, so their unviable in unsurprising, since they fulfil no particular needs. Managers exist, but once again, not all managers will be maladaptive, especially if they allow the specialists they manage variety and authority in their work.

The jack of all trades may struggle to fulfil specific needs effectively within society's current structure, because they are likely to be outperformed by specialists. A jack of all trades can flourish if their abilities align with the requirements of certain occupations which require the combinations of several skillsets. One example may be national park rangers, who require camping, survival skills, conservation skills, coordination, and so on. However, such occupations requiring broad specific skillsets are the limited, limiting the potential viability of the jack of all trades. If the jack of all trades developed synthesis and translation, they may be able to act as a generalist.

Marxian generalists similarly may struggle to viably exist in society not due to a lack of fulfilment of specific needs, but due to occupational employment structures.

Humanities students are surprisingly highly valued considering their lack of specific skills and the constant jokes that they are "burger-flippers". They are valued by business communities for their meta-skills, their ability to think critically and analyse any situation[238]. This leads to certain humanities graduates, like philosophers, being perceived as very employable, possessing 'the ultimate "transferrable work skill"'[239], which gives them a strong aptitude for many kinds of work, sometimes even being preferred over students who majored in those kinds of work[240]. However, the lack of specialised skills can occasionally be to their detriment, as they may struggle to fulfil specific needs better than workers who simply possesses the relevant skills. Similarly, the reason they are insulted may relate to the difficulty for the public to identify which specific needs they are intended to fulfil, since meta-skills are not understood as easily as specialised skills.

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[238] Dhabi, "Employment and Graduate Studies"; Tenner, "Is Philosophy the Most Practical Major?"; "Employability of Philosophy Students - David Bain."

[239] "What Can I Do With A Philosophy Degree? | Belmont University | Nashville, TN."

[240] "Employability of Philosophy Students - David Bain."

Finally, Method and knowledge translators may function viably within society's structures, since they fulfil specific needs with specific, but extra-disciplinary, means; though the relative uncertainty of translation (compared to specialisation) could potentially hinder their viability. Interdisciplinary workers function adequately and have been shown to be productive[241].Method and knowledge translators may even remedy specialisation's flaws, through reconnecting disciplines which had become introverted, providing alternative avenues of progress where disciplines have stagnated, and, as will be discussed later, allowing authority and variety in work for other modes also.

As such, this understanding of generalism can potentially be viable in society, except for the fact that it lacks recognition, which hinders its support.

Other types of work which are proposed to resist overspecialisation

Now that the modes of work have been explained, we can examine some of the proposed solutions to overspecialisation's problems. Several of the modes above, in various forms, have been proposed to counter the 'narrowing' of skills which occurs because of overspecialisation. The solutions examined here are providing a general base for specialists[242], using 'philosophy', 'art', and the humanities[243], and the push for interdisciplinary work[244]. Each of these has potential benefits but notable shortcomings. This leads to an understanding of generalism which may avoid these issues.

General base for specialists

One of the solutions proposed to counter overspecialisation is to give specialists a general base or general education. Those proposing this solution believe overspecialisation makes specialists inflexible because of the monotony of their work,

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[241] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy"; Spitzer, "Introduction of Interdisciplinary Teaching."

[242] Casadevall and Fang, "Specialized Science," April 2014; Taggart, "The Price Society Pays for Specialization," 1927.

[243] Habermas, "The Relationship Between Theory and Practice Revisited," 2003; Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012.

[244] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy"; Keestra, "Metacognition and Reflection by Interdisciplinary Experts"; Stone, "The Experience of the Tacit in Multi- and Interdisciplinary Collaboration"; Spitzer, "Introduction of Interdisciplinary Teaching"; Casadevall and Fang, "Specialized Science," April 2014; Bohm, "On Communication"; Repko, Newell, and Szostak, *Case Studies in Interdisciplinary Research*.

intolerant of specialisations they do not understand, and unable to evaluate other disciplines or understand their place in society since they lack general analytical skills[245]. When these writers advocate a general education, it is among other proposals, however, this idea is examined here in isolation, so that the supplements it requires are apparent.

Taggart believes that a broad education and interaction with other disciplines can instil a patience in an individual so they can listen to those they disagree with, refrain from condemning that they know little about, and involve themselves in other fields[246]. Casadevall and Fang also prescribe broader education to postgraduate students to mitigate overspecialisation's effects (at least in scientists)[247]. They question why most PhD candidates have little if any philosophical training. Hence, they advocate training in relevant philosophical fields, such as ethics, metaphysics, logic, and epistemology, as well as other fields such as statistics and probability. They believe that philosophy can facilitate transdisciplinary thinking, improve analytical and communication skills, and improve experimental design[248]. This allows them to benefit from other fields even when they specialise.

However, this remedy alone may not be enough. Firstly, almost all specialists in modern society have a broad education from educational institutions, yet overspecialisation still occurs. Even with a general education, there are organisational barriers to individuals exercising their experimental and transdisciplinary ideas, such as disciplinary segregation[249]. The training some writers propose involves developing meta-skills (aside from translation) to the same levels of generalists[250].

Philosophy and the humanities

One of the proposed solutions to overspecialisation is the use of humanities and philosophy. These proposals often focus on philosophers. This kind of philosopher, which Habermas proposes, is a kind of "specialist in generalism" who can tackle problems which are beyond the scope of a specific discipline (like climate change for example)[251]

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[245] Casadevall and Fang, "Specialized Science," April 2014; Taggart, "The Price Society Pays for Specialization," 1927.
[246] Taggart, "The Price Society Pays for Specialization," 1927, 37–38.
[247] Casadevall and Fang, "Specialized Science," April 2014.
[248] Casadevall and Fang.
[249] Casadevall and Fang.
[250] Casadevall and Fang.
[251] Habermas, "The Relationship Between Theory and Practice Revisited," 2003, 289.

or enter into another discipline and discuss its methodology and ethics of its activity[252]. These philosophers must simultaneously interact with and synthesise other disciplines while remembering that they are not specialists in what they discuss and are outside that field, as fulfilling a specialised role could rob it of its ability to do things differently[253]. Habermas claims that their ability to do this comes from their connection to "law, morality, and art"[254], which gives them the sensibility to synthesise the appropriate solution.

While this solution shows some promise, the disciplinary nature of these philosophers makes them also vulnerable to disciplinary introversion in two ways: disciplinary capture and instrumentalization[255]. Interdisciplinary fields who suffer disciplinary capture stayed within their boundaries and developed their discipline without connecting to other fields, as happened to environmental ethics[256]. This renders them unable to connect and synthesise these wider fields, instead developing into another specialised, introverted, discipline, writing philosophy to philosophers rather than making case studies[257]. Instrumentalization can occur when an interdisciplinary field is relevant in multiple fields, but forfeited its ability to change and be distinct, so it becomes a restricted tool only used by those disciplines[258]. This occurred with bioethics, which lost its ability to substantively critique situations except by classically liberal conceptions of justice[259]. A Habermasian philosopher could become overspecialised in these ways because they work in a discipline which interacts with other disciplines but restricts its philosophers to its own boundaries. This negatively impacts their ability to affect other disciplines through synthesis. This is not to say that generalism, translation, and synthesis can never exist as discrete specialisations, but when they are not accompanied by more inclusive and open disciplinary boundaries, they are vulnerable to disciplinary capture and instrumentalization

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[252] Habermas, 287.
[253] Habermas, 286.
[254] Habermas, 287.
[255] Frodeman, Briggle, and Holbrook, "Philosophy in the Age of Neoliberalism," 2012, 316–17.
[256] Frodeman, Briggle, and Holbrook, 317.
[257] Frodeman, Briggle, and Holbrook, 317–18.
[258] Frodeman, Briggle, and Holbrook, 321.
[259] Frodeman, Briggle, and Holbrook, 321.

The interdisciplinary push

While interdisciplinary work is an instance of generalism, the current push for interdisciplinary work has significant problems which limit its viability and ability, particularly that interdisciplinary work is undertrained and under-supported, and that interdisciplinary workers frequently misuse the methods they adopt. These might be mitigated if interdisciplinary work was recognised as generalism, as will be discussed in the next section.

Interdisciplinary work is touted as a powerful, generative solution to disciplinary introversion, as it creates new connections between disciplines which can help address grand, wide-ranging problems[260]. The bridges they make tend to generate new productive approaches and revitalise a specialist's ability to critically evaluate other areas[261]. Interdisciplinary research enables disciplines to benefit from and collaborate with the work of others, integrating multiple disciplines[262]. However, a lack of support and poor practise can impede interdisciplinary research from successfully achieving these effects.

While interdisciplinary work is nominally promoted, it is frequently lacking the institutional support it needs to exist sustainably in institutions like universities[263]. This is partly because interdisciplinary researchers either must justify the value of the project to the departments and funding bodies of their institution or work alone[264]. Furthermore, interdisciplinary research is more uncertain, risky, time-consuming, and prone to being unable to be replicated; all of which is rarely properly supported by institutions despite loud claims to the contrary[265]. Few seem willing to risk their career on it[266]. Furthermore, there are several institutional barriers such as the lack of benefits from not being in a specific field and the segregation of specialists, which impedes communication and collaboration[267]. Institutionalising interdisciplinary research may even hinder its occurrence. Institutionalisation separates interdisciplinary work from the disciplines it is meant to bridge and dissuades other disciplines from attempting it[268].

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[260] Editorial in Nature, "How to Avoid Glib Interdisciplinarity."
[261] Casadevall and Fang, "Specialized Science," April 2014.
[262] Casadevall and Fang; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy"; Editorial in Nature, "How to Avoid Glib Interdisciplinarity."
[263] Spitzer, "Introduction of Interdisciplinary Teaching."
[264] Spitzer.
[265] Editorial in Nature, "How to Avoid Glib Interdisciplinarity."
[266] Barash, "C.P. Snow: Bridging the Two-Cultures Divide."
[267] Casadevall and Fang, "Specialized Science," April 2014.
[268] Barash, "C.P. Snow: Bridging the Two-Cultures Divide."

Even if interdisciplinary research is properly supported, it is often accused of poor performance, as researchers misuse the methods they adopt, re-tread old ground, or even may lack a legitimate basis. Interdisciplinary workers who blindly accept other disciplines' conclusions without diving deep into the relevant research are likely to run into trouble when running into unexpected outcomes and may struggle to understand their significance[269]. This situation is not helped by a lack of support and training for researches in the disciplines they adapt methods from[270]. This can often lead to interdisciplinary unknowingly studying subjects which have been covered exhaustively by other disciplines, along with methodological issues[271].

These issues make it seem like interdisciplinary work has significant problems which affect its productivity, viability, and even legitimacy. However, I believe these problems are partially by a misrecognition of interdisciplinary work and of generalism, and with the recognition of generalism, these problems can be addressed. The reasons why recognition could allow the mitigation of these problems will be discussed in the next section.

Generalism

Generalism may be the real solution to these problems, capable of succeeding where the other proposed solutions fail because of its connection to meta-skills, its inclusivity as a mode, and its distinction as a trainable mode deserving of recognition and support. However, these three features which allow it to avoid these issues initially appear paradoxical and self-defeating. By understanding why these apparent paradoxes are not self-defeating, but beneficial features coming from precise definitions, the reasons why generalism avoids these problems can be discussed. This section aims to expand the scope of generalism, to identify its qualities, and reveal its usefulness.

Generalism's apparently paradoxical elements

There are three elements of generalism which appear paradoxical, which could cast doubt on its viability and coherence. Firstly, successful translations become standard disciplinary practise, and are no longer generalist. Secondly, generalism relies on

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[269] Editorial in Nature, "How to Avoid Glib Interdisciplinarity."
[270] Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 389.
[271] Higgins and Dyschkant, 389–90.

specialisation, yet does not require one to be a specialist. Thirdly, generalism is a distinct, trainable mode of work worthy of recognition but everyone has the capacity to perform its method, translation. Due to the precise ways which generalism has been defined, these are not actually paradoxical, only complex.

Generalism becomes specialisation

When generalist translation is successful, it is adopted by the relevant disciplines, and appears to become no longer generalist. The once-translator's scope becomes entirely within disciplinary boundaries, making them appear to lose their status as a generalist. The distinction between disciplinary and generalist practice is not as clear or delineated as it would initially seem. This is not coincidental, as both generalism and specialisation replace the means to fulfil needs. Specialists replace the current means to fulfil needs with more refined means, whereas generalists replace them with alternative means. However, even if a discipline's scope expands to include a generalist's once-extra-disciplinary skills, the generalist's meta-skills, which transcend disciplines, do not disappear. This is a reason why the inclusivity of the taxonomy is important, because the generalist still possesses the meta-skills necessary to be a generalist, though they may decide to develop a different frontier with translation. As such, they are no less of a generalist despite also being a specialist.

Generalism relies on specialisation

Generalism is a mode of work different to specialisation. Yet, generalists require specialised skills and knowledge to have something to translate. Generalism appears to have to have a discrete, bounded, disciplinary field to work in and translate from, yet it also needs to work outside a discipline to introduce external methods and knowledge.

Inclusivity once again is part of the solution to this paradox, but its status as a mode is also significant. Generalism uses specific means to fulfil specific needs, in specific disciplines[272], as it is impossible to fulfil 'needs in general'. However, it is possible for needs in one field to be fulfilled with means translated from another. So, generalists rely on the knowledge and skills from outside a specific discipline to fulfil needs within that discipline. The generalist is simultaneously outside and within a discipline's boundaries; or rather the generalist transcends them. Certainly, a generalist

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[272] Interdisciplinary fields notwithstanding

must have defined work, because they must know enough disciplinary knowledge and skill to have material to translate, but this work does not need to be pre-defined by disciplinary boundaries and conventions. Generalists use specific specialised skills, though which skills are used is determined not by discipline, but by potential usefulness. Generalists are not dilettantes, who lack social integration and substantial personality because they do not fulfil specific needs[273], instead generalists facilitate social integration through reconnecting disciplines with translation. Hence, generalism is both inside and outside a discipline, relying on specialisation while not being restricted by it.

The reason generalism is well equipped to transcend disciplinary boundaries is because of its intrinsic connection to meta-skills. Method and knowledge translation primarily uses the meta-skill translation, which involves crossing disciplinary boundaries. Meta-skills themselves are developed cognitive skills which can influence specialised skills while transcending specialised disciplines. Even when one is a generalist within a specific discipline, their connection to translation allows them to simultaneously exist outside it also. Generalism's status as a mode of work rather than a discipline of "specialised generalism" can protect it from disciplinary introversion, which Habermasian philosophers have often fallen prey to, since their connection to meta-skills allows them to act differently than the disciplinary norm without becoming insular due to disciplinary barriers[274], in non-disciplinary ways. This may make disciplinary boundaries more porous, allowing better translation and synthesis in the future.

Generalism is distinct yet available to all

This connection to meta-skills raises the third paradox. Generalism has been described as distinct from other modes. However, translation is something everyone can perform, since meta-skills are developed cognitive skills. This seems to undermine the value of generalism as a distinct mode. However, the resolution of this apparent paradox is quite simple. Everyone has the capacity for translation, but not everyone has developed that capacity enough for it to be used regularly in work. Everyone is still capable of performing legitimate, useful, translations, even if they are less likely to do so than a trained generalist. Hence, while the capability to use translation gives individuals some authority in their creative ideas, which enable its use in work, individuals who use

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[273] Durkheim, *The Division of Labor in Society*, 402.
[274] Habermas, "The Relationship Between Theory and Practice Revisited," 2003, 286.

translation regularly can be recognised as making consistent specific contributions through translation and can be recognised as generalists deserving of support.

Chapter Conclusion

This understanding of generalism gives reason to believe that it can viably and productively function even within society's structures, as described by its opponents. Furthermore, it appears to be able to remedy some of specialisation's issues, such as overspecialisation and disciplinary introversion. However, to do so, it must be recognised, which has large normative implications.

Conclusion

For generalism to be able to resist the problems that other proposed solutions to overspecialisation have faced, it must be recognised. Generalism is not currently recognised. However, recognition can change. The recognition of generalism as a mode of work would involve integrating it into the framework of esteem by which individuals are recognised as people contributing to society's goals[275], which grants them support. Recognition would provide generalists the social goods discussed in chapter 1, which in this case would include social symbolic presence, financial and disciplinary support, training, institutional changes, and authority to use translation. Without recognition, generalism will not receive this support which is necessary for it to avoid the shortcomings of other proposed solutions for overspecialisation.

The recognition of generalism as a mode would provide support for generalists, including disciplinary legitimacy to bridge fields despite not necessarily being members of them, as well as organisational funding and support[276]. This support may include the justification to change institutional structures which impede translation like disciplinary segregation and a lack of workplaces which actively support and use generalism[277]. Further, this support may include training in the disciplines they translate from and to. Training reduces the misuse of disciplinary methods and minimizes the ground generalists re-tread, mitigating some of the issues interdisciplinary work currently faces[278]. While these changes enable generalists (and others) to display the generative power of translation, it has large implications for how society and work ought to be re-structured.

Recognition of generalism specifically involves the recognition of the legitimacy of the meta-skill translation. When translation is acknowledged as legitimate, and everyone has the capacity to perform meta-skills, everyone has the capacity to perform translation, even if it can also be trained. This grants everyone some authority to use translation in their work, no matter which mode they work in. This allows them more

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[275] Honneth, *The Struggle for Recognition*, 121–26.

[276] Spitzer, "Introduction of Interdisciplinary Teaching"; Casadevall and Fang, "Specialized Science," April 2014.

[277] Casadevall and Fang, "Specialized Science," April 2014.

[278] Editorial in Nature, "How to Avoid Glib Interdisciplinarity"; Higgins and Dyschkant, "Interdisciplinary Collaboration in Philosophy," 389–90.

variety[279] and authority to exercise their creativity[280], both of which counteract overspecialisation. This would change the basis on which authority is afforded, which has enormous implications for society and its structure.

Finally, recognition in this sphere is necessary for individuals to relate to their concrete characteristics in a positive manner and become "irreplaceable" in society[281]. It would allow individuals to be related to as generalists in society. Currently, interdisciplinary researchers are largely recognised by solely their original discipline[282]. Recognition could allow them to also be recognised as generalists in the fields they translate from and to.

The normative implications of the recognition of generalism are far-reaching. Not only does it suggest that occupational structural changes ought to take place, it may lead to a completely new foundation for the attribution of professional authority, causing wider changes which need to be discussed in the future.

These social theories have provided a good foundation, but a larger investigation could look at the structure of skills and meta-skills, the implications of the change in foundation of authority, and the ways generalism would interact with market and employment systems. For reasons of space, I could not examine fields such as business studies, management theory, and theories of the authority of expertise, among others. These possibilities could expand this concept into a new and helpful direction.

The recognition of generalism would not only benefit individuals practising as generalists, it would benefit society, since as this thesis has shown, generalism has the potential to reconnect disciplines, counteract overspecialisation, productively fulfil needs, and provide even non-generalists with authority. As such, I believe it ought to be recognised. For generalism to be recognised, it must first be understood. To shine the light to develop this understanding has been this thesis' purpose.

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[279] Taggart, "The Price Society Pays for Specialization," 38.
[280] Marx, *Capital*, 1: Chapter 14 §3, §5.
[281] Honneth, *The Struggle for Recognition*, 121.
[282] Spitzer, "Introduction of Interdisciplinary Teaching."

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