SOCIONICS MODEL M

OBJECTS, SUBJECTS, FEMININE AND MASCULINE

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for the sake of ***Kirsi***

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Abstract

This work presents what the author considers the most successful inquiry into psychology, metaphysics and formal logic there has ever been. We begin from Model M which is based on socionics, which is based on the Myers–Briggs Type Indicator®. These theories are personality typologies which belong to the analytic or Jungian branch of psychology. The author formalizes the typology in a new way and presents several new methods for generating the data structures of the typology. He includes Timothy Leary's eight-circuit model of consciousness into the theory. This idea hasn't been regarded a form of Jungian psychology before. In addition, the author presents new psychological concepts, the so-called "lateral circuits", which refer to previously undiscovered parts of the model. He also beautifies socionics by coming up with new names for types and romancing styles, making it more appealing to the general public.

In the second part the inquiry proceeds to the Analytic Metaphysics of Quality. This metaphysical theory includes objectivity, subjectivity, logicality and mysticality as quadrants of a Cartesian coordinate system in which vector addition may be performed to model subjects, objects, femininity and masculinity. The metaphysics is used for defining a normative theory of gender in which there are four genders: Man, Boy, Girl and Woman. In this part a completely unprecedented psychological theory of moods is discovered and presented. Moods differ from types in the sense that each person has only one type which remains the same throughout the person's life but every person can experience any mood defined in the theory. By way of examples from everyday life, the theory of moods provides astonishing insights into what's it like to have a certain gender and how is this gender similar or different to any other gender. The author includes also formal methods for inferring this difference. As a result, gender studies are turned into a "hard science".

A new cross-disciplinary application of socionics and the Analytic Metaphysics of Quality is used for elaborating the theory of intertype relations in socionics. The application is based on interpreting the hidden agenda of each type as a location of the Analytic Metaphyics of Quality coordinate system. This surprising innovation makes it possible to infer every relation between any two types to be better either as a same-sex relation or mixed-sex relation. The innovation offers a new viewpoint into socionics which traditionally isn't concerned of gender.

The Analytic Metaphysics of Quality is an extensively modified variant of the Metaphysics of Quality by the bestselling author Robert Pirsig. The author has included an inconsistency proof of Pirsig's original Metaphysics of Quality.

Unlike most scientific theories, the theory presented in this work can be based on provably consistent, complete and decidable arith-

metic. The theory does include negative numbers and subtraction but we present a modified Presburger arithmetic in which these concepts are possible. The modification doesn't affect the consistency, completeness and decidability of Presburger's arithmetic in any way.

Finally, we also solve the problem of induction in the third part. Abductive and inductive reasoning are formalized so that they turn out to be analogous with deduction. The results of this formalization are axiomatic systems which don't require anything empirical. Furthermore, we point out how induction, as we have defined it, is already used in mathematical proving even though the authors who do this sometimes reverse their inductive proofs in order to make them seem deductive. We also introduce an apparently new form of reasoning called equiduction. To be sure, equiduction has been used before, but it doesn't appear to have been known as a form of reasoning different from deduction. Instead, people usually seem to believe all mathematics and logic is deductive.

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Part I

Socionics

Chapter 1

What is Model A?

Some of this book's subject matter appears to have been of interest, say, ninety years ago, after which it's been more or less abandoned. This would apply to some mathematical topics we'll discuss much later. On the other hand, a part of this book's subject matter, psychology, is actively discussed. This discussion is academic only in Slavic countries in which a form of psychology called *socionics* has been established. The Western academia has ignored this and uses the Myers–Briggs Type Indicator® instead. Currently, Facebook groups for discussion about the Myers–Briggs Type Indicator® have tens of thousands of members whereas socionics discussion groups have only a few thousand members. In spite of this we declare the Myers–Briggs Type Indicator® obsolete. The starting point of this dialectical inquiry is a theory of socionics called Model A. If some reader anyway happens to thoroughly know the MBTI® but not socionics they should check out section 4.1.

According to socionics every person has a personality type which remains the same throughout their life. There are sixteen personality types. This is relevant knowledge for many reasons, but perhaps the most important reason is that socionics includes a theory of relations between different types. This theory can help people find love or give up relationships that seem promising yet constantly result in disappointment.

Model A is the most popular theory of socionics and it would be quite safe to consider this model a correct description of people. But it is based on a theory which isn't an entirely correct description of reality. According to this theory there are eight *Information Elements*. These Elements are derived from Jungian psychology. It would be quite correct to consider them metaphysical concepts but we shall anyhow call them psychological.

Every type of socionics is defined in relation to the eight Information Elements. So the Information Elements are the more absolute part of socionics and the types are the more relative part. The Information Elements are *Feeling*, *Sensing*, *iNtuition* and *Thinking* so that there's an *introverted* and an *extroverted* variety of each. We abbreviate the Elements as Fi, Fe, Si, Se, Ni, Ne, Ti and Te.

There's also another established practice for referring to Information Elements. It is to denote Information Elements by drawing outlines of symbols and filling the outline with black if the Element is extroverted. This convention looks downright awful in written documents. It could be verbally described so that

- Feeling is denoted by a corner.
- Sensing is denoted by a circle.

- iNtuition is denoted by a triangle.
- Thinking is denoted by a square.

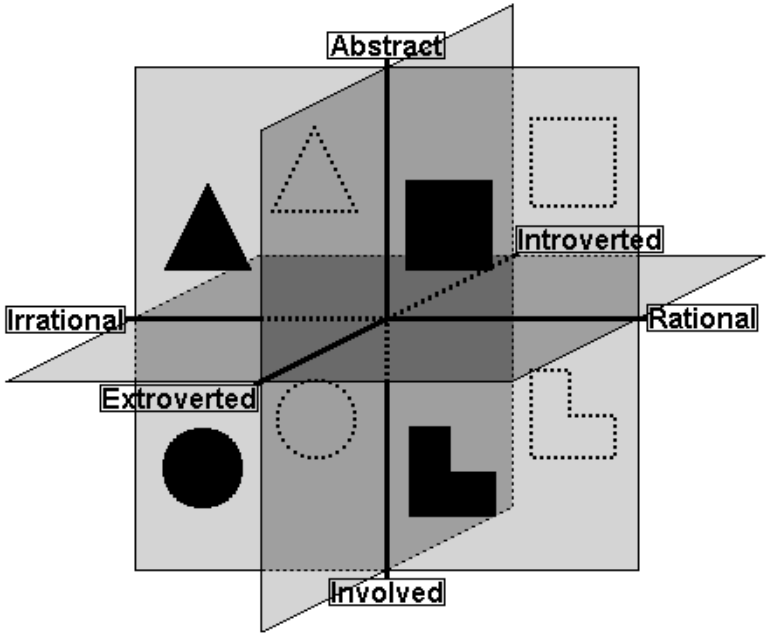

Figure 1.1: Eightfold table of Model A Information Elements from Wikipedia.

In formal presentations the square could get mixed up with the necessity operator of modal logic and the circle could look like the letter O or the number 0. When writing formulas with a pencil it would also take considerably more time to black out the extroverted elements. Nevertheless, this somewhat amateurish convention is used in figure 1.1. The image looks like a three-dimensional space but isn't necessarily intended to be one. But it certainly is a four-fold table except that it's eightfold because it's three-dimensional.

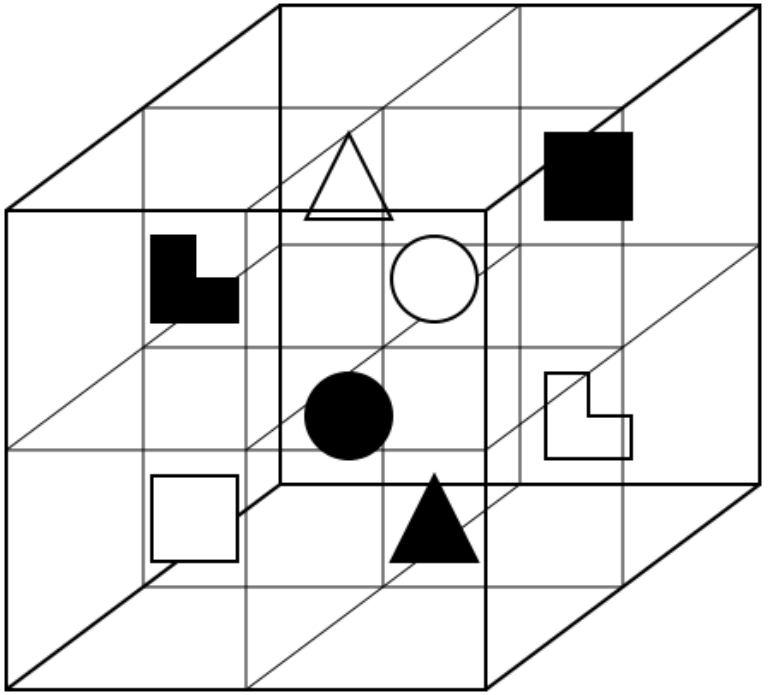

Figure 1.2: Aleksandr Bukalov's three-dimensional formalization of Model A Information Elements.

Figure 1.2 depicts a model that actually is intended as a three-dimensional space. So it isn't a new idea to arrange the Information Elements like that. But in this figure the introverted and extroverted forms of each Element are on the opposite side of the space. Since these are different aspects of the same thing shouldn't they neighbor each other?

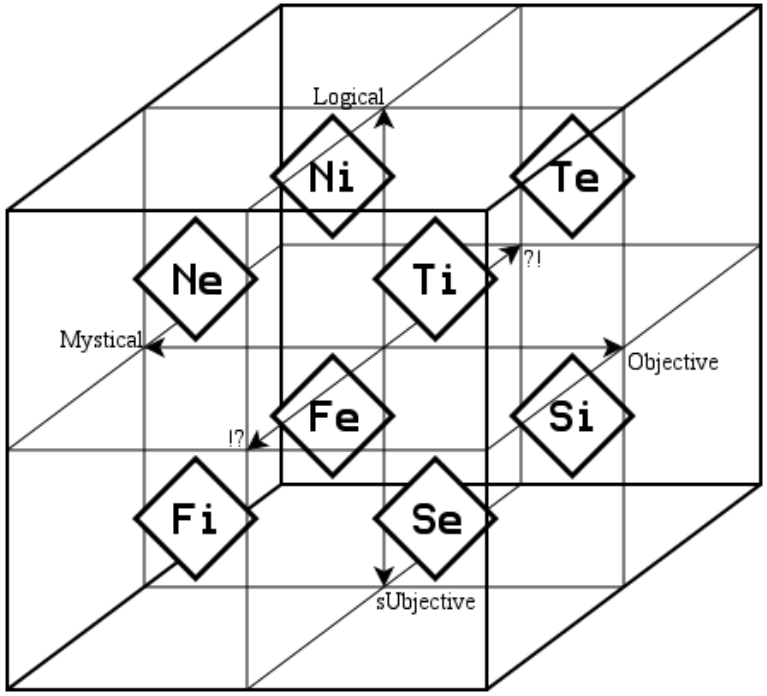

Figure 1.3: Better interpretation of Model A Information Elements in a 3-space.

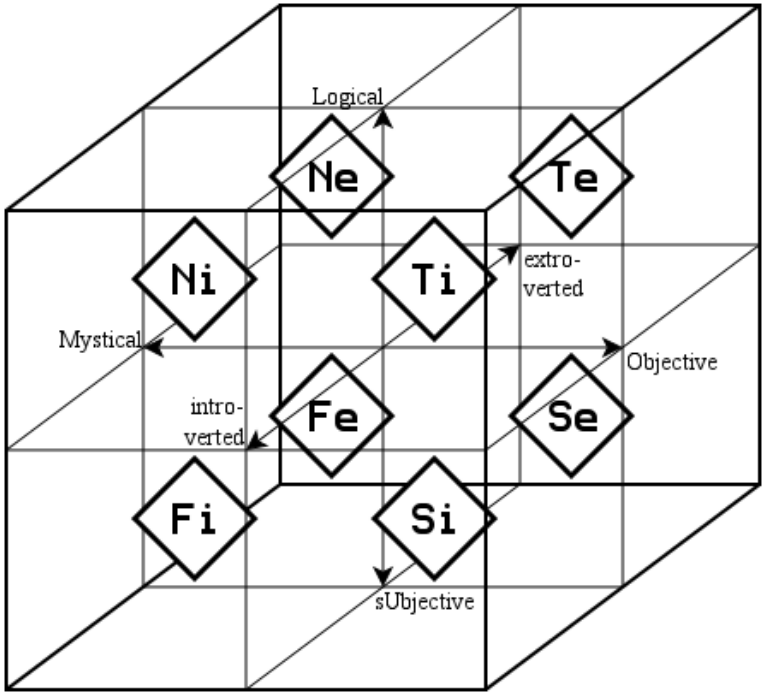

Figure 1.4: In Model M the depth axis can be named because some Elements have been renamed.

In figure 1.3 the Information Elements have been reordered so that similar Elements are near each other. But there's a problem with this figure. The depth axis, denoted by !? and ?!, is meaningless. Of course the figure could represent the best interpretation anyway. But we have come to the conclusion that it doesn't. Furthermore, the situation can no longer be improved by rearranging the Elements. Something else must be done.

Usually it might be good practice to first present the Model A Information Elements and then point out some issues and consider what to do about them. It would be polite to give Model A a chance this way. But this could only be done by teaching pretty much the entire Model A and then scrapping it. Since not everyone has even heard of Model A it would be more economical to begin by presenting another model – the model we are going to use throughout this inquiry. Let's call that Model M. In Model M four Information El-

ements have been renamed. Importantly, they have been renamed, *not relocated*. This crucial difference can be a little tricky at first. The Elements of Sensing and iNtuition have been renamed so that the Element which used to be called "extroverted" is now called introverted, and vice versa.

1.1 Information Elements

1.1.1 Fi – Introverted Feeling

This Element refers to the "gooey" part of emotions. Emotions are "gooey" because in the absence of psychological filters or barriers they stick to whatever is nearby. But of course, if a subject hates someone and notices this person to feel bad it could make the subject feel good. This is an example of a psychological filter.

The author has also an experience of someone sitting next to him crying without being affected by her mental state at all. This was an instance of a psychological barrier caused by the author's focus on his own processes. However, as she kept crying for a very long time the author eventually touched her on the shoulder to check if she needs help. This act of touching was enough to overcome the psychological barrier which separated them. But it provided only a sample of how she was feeling – the author didn't start crying, too, and the feeling subsided soon as she signaled she doesn't need help.

1.1.2 Fe – Extroverted Feeling

The extroverted form of Feeling perceives reality as scenes. For example, seeing the sun illuminate a stream of water by rays of light coming through foliage can be a source of Feeling. As a source of Feeling it's external to the subject, therefore the corresponding Information Element is extroverted.

As communication, extroverted Feeling is usually unspecific in form. It's especially unspecific if it's corrective towards another person. In this case the form of the message is distanced from every possible exact meaning so that the recipient needs to make their own conclusions about the meaning. This way, upon finally understanding the meaning the recipient feels like this message could as well be his own instead of originating from another person.

1.1.3 Si – Introverted Sensing (renamed)

In Model A this Information Element is extroverted because it causes extroverted behaviour. However, it's a misconception that the Element itself would be extroverted. It's actually introverted because it requires self-awareness. It infers the existence of subjects and objects from sense-data and is involved especially in power issues. How much force is required to make someone change their mind? How much force does it take to make someone do something? Am I inferior or superior in relation to someone, and how? Can I compensate for my weaknesses? These are all important questions but introverted Sensing doesn't necessarily approach them gracefully, with good taste and civilized manners.

1.1.4 Se – Extroverted Sensing (renamed)

This Element is raw sense-data. In Model A it is considered introverted because it involves things like enjoying food for its taste. Perhaps the developer of Model A thought: "When you eat it seems like the food is going inside you, hence the corresponding Element must be introverted." In fact, the threshold between introverted and extroverted Sensing is not the threshold of the subject's body and isn't even the threshold between two different people. Instead, it's the threshold between the mind and the physical reality. From the viewpoint of the mind the body is outside the mind – therefore it's extroverted!

Extroverted Sensing can detect physical comfort or discomfort in the self and others, can evaluate how much physical strength is required to lift a heavy object and how much dexterity is required for performing some task. It can evaluate whether physical objects are rugged or fragile. It measures time like a stopwatch: in milliseconds or similar units.

1.1.5 Ni – Introverted iNtuition (renamed)

The introverted form of iNtuition composes narratives about the present moment which explain what has brought us to our current situation. Explaining and acting out these narratives can be quite social which is why this Element is considered extroverted in Model A. In fact, this Information Element is introverted because it deals with identities, including the subject's own identity. This Element strives to find an organic and evolving way to belong to the world.

Introverted iNtuition can convey the feeling that the future is now. It's useful for funny word games, coming up with names for things and making use of a large vocabulary. If this Element were thought of as a search engine then it would be a breadth-first search. It's an introverted Element because it isn't readily apparent to others but needs to be communicated by way of signs, symbols, monologues, ceremonial roles and countless other languages.

1.1.6 Ne – Extroverted iNtuition (renamed)

Both the introverted and the extroverted form of iNtuition perceive time in an episodic manner. As time progresses, some things end and some other things begin. The order in which events happen is more important than how many seconds, days or years some stage lasts.

If extroverted iNtuition were a search engine it would be a depth-first search. This Information Element includes or is the subject's Buddha-nature. It dissolves responsibilities and comes up with new ones. It perceives reality as a parallel arrangement of trends and can tell whether a trend is rising or falling. Behaviour produced by extroverted iNtuition is authentic because it doesn't need to be self-aware. Extroverted iNtuition can make a person do things for their own sake. It can cause a person to be in a certain place at a certain time. Some people don't have much to do and extroverted iNtuition can make them phlegmatic.

1.1.7 Ti – Introverted Thinking

Thoughts are like flashes of lightning. There's nothing faster than a thought. Meaning comes before words. It's possible to think faster

than one can speak.

If iNtuition is like a tree then Thinking is like a monkey climbing that tree. Introverted Thinking receives information like a bitmap image is loaded: it sees only a part of the whole at first but this picture is accurate. INtuition, on the other hand, would receive information like a progressively compressed jpg-image is loaded: the whole picture is seen at once but it's blurry at first.

Introverted Thinking is responsible for accurate contextualization of discourse. It has access to all of the subject's knowledge, including things the subject isn't prepared to express. It can also discover the limits of knowledge and tell the difference between valid and invalid arguments. On the other hand, introverted Thinking isn't very inclined to take leaps of faith. It prefers to understand each individual step involved in a paradigm shift instead of adopting an untested idea as an axiom simply to "try it out".

1.1.8 Te – Extroverted Thinking

Extroverted Thinking processes reality in terms of expressions which are to be taken literally. It's concerned of finding relevant information from external sources and evaluating how efficiently does some thing perform the function for which it was made. It can find the ultimate form of expression in which information crystallizes into a form which can no longer be improved, at least in its original context. It may sometimes be harsh or oblivious of what's taboo. People who value extroverted Thinking may debate for its own sake or try to reduce reality into some kind of a language game.

1.2 Personality Types ("Sociotypes")

From the previous descriptions we may infer that Model A does not discover the true nature of some Information Elements because it's implicitly based on behaviorism. It's understandable that a theory of psychology would search for its roots in behaviorism. But, in fact, socionics is a normative science and belongs to the analytic branch of psychology. Therefore dialectics is at least as important than behaviorism as its ultimate ground of relevance.

The personality types defined by Model A aren't bad. Each type is either introverted or extroverted and this is useful knowledge because it describes how people behave. But as some Information Elements have been renamed in Model M, also some personality types need to be renamed. Some "extroverts" need to be renamed as introverts and vice versa. Despite this, existing descriptions of how a given type makes a person behave are correct information. These descriptions can be used in Model M by finding the corresponding Model A type from the following table. Two different type naming conventions are in use for Model A. One of them consists of three-letter codes and the other, four-letter codes.

Model A	Model M	Model A
ESI	$ISFC$	$ISFj$
SEI	$ESFR!$	$ISFp$
LSI	$ISTC$	$ISTj$
SLI	$ESTR!$	$ISTp$
EII	$INFC$	$INFj$
IEI	$ENFR!$	$ISFp$
LII	$INTC$	$INTj$
ILI	$ENTR!$	$INTp$
ESE	$ESFC$	$ESFj$
SEE	$ISFR!$	$ESFp$
LSE	$ESTC$	$ESTj$
SLE	$ISTR!$	$ESTp$
EIE	$ENFC$	$ENFj$
IEE	$INFR!$	$ENFp$
LIE	$ENTC$	$ENTj$
ILE	$INTR!$	$ENTp$

The table shows that every Model M type whose last letter is R has been renamed so that "introverts" have become extroverts and vice versa. The letter R stands for *romantic quality*. The concept of romantic quality is from philosopher Robert Pirsig. The opposite of romantic quality is *classical quality*, denoted by letter C.

There's no guarantee Pirsig would've meant his concepts to be used like this but they're quite fitting at face value in the sense that it isn't necessary to know the origins of these concepts in order to get a somewhat correct first impression of what they mean. Pirsig described romantic quality as "the pre-intellectual cutting edge of experience". Classical quality, on the other hand, would refer to systems and hierarchies of established knowledge.

In our parlance the Information Elements of Feeling and Thinking are classical quality whereas Sensing and iNtuition are romantic quality. Traditionally Jungian psychology calls the former two "judging" and the latter ones "perceiving". These aren't very good names but in order to take distance from the Myers–Briggs Type Indicator® some contemporary authors have adopted the even more unfortunate convention of calling "judging" Information Elements "rational" and "perceiving" Elements "irrational". This childish choice of words is at odds with Western philosophical tradition in which Feeling is something David Hume might call "passion" and definitely wouldn't consider rational. To be sure, this choice of words, too, does describe the behavior of different types in a manner which people seem to generally find easy to understand.

Names aside, Classical types lead a structured lifestyle which makes them dependable and consistent. Romantic types are more flexible and adaptable and may display virtuoso skill in improvised activity. Learning appears to be different for Romantic and Classical types. The former seem to learn in a more domain-general way, meaning that skills are transferred from their original context to other contexts, whereas the latter learn in a more domain-specific way so that acquired skills stay within their original context but their application is perhaps more steady.

According to the author's experience Classical types are more likely to speak so that logical implication $\Rightarrow$ is co-directional with time. That is, Classical types are more likely to say: "It's already ten PM so Jane should go to bed" whereas Romantic types would

be inclined to speak so that implication $\Leftarrow$ is oppositely directed in relation to time: "Jane should go to bed because it's already ten PM".

In the author's experience, Classical women of Feeling type display a blank gaze for a split second before becoming infatuated with a man.

One reader criticized Pirsig's writing style as hard to follow because he presents the conclusions first and the premises afterwards. This reader's type was probably Classical. A Romantic type might consider this style an invitation to guess what the premises are and not experience it as confusing. Ultimately, it isn't always possible to write for all audiences equally because people think differently. Just like some tools can only be used with the right hand, some expressions are more intelligible for people with the right type.

1.3 The Components of a Type of Model A

This work isn't a general introduction into socionics. Plenty of information about socionics is readily available on the internet. We will not study the descriptions of individual types and we also omit common descriptions of intertype relationships, subtypes, quadras, and many other practically useful topics. When we state information about socionics that has already been established as a fact our goal is to question this information or to present an alternative.

Every type of Model A consists of eight *functions* so that each function is associated to a different Information Element. The functions appear in pairs. A pair of functions is called a *block*. Functions and blocks in general may be called *faculties*. We shall proceed to describe the cognitive faculties in light of best information provided by Model A but these descriptions shouldn't be referenced as sources. Much later, in section 3.4, we will obtain information which slightly changes the results presented here.

1.3.1 Valuedness: Unvalued or Valued Faculty

The use of *valued* cognitive faculties is inherently rewarding for the subject. These faculties represent that which the subject generally wants to do with his or her life. In this way, Jungian psychology answers the philosophical question about what is intrinsic value. Excessive or monotonous use of *unvalued* faculties, on the other hand, causes negative feelings. These functions can have instrumental value but it is derived from their relations to valued faculties.

1.3.2 Strength: Weak or Strong Faculty

It's more stressful to perform demanding tasks with *weak* faculties and the risk of error is greater. Therefore the subject avoids the use of these faculties and accepts help with regards to them. Being complimented for the use of a weak function can result in an unexpected confidence boost. *Strong* faculties process information at a faster rate, have a more reliable access to memory and are more ready for challenges.

1.3.3 Mentality: Vital or Mental Faculty

The subject is more aware of the information processed by *mental* faculties. These faculties are more integral for his identity. *Vital* faculties are the unconscious part of the subject's psyche. It requires some maturity to realize they even exist. In a sense, vital faculties are more pure than mental faculties because the subject doesn't store his identity in them.

1.3.4 Accepting or Producing Function

Every block has a direction so that one of its functions precedes the other in time. The preceding function is called the *accepting* function and the succeeding function is called the *producing* function. Accepting functions are independent and less subject to change whereas producing functions usually try to conform to the accepting functions and respond to their needs. When we mention functions in blocks we may also say the block is *driven by* the accepting function and *aspires towards* the producing function.

Note that Model A never makes a difference between a valued block and an unvalued block whose accepting and producing functions are valued. We will make such a difference much later, in section 3.4, after having obtained the necessary information. Therefore caution should be exercised when citing this section as a source.

1.3.5 Ego Block

This strong, valued and mental block is driven by the *Leading* function and aspires towards the *Creative* function. The Leading function largely determines the subject's role in life. He may defend it when challenged and expect others to find it as significant as he does. The Creative function is used to support the Leading function but it isn't always active.

1.3.6 Super-Ego Block

This weak, unvalued and mental block is driven by the *Role* function and aspires towards the *Vulnerable* function. It's something of a rejected alternative for the Ego. When the subject is using his Role function his Leading function is inactive and may be unresponsive, and vice versa.

The subject recognizes the importance of the Super-Ego's Elements but focuses on this area of life only sporadically. Criticism towards these functions is painful but compliments usually boost confidence. To be sure, not any kind of compliment is good. Let's suppose a subject with extroverted Sensing in the Role function and extroverted Feeling in the Vulnerable function. If someone cheered at him while he's jogging he could find it very uncomfortable. Cheering is a pretty strong gesture.

Strenuous use of the Super-Ego is associated with dyskinesia around the mouth. There are unintentional movements. Perhaps the reason why men have beards is to conceal this.

1.3.7 Super-Id Block

This weak, valued and vital block is driven by the *Suggestive* function and aspires towards the *Mobilizing* function. The subject is highly tolerant of the Suggestive function's Element in the ambi-

ence and appreciates direct help with regards to this function. He's more comfortable using the Mobilizing function, but only sporadically. The Mobilizing function is better used in safe company because it can be imbalanced and immature. Too much of its Element in the ambience will be overwhelming and cause avoidance.

1.3.8 Id Block

This strong, unvalued and vital block is driven by the *Ignoring* function and aspires towards the *Demonstrative* function. The subject is adept at using the Ignoring function but its prolonged use causes a feeling of boredom or malaise. The Demonstrative function's Element, on the other hand, appears to the subject as some kind of a game that isn't worth taking too seriously but is good for honing one's skills. Developing the Demonstrative function improves the performance of the Creative function but its excessive use can cause aggressive feelings. According to the author's experience, a sense of wellness in the Super-Id is important for improving the performance of the Id.

1.3.9 "Rings" of Model A

Many documents about Model A mention a so-called "vital ring" and "mental ring" which refer to vital and mental functions as a whole. Some authors tinker with these concepts by substituting the word "ring" with "track" or "superblock". We haven't found any author who'd actually use these mysterious concepts. The concept that's used to refer to the mental and the vital functions as wholes adds nothing new.

Some authors connect the vital and mental blocks as rings by vertical arrows. We don't know any of these authors to have specified the strength, valuedness or mentality of a relation denoted by such an arrow. The relations haven't been named or described, either, so in figure 1.5 we call them ?, ??, ??? and ????.

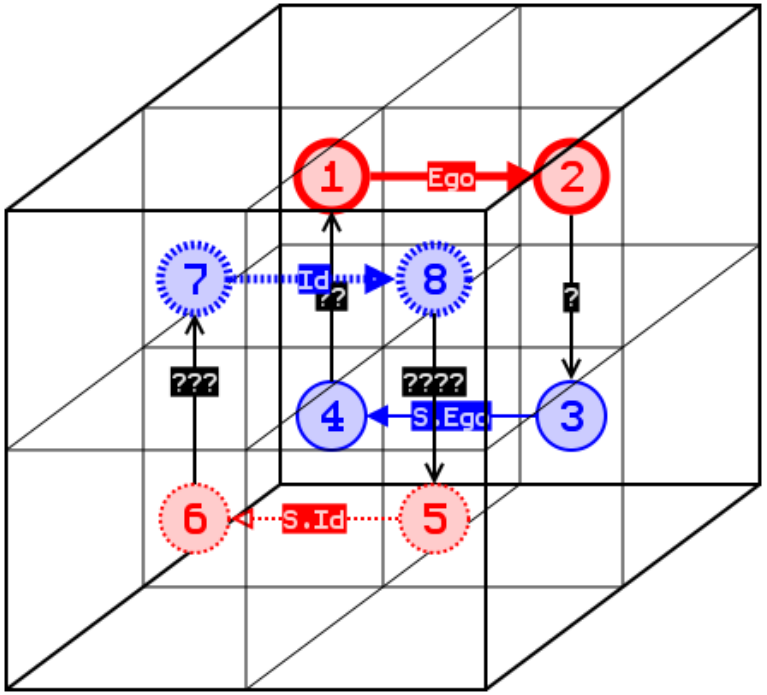

Figure 1.5: Strong faculties are denoted by thick lines, valued faculties by red color and vital faculties by dotted lines. The functions are numbered according to an established convention of Model A.

In figure 1.5 the three-dimensional space is filled with functions. This space may be superimposed on the space of figure 1.3 so that

each function matches an Information Element. In this case the result is the type INTp of Model A. The function space may be rotated in relation to the Element space to produce other types, but there's also another method which doesn't require drawing or imagining three-dimensional shapes.

1.4 Determining Elements and Functions in Model A

Even though we don't use Model A we can formalize it to make the transition from Model A to Model M easier for those who already know Model A. Readers who don't know Model A may skip this section and the following one, too. Here we formalize the solution to the question of Model A: "Given a type, how can one determine which Information Elements are associated with which functions?" We first introduce an unary opposition operator $*$ for the following letters:

$$*\mathrm{T} = \mathrm{F}, *\mathrm{F} = \mathrm{T}$$

$$*\mathrm{E} = \mathrm{I}, *\mathrm{I} = \mathrm{E}$$

$$*\mathrm{S} = \mathrm{N}, *\mathrm{N} = \mathrm{S}$$

These relations also hold for lowercase letters. Let us have a four-letter type and number its letters from one to four: $L_1L_2L_3l_4$.

If l_4 is j: Let A_1 be L_3 and B_1 be L_2.

If l_4 is p: Let A_1 be L_2 and B_1 be L_3.

Let A_2 be L_1 and B_2 be $*L_1$, both in lowercase.

Now the functions are associated with the Information Elements as follows:

1. Leading function: A_1A_2
2. Creative function: B_1B_2
3. Role function: $*A_1A_2$
4. Vulnerable function: $*B_1B_2$
5. Suggestive function: $*A_1*A_2$
6. Mobilizing function: $*B_l*B_2$
7. Ignoring function: A_1*A_2
8. Demonstrative function: B_1*B_2

Example 1: type $ENTj$.
Since l_4 is j: Let A_1 be T and B_1 be N.
Let A_2 be e and B_2 be i.

1. Leading function: Te
2. Creative function: Ni
3. Role function: Fe
4. Vulnerable function: Si
5. Suggestive function: Fi
6. Mobilizing function: Se

7. Ignoring function: Ti
8. Demonstrative function: Ne

Example 2: type $ISFp$.
Since l_4 is p: Let A_1 be S and B_1 be F.
Let A_2 be i and B_2 be e.

1. Leading function: Si
2. Creative function: Fe
3. Role function: Ni
4. Vulnerable function: Te
5. Suggestive function: Ne
6. Mobilizing function: Ti
7. Ignoring function: Se
8. Demonstrative function: Fi

1.5 Determining Type in Model A

This section is intended for readers who already know Model A and are used to it. We formalize the solution to the question of Model A: "If we know which Information Elements are associated with which functions, how can we determine the type?" That is, given:

1. Leading: $L_L l_L$
2. Creative: $L_C l_C$
3. Role: $L_R l_R$
4. Vulnerable: $L_V l_V$
5. Suggestive: $L_S l_S$
6. Mobilizing: $L_M l_M$
7. Ignoring: $L_I l_I$
8. Demonstrative: $L_D l_D$

How can we turn this into a four-letter $L_1 L_2 L_3 l_4$ type of Model A? Solution, derived from previous section:

$L_1 = l_L$ (uppercase).

If $L_L \in \{F, T\}$, then $l_4 = j$, otherwise $l_4 = p$.

If $l_4 = j$, then $L_2 = L_C$ and $L_3 = L_L$.

If $l_4 = p$, then $L_2 = L_L$ and $L_3 = L_C$.

Thus, only the Information Elements corresponding to Leading and Creative functions (the Ego block) are necessary for determining the type. Actually the two functions of any other block contain the necessary information, too, but for simplicity we choose just one.

Example 1:

Leading: Fi

Creative: Ne

...

The four-letter type is $INFj$.

Example 2:

Leading: Se

Creative: Ti

...

The four-letter type is $ESTp$.

Chapter 2

Model M

2.1 Determining Elements and Functions in Model M

Then we formalize the solution to the first question in the case of Model M: "Given a type, how do we associate functions to Elements?" Here we first introduce an unary opposition operator $*$ for the following letters:

$$*T = F, *F = T$$

$$*E = I, *I = E$$

$$*S = N, *N = S$$

Let us have a four-letter type and number its letters from one to four: $L_1L_2L_3L_4$.

If L_4 is C: Let A_1 be L_3 and B_1 be L_2.

If L_4 is R: Let A_1 be L_2 and B_1 be L_3.

Let A_2 and B_2 be L_1, both in lowercase.

Now the functions are associated with the Information Elements as follows. Note that the numbering of functions in Model M is different from Model A:

1. Role function: $*A_1A_2$
2. Suggestive function: $*A_1*A_2$
3. Mobilizing function: $*B_l*B_2$
4. Vulnerable function: $*B_1B_2$
5. Leading function: A_1A_2
6. Ignoring function: A_1*A_2
7. Demonstrative function: B_1*B_2
8. Creative function: B_1B_2

Example 1: type $ENTC$. Since L_4 is C: Let A_1 be T and B_1 be N. Let A_2 be e and B_2 be e.

1. Role function: Fe
2. Suggestive function: Fi
3. Mobilizing function: Si
4. Vulnerable function: Se

5. Leading function: Te
6. Ignoring function: Ti
7. Demonstrative function: Ni
8. Creative function: Ne

Example 1: type $ESFR$. Since L_4 is R: Let A_1 be S and B_1 be F. Let A_2 be e and B_2 be e.

1. Role function: Ne
2. Suggestive function: Ni
3. Mobilizing function: Ti
4. Vulnerable function: Te
5. Leading function: Se
6. Ignoring function: Si
7. Demonstrative function: Fi
8. Creative function: Fe

2.2 Determining Type in Model M

Then the solution to the second question: "Given certain functions associated to certain Elements, how do we determine type?"

1. Role: $L_R l_R$
2. Suggestive: $L_S l_S$
3. Mobilizing: $L_M l_M$
4. Vulnerable: $L_V l_V$
5. Leading: $L_L l_L$
6. Ignoring: $L_I l_I$
7. Demonstrative: $L_D l_D$
8. Creative: $L_C l_C$

We turn this into a four-letter $L_1L_2L_3L_4$ type of Model M exactly the same way as in Model A except instead of j we have C and instead of p we have R.

$L_1 = l_L$ (uppercase).

If $L_L \in \{F, T\}$, then $L_4 = C$, otherwise $L_4 = R$.

If $l_4 = j$, then $L_2 = L_C$ and $L_3 = L_L$.

If $l_4 = p$, then $L_2 = L_L$ and $L_3 = L_C$.

Example 1:

Leading: Fi

Creative: Ni

...

The four-letter type is $INFC$.

Example 2:

Leading: Si

Creative: Ti

...

The four-letter type is $ISTR$.

Rule of thumb for Models A and M: if the Leading function is $L_L l_L$ and the Creative function begins with L_C then we place these in a triangle as follows:

$$L_L \qquad l_L$$

$$L_C$$

Now we can read the four-letter type by checking whether the clockwise triangle of letters $l_L L_C L_L$ is a beginning of some type. If so, append j in the case of Model A and C in the case of Model M. Otherwise we read the counter-clockwise triangle $l_L L_L L_C$ and append p in the case of Model A and R in the case of Model M.

2.3 The Structure of a Type of Model M

2.3.1 Leary's Eight-Circuit Model of Consciousness

In Model M we call "blocks" *circuits* because we combine socionics with Timothy Leary's *Eight-Circuit Model of Consciousness*. Like the name says, this theory consists of eight faculties. Robert Anton Wilson, an advocate of Leary's theory, calls them:

1. Oral Bio-Survival Circuit
2. Anal Territorial Circuit
3. Semantic Time-Binding Circuit
4. Socio-Sexual Circuit
5. *Neurosomatic Circuit*
6. *Metaprogramming Circuit*
7. *Morphogenetic Circuit*
8. *Quantum Non-Local Circuit*

The first four circuits can rather unambiguously be equated to Ego, Super-Ego, Id and Super-Id, in this order. According to Leary the circuits can only be activated in the order in which they're listed above. Leary developed his psychological model to explain the 1960s clash between mainstream culture and counterculture. He finds mainstream people to have activated only the first four circuits.

The four later circuits of Leary's model are included in Model M as the *vertical* circuits which in Model A connect the vital blocks and the mental blocks into two "rings". But these Model M vertical relations have been inferred from empirical observations which do not support the idea that they'd form a ring-shaped whole. Instead, the direction of the circuits is different so that the result is something else than a ring. The author has documented experiences of vertical circuits.

2.3.2 The Neurosomatic Circuit

This is sometimes called the ”rapture circuit” which rather inevitably gives the impression that this is a **valued** circuit. According to Leary this circuit first appeared circa 2000 BCE in leisure-class civilizations. Upon activation the circuit makes the subject feel high, blissful and aware of his or her body. Utilitarian thinking is replaced by an all-encompassing aesthetic sensory space which feels so liberating, profound and elevated it makes the four previous circuits seem like primitive and vulgar compulsions. Known methods of activating the neurosomatic circuit include cannabis, Haṭha Yoga, Zen meditation and prolonged sexual play without orgasm. The author would like to add LSD and sauna to the list. According to Robert Anton Wilson, ”Tantra yoga is concerned with shifting consciousness entirely into this circuit”.

The author has experience of receiving a telepathic distress call immediately, while in sauna, and considers this circuit responsible for that. The distress call consisted of a flash of a mental image of his spouse being anguished. When he went to check the image turned out to accurately reflect her feelings because she was dealing with a problem involving an outsider.

Another neurosomatic experience was that of waking up and seeing a naked woman, who wasn't really there, to walk out of the room. The author thought who might that have been, found out he'd had a chat with her on a dating website and traveled to another town to date her. She turned out to be his Look-alike.

The neurosomatic experience can also be hellish suffering. This could happen to a man if a woman flirts at him so that he can't respond in any culturally approved way and has to leave without doing anything yet cannot get her out of his mind. The Information Elements of this circuit are the same as those of the subject's Supervisor's Ego so a Supervisor has an improved chance of helping if something goes wrong.

Activation of the neurosomatic circuit was a profound experience for the author because he was approached by the God of Abraham who told him many things. It's impossible that a mental circuit would convey a message directly from God so this must be a **vital** circuit, instead. This also appears to be a **strong** circuit because it can remain active for hours without interruptions or exhaustion.

2.3.3 The Metaprogramming Circuit

Once the author had spent a day or two with a young woman, his Illusionary. She was sleeping or about to sleep when he experienced a sudden feeling of heat which demanded they have sex. This feeling of heat stands out as different from the author's other sexual experiences. It was a hot, almost burning sensation. The Information Elements of her Ego would be the same as those of the author's metaprogramming circuit, suggesting that this could have been a shared feeling. The outcome of having sex with her supported the notion that the feeling indeed was a shared one.

There was also one occasion in the sauna when a young woman, the author's Comparative, asked him whether he's a nerd and, upon receiving a positive answer, asked him to do a certain job. The way in which she asked him that was so pleasant that after 10–20 min-

utes when he was standing alone outside the sauna he felt utter bliss.

According to Leary this circuit makes the mind aware of itself and enables telepathic communication. Although the author's experience affirms this he thinks telepathy can also manifest via the neurosomatic circuit at least after the metaprogramming circuit has already been activated.

Leary traces the metaprogramming circuit back to 500 BCE and finds it to be activated by low-to-moderate doses of LSD, moderate doses of peyote, psilocybin mushrooms and meditation or chanting especially in a group or ritual setting. The author would like to add ice swimming to the list – wading across a cold river, to be specific. The circuit doesn't sustain activity for long periods of time and is therefore **weak**. Even if the circuit has been a part of a positive experience there's no longing or desire to repeat the experience, so the circuit is **unvalued**. The message sent by the circuit immediately stands out from ordinary reality and demands attention, hence the circuit is **mental**.

2.3.4 The Morphogenetic Circuit

Leary associates this circuit to evolutionary awareness and reincarnation, immortality, archetypes of the collective unconscious and such topics. In the author's opinion that's a rather fancy way of saying this circuit deals with threat. His trauma triggers may shift his consciousness entirely into the morphogenetic circuit. This is sometimes accompanied by involuntarily dropping an object he's holding in his hand.

During a morphogenetic circuit override the author doesn't remember situational factors which have recently changed. Inventory, that is, objects he's carrying, can be such a thing. For another example, let's suppose he's on his way to his spouse, who has just moved and they don't live together. On his way to her old place there's an intersection and he's used to turn right but should now turn left because she doesn't live there anymore. If he gets a morpogenetic circuit override before this intersection he won't remember she's moved. He'll think she still lives in her old address and will go all the way to the front door before realizing she doesn't. The realization is stoic and involves no feeling of surprise.

The morphogenetic circuit can also be activated by ordinary events which don't involve trauma. The author thinks he managed to use this circuit already as a teenager while playing a certain level of the computer game *Quake*. While playing this level he found a way to premeditate all of his actions so that he could always keep repeating the same activity loop indefinitely, with excellent results.

The previous observation doesn't mix well with the idea that the circuits can only be activated in a specific order. How could the author have played a computer game by using the morphogenetic circuit if he hadn't yet activated the two preceding circuits? Perhaps he had managed to activate the neurosomatic and metaprogramming circuits already as a child by lying face down over the edge of a pier with his arms hanging free, watching his hands under water. This experience, which was preceded by depression, was followed by joy. It couldn't have been produced by the Super-Id because it included no introverted Sensing.

The morphogenetic circuit starts on demand and can sustain

activity until there's no more demand, therefore it's **strong**. Activity in this circuit isn't rewarding and using it for playing a computer game feels uncanny, hence the author finds this circuit **unvalued**. The circuit's activity stands out as different and unmistakable. Morphogenetic experiences are easy to remember and analyze afterwards. Therefore this circuit is **mental**.

According to Leary the morphogenetic circuit first appeared among Hindus in the early first millennium and later among Sufi sects. He reports it to be activated by high doses of LSD, peyote or psilocybin mushrooms, yoga and meditation. Its Information Elements are the same as those of the subject's Benefactor's Ego.

2.3.5 The Quantum Non-Local Circuit or *Meta-Ego*

This mysterious circuit is usually inactive. The conscious mind seems to learn little little about its workings, possibly because it can be used to refuse cognitive input and prevent it from accessing the rest of the mind. Because of this, the input that caused this circuit to function isn't analyzed well. In fact, it can be completely forgotten.

Once the author experienced this circuit when a man came to talk to him. The man was smiling but the author sensed his intentions to be bad. He asked a question but the author doesn't remember what it was. He believes his quantum circuit blocked the question from his conscious mind because the question included a trauma trigger. The author answered: "No. Yes. Maybe." and walked away for a distance of about twenty metres, then turned to face him. He saw the man walking away and felt deliverance. He also felt the man was satisfied with this answer.

If this circuit is activated it can work even when the subject is tripping on psilocybin mushrooms. But if it isn't activated in such a situation the subject is vulnerable to being traumatized by any vicious people who might be present. Upon trying to recall details of this kind of trauma the author experiences temporary dissociative fugue that lasts less than an hour. Once another man asked the author what the fugue state is like. Upon trying to describe it the author almost succumbed into the fugue again but this time the quantum non-local circuit took over and made him ward off the fugue state by talking faster while slapping himself in the cheek repeatedly.

The author also has used the quantum non-local circuit to opportunistically associate things that have nothing to do with each other. Once his spouse was cooking and told him: "This food tastes really interesting." The author was in another room and couldn't even smell the food. But he was doing something interesting so he felt interested. Because he felt interested he could use the quantum circuit for convincingly replying: "It totally does" without having any idea what the food tastes like.

This circuit is **valued** because it mystifies the subject every time and makes him feel quite clever. The quantum circuit seems to never do more than that which is required so it is **weak**. The workings of the circuit are a mystery, rendering it **vital**.

There appears to be no particular reason to interpret literally the reference to quantum mechanics in the name Wilson gave for this circuit. It's probably an implicit reference to the "ansible"

which is a fictional form of faster-than-light communication. This metaphor helps to understand this circuit but the author would find it more correct to call this circuit the Meta-Ego.

The Meta-Ego's Elements resemble the Ego of the subject's Look-alike. Leary finds it activated by kundalini, shock, near-death experience, DMT and high doses of LSD. Robert Anton Wilson has added almost any dose of ketamine to the list.

2.3.6 Introduction to Lateral Circuits

Now we have two kinds of circuits: horizontal and vertical. The horizontal circuits are from Model A and the vertical circuits are from Leary's model. More specifically, our horizontal circuits could be considered *longitudinal*. But our model is three-dimensional so we have three axes. The third, *lateral* axis remains unused.

The three-dimensional space still has room for four additional circuits which would be parallel to the lateral axis. Such circuits would describe a relation between two functions which are associated to the introverted and extroverted form of the same Information Element. All other neighboring functions are connected so it seems common sense that these should be connected, too. To state that they *have nothing to do with each other* would seem to require more proof than to assume some relation. But what kind of a relation?

2.3.7 *Love Detector*

This circuit is driven by the Role function and aspires towards the Suggestive function. The circuit appears to monitor and sift information contained by the Role function. If it finds something it deems potentially valuable it sends that to the Suggestive function.

The author's type is $ENTR$ and in his case the Love Detector begins from extroverted Sensing and is directed towards introverted Sensing. Typically, the author uses this circuit while having sex. Sometimes there's a reason to use extroverted Sensing for changing position or for advancing own or partner's orgasm in some way. It would be better to use the Super-Id for that. But sometimes there's no perceived way to perform a task as an expression of power. In this case the Super-Id simply cannot do it and it has to be done with the Super-Ego if it is to be done at all.

If a cognitive impulse is a disagreeable expression of power, such as a trauma trigger, it could be sent to the Super-Id but the result would harm the subject. The Meta-Ego appears to intercept and, quite literally, deflect such impulses. The Meta-Ego doesn't only deter bad impulses but the subject cannot predict his use of his own Meta-Ego because it's a vital circuit.

If neither the Love Detector nor the Meta-Ego picks up some impulse in the Role function the impulse either stays in the Role function or goes to the Super-Ego. If the Role function receives an impulse when it isn't working the impulse is largely ignored.

The Love Detector is **strong** because it doesn't tire easily. The conscious mind can be quite preoccupied by its workings, therefore it's **mental**. Ultimately, the significance of this circuit is instrumental in relation to the Super-Id so it's an **unvalued** circuit.

2.3.8 *Weakest Link*

This is the pitiful circuit the teenager author uses to reveal his true feelings to his object of affection after obsessing over her for some time. The confession is uncharismatic and doesn't make the subject stop obsessing over her. It could have as well been left unsaid if making that confession hadn't been the best way to verify that the Weakest Link is **weak**, **unvalued** and **vital**.

This circuit is driven by the Mobilizing function and aspires towards the Vulnerable function. A lot of people seem to use the Weakest Link once and then come up with a better way to deal with things. To be sure, the Weakest Link stays in use throughout a person's life but it's difficult for a subject to be aware of the workings of this, weak, unvalued and vital circuit that's often just one link in a chain of vital faculties beginning from the Suggestive function. The Weakest Link is used in conjunction with other faculties but is quite useless on its own. It plays along in the process whose outcome is the neurosomatic experience.

2.3.9 *Challenge Detector*

This circuit recognizes challenges which are suitable for the Id. If the Challenge Detector weren't a **valued** circuit it would be difficult to explain what makes the Id work. This circuit is driven by the Leading function and aspires towards the Ignoring function. The challenge detector is **weak** to ensure that only gifted or otherwise well-endowed subjects accept many challenges or difficult challenges. The circuit is **mental** because making responsible decisions about challenges requires self-awareness.

2.3.10 *Harvester*

This circuit is for harvesting the result of the Id's workings. It is driven by the Demonstrative function and aspires towards the Creative function. The Harvester is **valued** so that the subject would default to using his Ego after completing the task for which the Id was needed.

The Harvester is surrounded by strong faculties and is also **strong** to keep up. It starts automatically when its accepting function perceives an opportunity, therefore the Harvester is **vital**. Robert Pirsig famously uses this circuit against the chairman in *Zen and the Art of Motorcycle Maintenance*. He describes how his hand stopped shaking when this strong circuit took over.

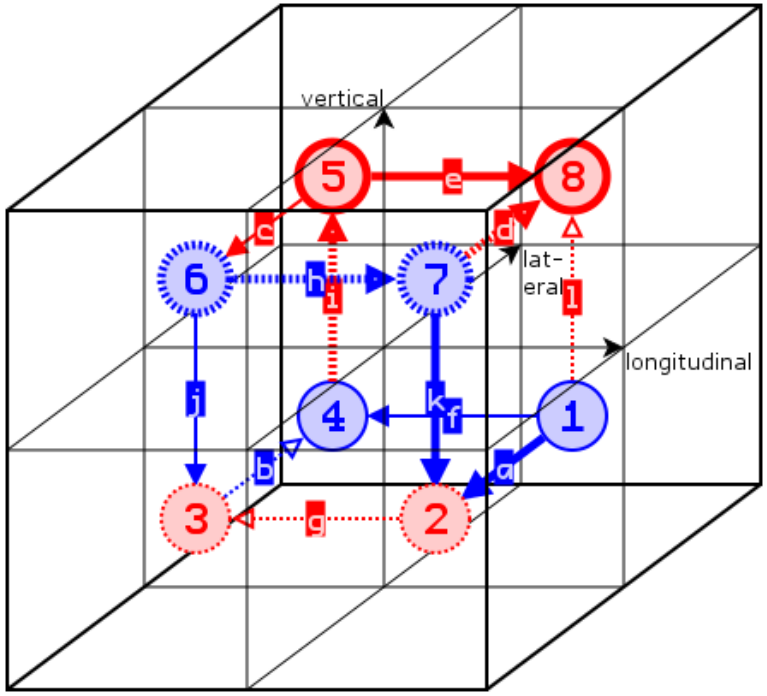

Figure 2.1: The structure of the Model M type. Strong faculties are denoted by thick lines, valued faculties by red color and vital faculties by dotted lines.

We may assume the 3-space to be wrapped around its edges so that a path inside the space which hits an edge of the space comes back inside the space from the opposite side. This seems to be a convenient way for modeling how a single circuit can sustain activity for a prolonged time. Note that these figures and tables shouldn't be referenced as a source. Please use section 3.4, instead.

#	function	s	v	m
1	Role	*F*	*F*	*T*
2	Suggestive	*F*	*T*	*F*
3	Mobilizing	*F*	*T*	*F*
4	Vulnerable	*F*	*F*	*T*
5	Leading	*T*	*T*	*T*
6	Ignoring	*T*	*F*	*F*
7	Demonstrative	*T*	*F*	*F*
8	Creative	*T*	*T*	*T*

#	circuit	s	v	m
a	Love Detector	*T*	*F*	*T*
b	Weakest Link	*F*	*F*	*F*
c	Challenge Detector	*F*	*T*	*T*
d	Harvester	*T*	*T*	*F*
e	Ego	*T*	*T*	*T*
f	Super-Ego	*F*	*F*	*T*
g	Super-Id	*F*	*T*	*F*
h	Id	*T*	*F*	*F*
i	Neurosomatic	*T*	*T*	*F*
j	Metaprogramming	*F*	*F*	*T*
k	Morphogenetic	*T*	*F*	*T*
l	Meta-Ego	*F*	*T*	*F*

circuit	Love Detector	Weakest Link	Challen. Detector	Harvester	Ego	Super-Ego	Super-Id	Id	Neuro-somatic	Meta-progra.	Morpho-genetic	Meta-Ego
constants	1 a 2	3 b 4	5 c 6	7 d 8	5 e 8	1 f 4	2 g 3	6 h 7	4 i 5	6 j 3	7 k 2	1 l 8
$ISFR$	1(Ni) a 2(Ne)	3(Te) b 4(Ti)	5(Si) c 6(Se)	7(Fe) d 8(Fi)	5(Si) e 8(Fi)	1(Ni) f 4(Ti)	2(Ne) g 3(Te)	6(Se) h 7(Fe)	4(Ti) i 5(Si)	6(Se) j 3(Te)	7(Fe) k 2(Ne)	1(Ni) l 8(Fi)
$ISFC$	1(Ti) a 2(Te)	3(Ne) b 4(Ni)	5(Fi) c 6(Fe)	7(Se) d 8(Si)	5(Fi) e 8(Si)	1(Ti) f 4(Ni)	2(Te) g 3(Ne)	6(Fe) h 7(Se)	4(Ni) i 5(Fi)	6(Fe) j 3(Ne)	7(Se) k 2(Te)	1(Ti) l 8(Si)
$ISTR$	1(Ni) a 2(Ne)	3(Fe) b 4(Fi)	5(Si) c 6(Se)	7(Te) d 8(Ti)	5(Si) e 8(Ti)	1(Ni) f 4(Fi)	2(Ne) g 3(Fe)	6(Se) h 7(Te)	4(Fi) i 5(Si)	6(Se) j 3(Fe)	7(Te) k 2(Ne)	1(Ni) l 8(Ti)
$ISTC$	1(Fi) a 2(Fe)	3(Ne) b 4(Ni)	5(Ti) c 6(Te)	7(Se) d 8(Si)	5(Ti) e 8(Si)	1(Fi) f 4(Ni)	2(Fe) g 3(Ne)	6(Te) h 7(Se)	4(Ni) i 5(Ti)	6(Te) j 3(Ne)	7(Se) k 2(Fe)	1(Fi) l 8(Si)
$INFR$	1(Si) a 2(Se)	3(Te) b 4(Ti)	5(Ni) c 6(Ne)	7(Fe) d 8(Fi)	5(Ni) e 8(Fi)	1(Si) f 4(Ti)	2(Se) g 3(Te)	6(Ne) h 7(Fe)	4(Ti) i 5(Ni)	6(Ne) j 3(Te)	7(Fe) k 2(Se)	1(Si) l 8(Fi)
$INFC$	1(Ti) a 2(Te)	3(Se) b 4(Si)	5(Fi) c 6(Fe)	7(Ne) d 8(Ni)	5(Fi) e 8(Ni)	1(Ti) f 4(Si)	2(Te) g 3(Se)	6(Fe) h 7(Ne)	4(Si) i 5(Fi)	6(Fe) j 3(Se)	7(Ne) k 2(Te)	1(Ti) l 8(Ni)
$INTR$	1(Si) a 2(Se)	3(Fe) b 4(Fi)	5(Ni) c 6(Ne)	7(Te) d 8(Ti)	5(Ni) e 8(Ti)	1(Si) f 4(Fi)	2(Se) g 3(Fe)	6(Ne) h 7(Te)	4(Fi) i 5(Ni)	6(Ne) j 3(Fe)	7(Te) k 2(Se)	1(Si) l 8(Ti)
$INTC$	1(Fi) a 2(Fe)	3(Se) b 4(Si)	5(Ti) c 6(Te)	7(Ne) d 8(Ni)	5(Ti) e 8(Ni)	1(Fi) f 4(Si)	2(Fe) g 3(Se)	6(Te) h 7(Ne)	4(Si) i 5(Ti)	6(Te) j 3(Se)	7(Ne) k 2(Fe)	1(Fi) l 8(Ni)
$ESFR$	1(Ne) a 2(Ni)	3(Ti) b 4(Te)	5(Se) c 6(Si)	7(Fi) d 8(Fe)	5(Se) e 8(Fe)	1(Ne) f 4(Te)	2(Ni) g 3(Ti)	6(Si) h 7(Fi)	4(Te) i 5(Se)	6(Si) j 3(Ti)	7(Fi) k 2(Ni)	1(Ne) l 8(Fe)
$ESFC$	1(Te) a 2(Ti)	3(Ni) b 4(Ne)	5(Fe) c 6(Fi)	7(Si) d 8(Se)	5(Fe) e 8(Se)	1(Te) f 4(Ne)	2(Ti) g 3(Ni)	6(Fi) h 7(Si)	4(Ne) i 5(Fe)	6(Fi) j 3(Ni)	7(Si) k 2(Ti)	1(Te) l 8(Se)
$ESTR$	1(Ne) a 2(Ni)	3(Fi) b 4(Fe)	5(Se) c 6(Si)	7(Ti) d 8(Te)	5(Se) e 8(Te)	1(Ne) f 4(Fe)	2(Ni) g 3(Fi)	6(Si) h 7(Ti)	4(Fe) i 5(Se)	6(Si) j 3(Fi)	7(Ti) k 2(Ni)	1(Ne) l 8(Te)
$ESTC$	1(Fe) a 2(Fi)	3(Ni) b 4(Ne)	5(Te) c 6(Ti)	7(Si) d 8(Se)	5(Te) e 8(Se)	1(Fe) f 4(Ne)	2(Fi) g 3(Ni)	6(Ti) h 7(Si)	4(Ne) i 5(Te)	6(Ti) j 3(Ni)	7(Si) k 2(Fi)	1(Fe) l 8(Se)
$ENFR$	1(Se) a 2(Si)	3(Ti) b 4(Te)	5(Ne) c 6(Ni)	7(Fi) d 8(Fe)	5(Ne) e 8(Fe)	1(Se) f 4(Te)	2(Si) g 3(Ti)	6(Ni) h 7(Fi)	4(Te) i 5(Ne)	6(Ni) j 3(Ti)	7(Fi) k 2(Si)	1(Se) l 8(Fe)
$ENFC$	1(Te) a 2(Ti)	3(Si) b 4(Se)	5(Fe) c 6(Fi)	7(Ni) d 8(Ne)	5(Fe) e 8(Ne)	1(Te) f 4(Se)	2(Ti) g 3(Si)	6(Fi) h 7(Ni)	4(Se) i 5(Fe)	6(Fi) j 3(Si)	7(Ni) k 2(Ti)	1(Te) l 8(Ne)
$ENTR$	1(Se) a 2(Si)	3(Fi) b 4(Fe)	5(Ne) c 6(Ni)	7(Ti) d 8(Te)	5(Ne) e 8(Te)	1(Se) f 4(Fe)	2(Si) g 3(Fi)	6(Ni) h 7(Ti)	4(Fe) i 5(Ne)	6(Ni) j 3(Fi)	7(Ti) k 2(Si)	1(Se) l 8(Te)
$ENTC$	1(Fe) a 2(Fi)	3(Si) b 4(Se)	5(Te) c 6(Ti)	7(Ni) d 8(Ne)	5(Te) e 8(Ne)	1(Fe) f 4(Se)	2(Fi) g 3(Si)	6(Ti) h 7(Ni)	4(Se) i 5(Te)	6(Ti) j 3(Si)	7(Ni) k 2(Fi)	1(Fe) l 8(Ne)

2.4 Intertype Relations in Model M

altered variables	relationship	example
1^{st}	Contrary	$ENTR\ CTR\ INTR$
1^{st}, 2^{nd}	if –C, Illusionary if –R, Semi-Dual	$ENTC\ LLS\ ISTC$ $ENTR\ SDL\ ISTR$
1^{st}, 3^{rd}	if –C, Semi-Dual if –R, Illusionary	$ENTC\ SDL\ INFC$ $ENTR\ LLS\ INFR$
1^{st}, 4^{th}	Quasi-Identical	$ENTR\ QID\ INTC$!
1^{st}, 2^{nd}, 3^{rd}	Dual	$ENTR\ DLT\ ISFR$
1^{st}, 2^{nd}, 4^{th}	–C Benefactor to –R	$ENTR \leftarrow BN\ ISTC$!
1^{st}, 3^{rd}, 4^{th}	–R Benefactor to –C	$ENTR\ BN \rightarrow INFC$!
1^{st}, 2^{nd}, 3^{rd}, 4^{th}	Activator	$ENTR\ ACT\ ISFC$!
2^{nd}	if –C, Comparative if –R, Look-Alike	$ENTC\ CMP\ ESTC$ $ENTR\ LKL\ ESTR$
2^{nd}, 3^{rd}	Super-Ego	$ENTR\ SEG\ ESFR$
2^{nd}, 4^{th}	–R Supervisor to -C	$ENTR\ SP \rightarrow ESTC$!
2^{nd}, 3^{rd}, 4^{th}	Conflicting	$ENTR\ CNF\ ESFC$!
3^{rd}	if –C, Look-Alike if –R, Comparative	$ENTC\ LKL\ ENFC$ $ENTR\ CMP\ ENFR$
3^{rd}, 4^{th}	–C Supervisor to –R	$ENTR \leftarrow SP\ ENFC$!
4^{th}	Mirror	$ENTR\ MRR\ ENTC$!

If we express the Model M type as a three-dimensional matrix, such as in figure 2.1, and superimpose this matrix on the Element space of figure 1.4, the result is some specific type. In the previous case the result is $ENTR$. We may perform matrix operations on the Model M type to change its orientation so that the result is some other type. All intertype relations can be formed by using the following matrix operations on a given type $TYPE$.

- $lon(TYPE)$ flips $TYPE$ longitudinally.
- $lat(TYPE)$ flips $TYPE$ laterally.
- $ver(TYPE)$ flips $TYPE$ vertically.
- $rot(TYPE)$ rotates $TYPE$ around its lateral axis towards its positive vertical axis.
- $tor(TYPE)$ rotates $TYPE$ around its lateral axis towards its negative vertical axis.

operations	relationship
$lon(TYPE)$	Mirror
$lat(TYPE)$	Contrary
$lon(lat(TYPE))$	Quasi-Identical
$ver(TYPE)$	Conflict
$lon(ver(TYPE))$	Super-Ego
$lat(ver(TYPE))$	Activator
$lon(lat(ver(TYPE)))$	Dual
$rot(TYPE)$	Supervisor
$rot(lon(TYPE))$	Comparative
$rot(lat(TYPE))$	Beneficiary
$rot(lon(lat(TYPE)))$	Illusionary
$tor(TYPE)$	Supervisee
$tor(lon(TYPE))$	Look-Alike
$tor(lat(TYPE))$	Benefactor
$tor(lon(lat(TYPE)))$	Semi-Dual

2.5 Alternative Names for Romancing Styles

types	Model A	Model M
$ISFR$, $ISFC$	Employer	*Believer*
$ISTR$, $ISTC$	Conqueror	*Trendsetter*
$INFR$, $INFC$	Student	*Healer*
$INTR$, $INTC$	Infantile	*Gardener*
$ESFR$, $ESFC$	Caregiver	*Defender*
$ESTR$, $ESTC$	Teacher	*Artisan*
$ENFR$, $ENFC$	Victim	*Performer*
$ENTR$, $ENTC$	Employee	*Cleric*

Gardeners and Healers have introverted Sensing in the Super-Ego which probably means they have an impaired ability to assume a dominant sexual role. Artisans and Defenders have introverted Sensing in the Id which, on the other hand, suggests an impaired ability to assume a submissive sexual role. This kind of an impairment is more severe for Classical types.

2.6 Names for Types

type	zodiac name	descriptive name
$ISFR$	*Dolphin*	*Ascending Idealist*
$ISFC$	*Wolverine*	*Descending Idealist*
$ISTR$	*Anaconda*	*Ascending Utopist*
$ISTC$	*Alligator*	*Descending Utopist*
$INFR$	*Octopus*	*Descending Time Traveler*
$INFC$	*Platypus*	*Ascending Time Traveler*
$INTR$	*Raven*	*Descending Wonderer*
$INTC$	*Panda*	*Ascending Wonderer*
$ESFR$	*Turtle*	*Ascending Host*
$ESFC$	*Zebra*	*Descending Host*
$ESTR$	*Monkey*	*Ascending Realist*
$ESTC$	*Hippo*	*Descending Realist*
$ENFR$	*Swan*	*Descending Someone*
$ENFC$	*Nightingale*	*Ascending Someone*
$ENTR$	*Falcon*	*Descending Anyone*
$ENTC$	*Piranha*	*Ascending Anyone*

2.7 Type and Giving Birth

$ENTC$: "Giving birth doesn't necessarily enormously change my body."

$ENTR$: "Unless giving birth changes my body too much I won't show it."

$ENFC$: "If giving birth changes self-image it can be discussed."

$ENFR$: "Giving birth surely changes the self-image of many others, too."

$ESTC$: "Giving birth is an adventure."

$ESTR$: "I save the talk for the baby."

$ESFC$: "Giving birth is fascinating."

$ESFR$: "Life is fascinating."

$INTC$: "Giving birth changes my body so it isn't easy."

$INTR$: "Giving birth isn't easy because it changes my body."

$INFC$: "Giving birth changes my self-image, and it's interesting."

$INFR$: "Giving birth is a part of a process in which also I change."

$ISTC$: "If giving birth changes my body I will find out exactly how."

$ISTR$: "Giving birth would sure change my body."

$ISFC$: "Giving birth changes my self-image, which is hard."

$ISFR$: "Giving birth changes my self-image, but I can hide it."

Part II

Analytic Metaphysics Of Quality

We aren't done with socionics yet but need a new instrument in order to make more discoveries. This instrument certainly wasn't developed for socionics and we shall study and craft it thoroughly before applying it to psychology. The instrument is called the Metaphysics of Quality and its development was began by author Robert Pirsig.

Like Leary, Pirsig developed structured models for explaining the 1960s clash between the cultural values of mainstream people and those of counterculture. But Pirsig didn't aspire towards psychology. He was a metaphysician.

Metaphysics, we've been told, is traditionally thought to consist of ontology ("What is there?"), epistemology ("What can be known?") and ethics or moral philosophy ("What is good?"). The Metaphysics of Quality belongs to all of these categories. It aspires to be a kind of a grand theory of everything.

We have already covered a part of Pirsig's legacy in section 1.2. The concepts of romantic quality and classical quality are from *Zen and the Art of Motorcycle Maintenance* and we're going to need them again. Pirsig has written also a sequel, *Lila* (1991), which seems to be about a different topic at first. In his later years Pirsig tried to unify his philosophical legacy but in chapter 4.5 we demonstrate how he failed. For now, we will not go into the confusing details of what did he try to accomplish and how. Instead, we proceed into the part of his metaphysics that's relevant for the inquiry at hand.

2.8 *Levels* of Static Value Patterns

According to *Lila*, reality is the combination of an undefinable essence called *Dynamic Quality* and definable things called *static quality*. Static quality consists of four hierarchical categories called levels. From lowest to highest, the levels are *inorganic* quality, *biological* quality, *social* quality and *intellectual* quality. The higher levels are thought to *emerge* from the lower levels, meaning that even though higher-level objects consist of lower-level objects their behaviour and attributes cannot be determined from the attributes of lower-level objects.

If there's a conflict of interest between a lower-level entity and a higher-level entity, the higher-level entity should win the conflict. For example, a farmer fighting against a bunch of pests should win because as a member of society the farmer is at least social whereas the pests are biological at most.

Pirsig subscribes to empiricism in *Lila*. According to empiricism knowledge is derived from sensory experience. On the other hand, inorganic quality is the lowest level of Pirsig's system, which means that according to his theory everything ultimately consists of matter.

We may ask: which Information Elements does Pirsig need for justifying such a theory? Having empirical experience requires Sensing and developing an intellectual theory requires Thinking. If the author were to put a word on the intersection of Sensing and Thinking he'd call that *Objectivity*.

2.8.1 Ontology of Sensing

We may analyze Pirsig's four levels in terms of Sensing and Thinking. With regards to sensory content these levels are pretty similar to Maslow's hierarchy of needs except that Maslow's hierarchy has more levels. "Self-actualization", Maslow's highest level, may be associated to the intellectual level. We may call this *deliberation*. Esteem, love and belonging – *higher needs* – may be considered social whereas safety and physiological needs – *lower needs* – may be considered biological.

Maslow's hierarchy is missing a level which would refer to *sense-data* in the sense of having some kind of sensory experiences in the first place. We may assume such a level as the bottom level of Maslow's hierarchy which Maslow forgot to include because nature doesn't spontaneously produce conditions of sensory deprivation. The European Court of Human Rights has ruled sensory deprivation to be a form of torture, so having sensory experiences must be pretty important.

Now we're equipped to perceive each level as a group of references, which are thoughts (Thinking), and referents, which are empirical experiences (Sensing). What if the referents were arranged in a reversed order so that the bottom level of referents, sense-data, would associate to the highest level of references and the highest level of referents, deliberation, would associate to the lowest level of references?

What kind of sense-data belongs to the highest level? Orgasm, perhaps. Or the neurosomatic experience. But why does it belong to the highest level? Because it Feels good. So the references of this kind of a metaphysics would be Feeling(s), not thoughts (Thinking). And the metaphysics in question would be of a *sUbjective* kind.

The sUbjective metaphysics is something a Buddhist teacher could believe in as the ultimate ground of relevance just like an empirical scientist believes in Objectivity. When the scientist attains intellectual understanding of the world as the last step of a long research process, in sUbjective metaphysics such conclusions are taken for granted as *beliefs* so that they're the first step of a long process which may develop into the *epiphany* of becoming enlightened, having a kundalini awakening or seeing something like the burning bush of *Book of Exodus*.

There are two intermediary steps between belief and epiphany. The first level refers to esteem, love and belonging and it evaluates beliefs in terms of do they contribute to these higher needs. For example, let's consider the decision: "Mike is insecure about his intelligence, so I won't mention intelligence when Mike is present." If this decision is done out of commitment towards Mike then it's a quality of the second subjective level. We may call that *consideration*.

Note that a similar decision could also be done with a different kind of motive, such as: "I shouldn't displease Mike because I need to make a deal with him, so I won't mention intelligence when he's around because he's insecure about that." This would be a social level motive. The difference is that in a sUbjective context people are considered as ends in themselves whereas Objectively Mike may be considered as means to something else.

The second intermediary step between belief and epiphany is about safety and physiological needs. On the commitment level

one can please Mike but on the following level one may ponder whether it's worthwhile to please Mike. This level is about using *the heart* to make long-term decisions about social commitments.

There are two different ways to eat. The biological way is to eat in order to stay alive. The way of the heart is to eat in order to dine, together or alone.

sUbjective references, Feeling	referents, Sensing	Objective references, Thinking
4. epiphany	sense-data	1. inorganic
3. the heart	Maslow's lower needs	2. biological
2. commitment	Maslow's higher needs	3. social
1. belief	Maslow's self-actualisation, deliberation	4. intellectual

2.8.2 Ontology of iNtuition

Now that we have made an ontology of Sensing we can use it as a template for doing the same thing for iNtuition. The intersection of Feeling and iNtuition may be called *Mysticality* and the intersection of Thinking and iNtuition *Logic*. Logic is easier to structure into four levels because the Element of Thinking is so familiar to science. We don't know anyone to have done this before, but let's begin the metaphysics of Logic from *syntax*.

In the context of logic, syntax refers to structural *harmony* which facilitates logical meaning. To demonstrate that syntax and harmony are different we shall examine an axiomatization of classical logic.

Simplification: $A \Rightarrow (B \Rightarrow A)$

Frege's axiom: $A \Rightarrow (B \Rightarrow C) \Rightarrow ((A \Rightarrow B) \Rightarrow (B \Rightarrow C))$

Transposition: $(\neg A \Rightarrow \neg B) \Rightarrow (B \Rightarrow A)$

Next, let's assume a bogus axiom:

Foobar: $)\neg \Rightarrow$

It isn't necessary to understand much about axiomatic logic in order to single out Foobar as different. This "axiom" appears to be a random or meaningless sequence of symbols. Even a computer algorithm could determine that including Foobar as an axiom makes the system irregular and thus decreases its harmony. Of course, most computer algorithms are designed by humans, so what this means in practice is that a human could come up with a method which would single out Foobar as a bad axiom every time. In all likelihood, such a method would also single out such an axiom as $(((A$. Usually a "method" which does this is called a parser.

The next Logical level is *semantic* which refers to the *significance* of logical expressions. Let's consider the idea that "the opposite of black" is usually thought to mean "white". From a physical point of view it could be argued that a mirror would be the opposite of black because perfect black would reflect no light and a perfect mirror would reflect all light. Hence, the notion that "white is the opposite of black" is true in a context which presupposes we're talking about colors and black is a color but "mirror" isn't, yet it could

be false in another context. To infer the meanings of symbols correctly with regards to context is to understand the significance of the symbols.

The existence of the third level of Logic can be demonstrated by comparing the rules of chess to chess strategy. Rules of chess include statements like: "A bishop only moves diagonally" but the strategy includes statements such as: "Don't sacrifice a rook for a pawn". A player may sacrifice a rook for a pawn – it isn't prohibited – but that's usually a bad move. Moving a bishop non-diagonally, on the other hand, would mean the player is no longer making chess moves. Therefore chess strategy may be deemed a *metatheory* of chess rules. To be *aware* of their difference is necessary for being any good at chess.

The ultimate manifestation of logical understanding is that of recognizing structural similarities between systems whose foundations are different. Such similarities can be expressed in the form of *analogy* which refers to their *unity*. There's a profound analogy between the halting problem and Gödel's incompleteness theorems, but that's unnecessarily complicated. For a simpler example of an analogy we can use the case of analogy between different paradoxes, such as the Barber paradox:

> Let's suppose there's a village in which there's a barber who's a man. He shaves all men who don't shave themselves. Does the barber shave himself?

And the Grelling–Nelson paradox:

> Let's call an adjective "autological" if it describes itself. "Short" and "unhyphenated" are autological adjectives because the former is short by virtue of having only five letters and the latter is not hyphenated. Let us call an adjective "heterological" if it doesn't describe itself. "Long" and "Finnish" are heterological adjectives because the former is short and the latter isn't a word of the Finnish language. Is "heterological" a heterological adjective?

The quality of being paradoxical is the analogy which renders these two cases as instances of the same thing.

The referents, ordered according to the rank of their respective Logical reference, are: harmony, significance, awareness and unity. When these are referred to by references which are Feelings their order is reversed.

If we were to refer to unity by means of Feeling we might call that *normativity*. Norms sanction cultured behavior. These are different from sUbjective commitments because one doesn't necessarily commit to other people by following cultural norms. Instead, it may also be a commitment to one's own self.

For example, during the times of Franz Kafka it was customary that people bow to each other. There was also some blind person who always bowed like everyone else. Others didn't bow to him because he couldn't see them bow. But when he met Kafka and bowed he could feel Kafka's hair brushing against his: Kafka had also bowed.

Why did Kafka bow? Surely he didn't plan to bow so precisely as to have his hair brush against the blind person. His decision probably wasn't influenced by the other people seeing this gesture,

either. Knowing something about Kafka's personality, we may interpret bowing as a manifestation of Kafka's commitment towards his own integrity and civilized predisposition.

But there are many different cultures, each of them having a slightly different set of norms. For example, a veiled woman is probably Muslim so there's a reason not to offer her pork to eat. We may say the *cultural* level emerges from the normative level as norms that are associated to each other.

Transgression of norms becomes meaningful in the context of Feeling only after norms are interpreted as manifestations of culture. But it's pretty bland to describe *freedom* as a mere freedom to transgress. A more appropriate example of freedom can be found within the habit of lucid dreaming. People who have this habit perform certain exercises every now and then such as the light switch trick. Doing this trick means that the subject, while awake, approaches a light switch and make-believes that upon flipping the switch he doesn't know whether the light will turn on. When he's awake the light will turn on. But if he does this exercise often enough he'll also end up doing it while asleep and dreaming. In this case the light won't turn on and he'll realize he's in a dream.

Knowing their surroundings to be a dream, some people can fly or walk through walls. This is the kind of freedom which isn't just transgression but genuinely opens possibilities for new courses of action. But, ultimately, what is the purpose of freedom?

We regard *aesthetics* as the highest form of Feeling referring to iNtuition. Some forms of aesthetics, such as symmetry, sine wave and the golden ratio, are quite easy to point out. Others are quite elusive. It's often more aesthetic to wait patiently for something good than to greedily anticipate it. In any case we shall not attempt to define the exact meaning of aesthetic quality apart from assigning it as the highest quality of its kind. Because the highest quality of this kind is something of a mystery we call the kind *Mystical* quality.

Mystical references, Feeling	referents, iNtuition	Logical references, Thinking
4. aesthetic	harmony	1. syntactic
3. freedom	significance	2. semantic
2. cultural	awareness	3. metatheoretical
1. normative	unity	4. analogic

The numbered words in the table above are names of levels. Two levels which are on the same row may be called *reciprocal* levels. If the rank of a given level is n and there are r levels then the rank of its reciprocal level is $r - (n - 1)$.

We may categorize references as classical quality and referents as romantic quality. According to the Metaphysics of Quality, romantic quality precedes classical quality in time when observations about reality are made. Therefore we should imagine a situation in which there is pure romantic quality which hasn't yet been associated to any reference. If we know its kind we also know from which levels are we to search for ways to refer to it. These levels are always reciprocals of each other.

2.9 Cartesian Coordinates of Quality

The theory of levels of static value patterns provides a way to analyze the metaphysics of Objectivity, Subjectivity, Logicality and Mysticality by using a dialectical method. The theory of levels includes pairs of a reference and a referent which can be used for defining metaphysical meanings as discrete locations of a rectangular array which is a Cartesian coordinate system. There's enough material for defining sixteen different locations per one metaphysics, totaling sixty-four locations.

Seventeen additional locations are situated on the axes of the coordinate system, origin included. These locations have at least one coordinate whose value is zero. There are eight locations which stand for pure romantic quality and eight locations which stand for pure classical quality.

The locations which stand for pure romantic quality are bad. To get an idea about what do these locations mean, consider the case of a soldier named Hempel in *The Forsaken Army* by Heinrich Gerlach. This soldier is wounded by the enemy so that he yells and moans in agony for an entire day before expiring. Gerlach describes this sound as "no longer human" and reports it to have prevented people from sleeping. This serves as an example of the quality $SENSE\ 4$ – a bad feeling so primal it is neither sUbjective nor Objective.

Also classical quality can manifest in a pure form. This is much less dramatic. If the mind assigns no referent to a form then the form is pure classical quality.

We won't go into the details of the long process of completing the dialectical inquiry of naming and describing the locations of the quality plane. It took years and the first versions were rather unimpressive. During the inquiry the author's native Finnish language turned out to have a rather small vocabulary so that it would be difficult to translate the result into Finnish without losing some meaning. But even the English language doesn't have a word for everything. In the following figure, the word "you" may also mean "it".

beauty We do something good	*apathy* We don't want anything	*confusion* We don't know what we want	*destroy* We do something bad	INTUIT 4	*condemn* You are bad	*deceive* You shall falsely relate to that	*withhold* You would harm that	**wisdom** You are good
event We pay attention to this	**freedom** We let this happen	*awkward* We don't want to do this together	*hate* We don't want them	INTUIT 3	*impose* You aren't like that	*reject* You don't relate to that	**metalevel** You can relate like that	**relevance** You would contribute to that
could We prepare for this	**join** We do this together	**culture** We want to do things this way	*greed* We don't want this	INTUIT 2	*exclude* You can't be that	**purpose** You relate like that	**use** You relate to that	**would** You would relate to that
innocence Who does this, when and where?	**integrity** We are these people	**want** We want this	**norm** We do this	INTUIT 1	**form** You are that	**meaning** You can be that	**kind** You are like that	**reason** Why are you like that?
FEEL 4	FEEL 3	FEEL 2	FEEL 1	Peaceful Man	THINK 1	THINK 2	THINK 3	THINK 4
peace What happens to us?	**motive** That unites us	**like** That makes us feel good	**belief** That matters to us	SENSE 1	**body** I perceive this	**need** This makes me whole	**tool** This makes me independent	**method** How do I do this?
can That is possible for us	**style** That distinguishes us	**love** That brings us together	*fear* That makes us feel bad	SENSE 2	*pain* This makes me not whole	**life** I preserve this	**order** This puts me in control	**should** This puts me in charge
fun That makes us attractive	**happiness** That keeps us together	*burden* That makes us feel bad about ourselves	*detach* That breaks us apart	SENSE 3	*shame* Others need help because of me	*problem* I need help with this	**social** I cooperate	**right** This makes me a priority
epiphany Something good happens to us	*fake* That makes us pretentious	*defeat* That isn't possible for us	*dysphoria* Something bad happens to us	SENSE 4	*fail* I do something bad	*loss* I need this but don't preserve it	*wrong* I harm someone for no reason	**success** I do something good

Figure 2.2: Warm colors denote positive quality and cold colors denote negative quality. Light colors denote low quality, saturated colors denote high quality and pale colors denote instrumental value. Black denotes romantic quality and white, classical quality. Gray stands for origin.

This picture of the Cartesian plane of static quality may be a

little overwhelming at first. But we'll soon learn it represents only one of many possible combinations of parameters.

2.9.1 The *Normative Theory of Gender*

Let us define gender in terms of femininity, masculinity and age so that the result is a linear model of gender: for each gender there's exactly one opposite gender. The four genders are thus ♀ (*Woman*), ∗♀ (*Girl*), ∗♂ (*Boy*) and ♂ (*Man*). These are absolute mental constants – in our theory gender is not a completely learned and thus relativistic feature. If someone were to search for empirical evidence for this normative theory of gender the inquiry would probably belong into the domain of cognitive science.

According to feminism gender identities which are based on traditional gender roles oppress women. But the normative theory of gender is abstract so there's always room for applying it in a manner that doesn't oppress women. Furthermore, the individual has some degree of freedom with regards to what is his gender or age. But the choice cannot be made completely arbitrarily.

Choosing one's mental gender is a process similar to falling asleep. People do not fall asleep by the force of their will. And a panicking person cannot just choose to suddenly become brave. Nevertheless, volition has an important role in what gender does a subject consider himself or herself to have. In the long run, if for example a man make-believed he's a woman and tried to have others accept him as a woman he could eventually feel he is a woman even though he's in the body of a man. But he couldn't affect the essence of what having the gender of Woman is like.

2.9.2 The *Theory of Primal Moods*

Let us denote an arbitrary gender by G. Every manifestation of gender happens in the context of a certain Mood. We shall begin by studying two primary Moods, both of which are precursors of two secondary Moods.

- G, *Peaceful*
  - $G-$, *Caring*
  - $G+$, *Playful*
- $-G$, *Hostile*
  - $-G-$, *Flight*
  - $-G+$, *Fight*

The Flight and Fight Moods would seem to coincide with what empirical scientists call the fight-or-flight response which refers to how does a subject react to a perceived harmful event: does he confront it or escape. Perhaps one day empirical science will discover also a care-or-play response for choosing between a Caring and a Playful Mood.

In order to define the Moods we shall adopt a new convention, the *modal form*. The modal form consists of two different ways to express locations of the Cartesian plane of quality. There is an absolute form which is used for identifying locations of the plane and a relative form which is used for evaluating the locations. The absolute form includes the symbols:

φ, *good primitive quality*

ψ, good classical quality

χ, good romantic and classical quality

φ', *bad primitive quality*

ψ', bad romantic quality

χ', bad romantic and classical quality

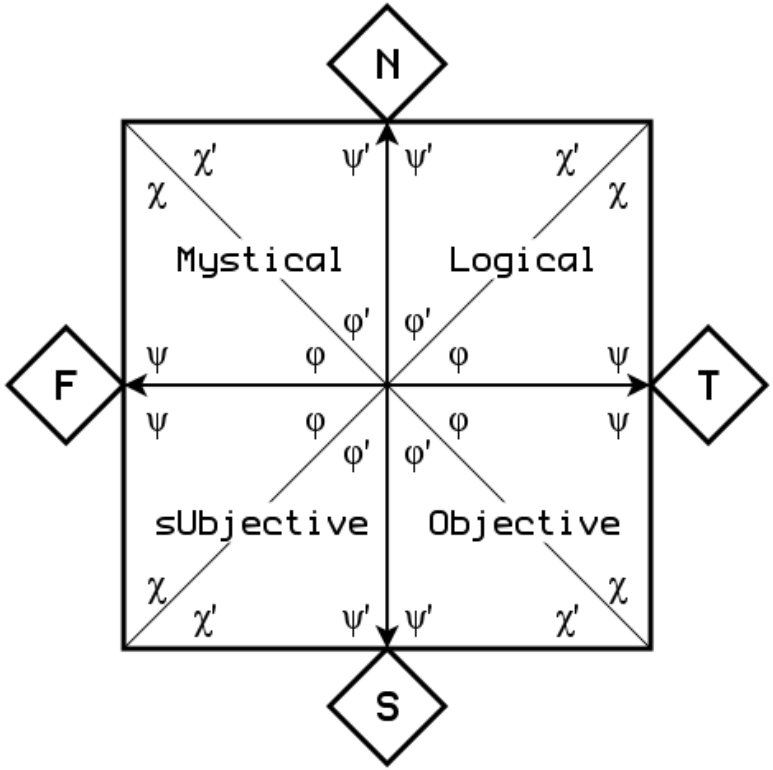

Figure 2.3: The absolute modal form of the quality plane.

At this point we may equate classical quality with epistemological complexity and romantic quality with ontological complexity. That is to say, the quantity of classical quality increases as epistemological complexity increases and the quantity of romantic quality increases as ontological complexity increases.

We define badness so that bad qualities include more romantic than classical quality. On the quality plane, the absolute (unsigned) value of the y coordinate of any bad location is greater than the absolute value of its x coordinate.

We may generalize over the locations so that φ and φ' refer to *proximal locations* near the origin, ψ and ψ' refer to *axial locations* near an axis and far from origin, and χ and χ' refer to *diagonal locations* far from axes and origin. These symbols of absolute modal form are placeholders for the symbols of relative modal form, which include:

α, *good atomic value* (smallest observable value)

β, *good instrumental value*

γ, *good intrinsic value*

α', *bad atomic value*

β', *bad instrumental value*

γ', *bad intrinsic value*

Substituting an absolute symbol with a relative symbol is a statement about the moral value of locations of the quality plane but it doesn't affect the identity of these locations. The purpose of the modal form is to make it possible to evaluate any given location of the quality plane in several different ways so that the result is a formal model of gender. Let us define the absolute modal form as an ordered pair of triples.

$$((\varphi, \psi, \chi), (\varphi', \psi', \phi'))$$

This absolute modal form refers to the proximal, axial and diagonal locations of both halves of every quadrant of the quality plane. Mood affects every quadrant the same way so there's no need to define four absolute modal forms – one is enough. In order to define a Mood we substitute every symbol of the absolute modal form with a symbol of the relative modal form so that every symbol of the relative model form is used only once.

2.9.3 G, the Peaceful Mood

Each modal form stands for an arithmetic expression according to which the intrinsic and instrumental values of locations are calculated. The values are calculated according to the absolute values of the x and y coordinates which may be denoted by X and Y. The next table shows the arithmetic expressions for evaluating each location of the Mood of Peaceful Man whose modal form is $((\alpha, \beta, \gamma), (\alpha', \gamma', \beta'))$. Let us denote intrinsic value by V ("value") and instrumental value by K ("karma").

sign	form	intrisic value V	instrum. value K
good	(α, β, γ)	Y	$X - Y$
bad	$(\alpha', \gamma', \beta')$	$X - Y$	$-X$

The next table shows which values the previous arithmetic expressions assign for each location of the quality plane. Only a sigle quadrant, the upper right one, is included because only absolute values of coordinates matter.

$Y:4$ $V:-4$ $K:0$	$V:-3$ $K:-1$	$V:-2$ $K:-2$	$V:-1$ $K:-3$	$V:4$ $K:0$
$Y:3$ $V:-3$ $K:0$	$V:-2$ $K:-1$	$V:-1$ $K:-2$	$V:3$ $K:0$	$V:3$ $K:1$
$Y:2$ $V:-2$ $K:0$	$V:-1$ $K:-1$	$V:2$ $K:0$	$V:2$ $K:1$	$V:2$ $K:2$
$Y:1$ $V:-1$ $K:0$	$V:1$ $K:0$	$V:1$ $K:1$	$V:1$ $K:2$	$V:1$ $K:3$
origin $V:0$ $K:0$	$X:1$ $V:0$ $K:1$	$X:2$ $V:0$ $K:2$	$X:3$ $V:0$ $K:3$	$X:4$ $V:0$ $K:4$

Whenever atomic values α and α' aren't placed in the proximal location a new parameter needs to be introduced in the arithmetic expressions which define value quantification. Let this parameter be r, *resolution*. For our practical intents and purposes this parameter is a constant whose value is 4 but the author prefers to denote it by r because he isn't sure that its only possible value is 4.

Inclusion of r into the arithmetic expressions may have some deeper metaphysical meaning. r could refer to the greatest magnitude of romantic or classical quality the subject has experienced. In this case inclusion of r into value calculations suggests self-awareness. r is included into the value quantification arithmetic of all other Peaceful *beings* except the Man.

Boys differ from men by having a black-and-white conception of bad things. This is modeled by placing negative intrisic value γ' into the proximal location φ'. In this configuration minor badness is condemned harshly in order to set warning examples. This approach contributes to self-discipline but can turn into an overkill attitude of immature perfectionism. In practice it means it's important to have the right favorite bands, brands, hockey team and so on. Little things matter most. The worse some situation gets the more stoic response shall it receive because atomic negative value α' is in the axial location ψ'. The Peaceful Man would place intrinsic negative value γ' in that location but as Boys consider themselves children they don't feel truly responsible for the most terrifying events.

Perhaps this explains why child soldiers are considered better than adults by some African commanders. Boys could be more

capable of coping with losing their friends as casualties in combat. Indeed even adult soldiers tend to call each other boys if they're male. This could be revealing of what the ideal soldier is like. War is bad but the ideal soldier isn't easily discouraged. Quantification arithmetic of the Peaceful (not necessarily pacifist) Boy:

sign	form	intrisic value	instrum. value
good	(α, β, γ)	Y	$X - Y$
bad	$(\gamma', \alpha', \beta')$	$Y - r$	$-X$

$Y:4$ $V:0$ $K:0$	$V:0$ $K:-1$	$V:0$ $K:-2$	$V:0$ $K:-3$	$V:4$ $K:0$
$Y:3$ $V:-1$ $K:0$	$V:-1$ $K:-1$	$V:-1$ $K:-2$	$V:3$ $K:0$	$V:3$ $K:1$
$Y:2$ $V:-2$ $K:0$	$V:-2$ $K:-1$	$V:2$ $K:0$	$V:2$ $K:1$	$V:2$ $K:2$
$Y:1$ $V:-3$ $K:0$	$V:1$ $K:0$	$V:1$ $K:1$	$V:1$ $K:2$	$V:1$ $K:3$
origin $V:0$ $K:0$	$X:1$ $V:0$ $K:1$	$X:2$ $V:0$ $K:2$	$X:3$ $V:0$ $K:3$	$X:4$ $V:0$ $K:4$

Conspicuously, no negative value equals less than -3. This suggests Boys are more carefree than some other kind of people.

Boys and men specialize in their preferred activities so that instrumental value β is in the axial location ψ. This turns improving one's skills into a long-term investment. But if atomic value α is placed there, instead, and instrumental value β is placed in the proximal location φ the resulting value quantification pattern expects to find virtue within the smallest of good deeds, such as friendliness and obedience. This arithmetic models the Peaceful Girl. Engaging into social relationships in terms of this kind of minimalistic virtue ethics predisposes girls towards forming stronger friendships than boys do. Peaceful Girl:

sign	form	intrisic value	instrum. value
good	(β, α, γ)	Y	$r - X$
bad	$(\alpha', \gamma', \beta')$	$X - Y$	$-X$

$Y:4$ $V:-4$ $K:0$	$V:-3$ $K:-1$	$V:-2$ $K:-2$	$V:-1$ $K:-3$	$V:4$ $K:0$
$Y:3$ $V:-3$ $K:0$	$V:-2$ $K:-1$	$V:-1$ $K:-2$	$V:3$ $K:1$	$V:3$ $K:0$
$Y:2$ $V:-2$ $K:0$	$V:-1$ $K:-1$	$V:2$ $K:2$	$V:2$ $K:1$	$V:2$ $K:0$
$Y:1$ $V:-1$ $K:0$	$V:1$ $K:3$	$V:1$ $K:2$	$V:1$ $K:1$	$V:1$ $K:0$
origin $V:0$ $K:4$	$X:1$ $V:0$ $K:3$	$X:2$ $V:0$ $K:2$	$X:3$ $V:0$ $K:1$	$X:4$ $V:0$ $K:0$

The author interprets this model so that Girls are vessels of good karma which are meant to be consummated upon reaching maturity. Not necessarily by marrying them, but it is said that a woman's market value is highest when she's twenty-five years old. If so, it could make sense to wait until then before starting a family so that she wouldn't later feel like she was missing out. But on the other hand it might be better not to get used to having so much spare time.

Our model also describes the Woman. In her case intrinsic value γ is placed into

the proximal location φ. This renders the Woman a fundamentally selfish being although she also believes in karma. She is selfish to protect the interests of her child during pregnancy and early infancy. The Woman wants to be a good person so that she'd be treated well.

Decision making patterns of the Woman feature the easies access to intrinsic value: the Woman is an end in herself. Everything good that happens to the Woman has intrinsic value. The very event of getting attention as a Woman is valuable. Some philosophers claim all people to be ends-in-themselves but if that's true then Women are greater people than Men. The author might go so far as to state that the Streisand effect doesn't apply to Barbara Streisand because she's a woman.

The archetypal Woman won't refuse anything good that's good for her. She won't feel like someone else should have it. She could refuse a chance to be falsely portrayed as the inventor of some scientific breakthrough but this would be because she'd be afraid of getting caught for not understanding it. In this way, being a Woman is inherently rewarding whereas a Man has a need to be needed. No wonder female-to-male cross-dressing is addictive whereas male-to-female cross-dressing isn't.

sign	form	intrisic value	instrum. value
good	(γ, β, α)	$r - X$	$X - Y$
bad	$(\alpha', \gamma', \beta')$	$X - Y$	$-X$

$Y:4$ $V:-4$ $K:0$	$V:-3$ $K:-1$	$V:-2$ $K:-2$	$V:-1$ $K:-3$	$V:0$ $K:0$
$Y:3$ $V:-3$ $K:0$	$V:-2$ $K:-1$	$V:-1$ $K:-2$	$V:1$ $K:0$	$V:0$ $K:1$
$Y:2$ $V:-2$ $K:0$	$V:-1$ $K:-1$	$V:2$ $K:0$	$V:1$ $K:1$	$V:0$ $K:2$
$Y:1$ $V:-1$ $K:0$	$V:3$ $K:0$	$V:2$ $K:1$	$V:1$ $K:2$	$V:0$ $K:3$
origin $V:4$ $K:0$	$X:1$ $V:3$ $K:1$	$X:2$ $V:2$ $K:2$	$X:3$ $V:1$ $K:3$	$X:4$ $V:0$ $K:4$

To summarize, let's consider the location titled *body* at $(1, -1)$. Everyone has a body and everyone who can see and is awake sees physical bodies all around him. What is their default value according to our theory?

- For the Man, $V:1$, $K:0$.
- For the Boy, $V:1$, $K:0$.
- For the Girl, $V:1$, $K:3$.
- For the Woman, $V:3$, $K:0$.

We may conclude by formally expressing the Peaceful Mood for each gender:

$$♂ = ((\alpha, \beta, \gamma), (\alpha', \gamma', \beta'))$$

$$*♂ = ((\alpha, \beta, \gamma), (\gamma', \alpha', \beta'))$$

$$*♀ = ((\beta, \alpha, \gamma), (\alpha', \gamma', \beta'))$$

$$♀ = ((\gamma, \beta, \alpha), (\alpha', \gamma', \beta'))$$

2.9.4 $G-$, The Caring Mood

We denote the Peaceful Mood by G so that G is a function which has two inputs whose values are absolute qualities. The function swaps the relative values which are in the locations specified by the input. The Caring Mood, then, is produced by the operation $G(\varphi', \psi')$ which swaps the values of bad proximal and bad axial quality: $G(\varphi', \psi') = G-$. For each gender, the Caring Mood is:

$$\male- = ((\alpha, \beta, \gamma), (\gamma', \alpha', \beta'))$$

$$*\male- = ((\alpha, \beta, \gamma), (\alpha', \gamma', \beta'))$$

$$*\female- = ((\beta, \alpha, \gamma), (\gamma', \alpha', \beta'))$$

$$\female- = ((\gamma, \beta, \alpha), (\gamma', \alpha', \beta'))$$

The Caring Mood could be triggered by having something vulnerable or fragile to care for and to protect such as an infant or a piece of fine art. The Caring Man, Girl and Woman take seriously even the most minor damage to the object of their care but if the entire object is destroyed their Mood will certainly change. The Caring Boy, on the other hand, is already highly conscious of disaster scenarios and consequently, if one of them turns into reality and the object of his care is destroyed, he doesn't know when to stop caring.

2.9.5 $G+$, The Playful Mood

$$G(\psi', \chi') = G+$$

$$\male+ = ((\alpha, \beta, \gamma), (\gamma', \alpha', \beta'))!$$

$$*\male+ = ((\alpha, \beta, \gamma), (\alpha', \gamma', \beta'))$$

$$*\female+ = ((\beta, \alpha, \gamma), (\gamma', \alpha', \beta'))$$

$$\female+ = ((\gamma, \beta, \alpha), (\gamma', \alpha', \beta'))$$

When Playful, the Man, Girl and Woman place negative intrinsic value γ' in the diagonal location χ' right next to positive intrinsic value γ. In a playful setting it would be the worst to engage in forced or pretentious behavior. Insincere playfulness indicates one isn't "on the same page" with others. This creates mistrust that's harmful for rapport and contrary to the purpose of playing which is to play along comfortably, without effort or difficulty.

Making an effort to be playful would make a subject seem like a sycophant who misses the point of the activity. However, among boys this isn't necessarily a problem. Socially awkward boys can be disliked by other boys but they aren't necessarily shut out. Boys are capable of codifying their behavior in a way that makes it possible to excuse social awkwardness if they want to. This is why bad atomic value a' is in the diagonal position.

To be sure, socially awkward boys do also end up getting bullied by other boys. Bullying someone behind a playful facade is often easily accomplished but its the worst position to be in for the vic-

tim. Hence, negative intrinsic value γ' is in the proximal location φ'.

The author prefers to seek the mindset of Playful Man when writing about metaphysical thoughts. In this Mood negative intrinsic value γ' is in the negative diagonal location ψ', deterring bad karma. For an author it's important to pay attention to the karmic content of his writings because an author doesn't wield power over his audience but influence.

2.9.6 $-G$, The Hostile Mood

$$G(\psi, \chi) = -G$$

$$-\sigma^{\prime} = ((\alpha, \gamma, \beta), (\alpha', \gamma', \beta'))!$$

$$-*\sigma^{\prime} = ((\alpha, \gamma, \beta), (\gamma', \alpha', \beta'))$$

$$-*\varphi = ((\beta, \gamma, \alpha), (\alpha', \gamma', \beta'))$$

$$-\varphi = ((\gamma, \alpha, \beta), (\alpha', \gamma', \beta'))$$

The author is often in a Hostile Mood when walking on the street because he tends to intimidate people for some reason. This way, when he sees an intimidated person he can get some satisfaction from the possibility that he somehow caused this person to feel intimidated. Assuming a Hostile Mood is a way for the author to try to make something good out of his effect on others. Perhaps it's somehow sadistic but if he never did it he'd suffer from making people feel that way despite not meaning to.

The Hostile Mood marks preparation for conflict. The Hostile Man and Boy understand positive value the same way. Instrumental value β is in the diagonal position to make sure all the necessary preparations are done. Intrinsic value γ is in the axial location to make sure they understand what's going on and have the right priorities.

Also the Girl places intrinsic value in the axial location but she's more conflict avoidant so she doesn't value preparing for confrontation as much as the Man and the Boy do. The outcome of the conflict is of least interest for the Girl – the important thing is that conflicts should end. This is why the good diagonal location is occupied by the atomic value α.

The Hostile Woman expects to need to sincerely express herself in case of confrontation so she places intrinsic value in the proximal location, as usual. Reflecting on what's going on in order to adapt to the situation is contrary to this goal. There's usually no shortage of people who want to tell women things, including what's going on. Hence, low quality α is in the axial location.

2.9.7 $-G-$, The Flight (Escaping) Mood

$$-G(\varphi', \psi') = -G-$$

$$-\sigma^{\prime}- = ((\alpha, \gamma, \beta), (\gamma', \alpha', \beta'))$$

$$-*\sigma^{\prime}- = ((\alpha, \gamma, \beta), (\alpha', \gamma', \beta'))!$$

$$-*\varphi- = ((\beta, \gamma, \alpha), (\gamma', \alpha', \beta'))$$

$$-\text{♀}- = ((\gamma, \alpha, \beta), (\gamma', \alpha', \beta'))!$$

The input of the function which produces the Escaping Mood is identical to the one which produces the Caring Mood by using the Peaceful Mood as the source. Hence, from a formal viewpoint, the Caring and Escaping Moods are analogies of each other. It remains to be seen whether this means something in practice, such as being triggered by similar or analogous conditions.

The Escaping Man, Girl and Woman constantly focus on actively escaping which is why negative intrinsic value γ' is in the proximal position. Reflecting on the situation is of least importance, explaining the placement of negative atomic quality α' in the axial position. The Boy is again different.

The Boy may be curious of conflict and therefore stop escaping upon noticing nobody to be after him anymore. Boys may expect to be excused for their antics so they may even return to whoever they're running from, for example to apologize or because one of them got caught and they want to manifest solidarity towards each other. For boys, childhood is a time for learning to understand conflict.

$$-*\text{♀}+ = ((\beta, \gamma, \alpha), (\alpha', \beta', \gamma'))$$

$$-\text{♀}+ = ((\gamma, \alpha, \beta), (\alpha', \beta', \gamma'))$$

Bad intrinsic value γ' is in the diagonal position for the Man, Girl and Woman when they are in Fight Mood. This means locations titled *wrong*, *fake*, *withhold* and *apathy* are evaluated as the worst in Fight Mood. While fighting it's important not to make mistakes about priorities. Perhaps the outcome of the fight is ultimately the most important thing but it isn't the focal point during the fight. Instead, fighting is. This is why instrumental badness β', which is about minding long-term consequences, is in the axial position. The possibility of getting hurt is readily understood and accepted by placing atomic bad value α' in the proximal position.

2.9.8 $-G+$, The Fight Mood

$$-G(\psi', \chi') = -G+$$

$$-\text{♂}+ = ((\alpha, \gamma, \beta), (\alpha', \beta', \gamma'))$$

$$-*\text{♂}+ = ((\alpha, \gamma, \beta), (\gamma', \beta', \alpha'))$$

The Boy is again different. Boys are most likely to end a fight when someone gets hurt. This can be inferred from intrinsic badness γ' being in the proximal location. Making mistakes about priorities is considered a part of being just a boy and learning one's lessons, so atomic badness α' is in the diagonal locations.

2.9.9 *Symmetrical* Moods

modal code	operation	modal form	Mood name
G	none	1. $\male = ((\alpha,\beta,\gamma),(\alpha',\gamma',\beta'))$ 2. $*\male = ((\alpha,\beta,\gamma),(\gamma',\alpha',\beta'))$ $*\female = ((\beta,\alpha,\gamma),(\alpha',\gamma',\beta'))$ $\female = ((\gamma,\beta,\alpha),(\alpha',\gamma',\beta'))$	Peaceful
$G-$	$G(\varphi',\psi')$	2. $\male- = ((\alpha,\beta,\gamma),(\gamma',\alpha',\beta'))$ 1. $*\male- = ((\alpha,\beta,\gamma),(\alpha',\gamma',\beta'))$ $*\female- = ((\beta,\alpha,\gamma),(\gamma',\alpha',\beta'))$ $\female- = ((\gamma,\beta,\alpha),(\gamma',\alpha',\beta'))$	Caring
$G+$	$G(\psi',\chi')$	$\male+ = ((\alpha,\beta,\gamma),(\alpha',\beta',\gamma'))!$ $*\male+ = ((\alpha,\beta,\gamma),(\gamma',\beta',\alpha'))$ $*\female+ = ((\beta,\alpha,\gamma),(\alpha',\beta',\gamma'))$ $\female+ = ((\gamma,\beta,\alpha),(\alpha',\beta',\gamma'))$	Playful
$-G$	$G(\psi,\chi)$	3. $-\male = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))!$ 4. $-*\male = ((\alpha,\gamma,\beta),(\gamma',\alpha',\beta'))$ $-*\female = ((\beta,\gamma,\alpha),(\alpha',\gamma',\beta'))$ $-\female = ((\gamma,\alpha,\beta),(\alpha',\gamma',\beta'))$	Hostile
$-G-$	$-G(\varphi',\psi')$	4. $-\male- = ((\alpha,\gamma,\beta),(\gamma',\alpha',\beta'))$ 3. $-*\male- = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))!$ $-*\female- = ((\beta,\gamma,\alpha),(\gamma',\alpha',\beta'))$ $-\female- = ((\gamma,\alpha,\beta),(\gamma',\alpha',\beta'))!$	Flight, Escaping
$-G+$	$-G(\psi',\chi')$	$-\male+ = ((\alpha,\gamma,\beta),(\alpha',\beta',\gamma'))$ $-*\male+ = ((\alpha,\gamma,\beta),(\gamma',\beta',\alpha'))$ $-*\female+ = ((\beta,\gamma,\alpha),(\alpha',\beta',\gamma'))$ $-\female+ = ((\gamma,\alpha,\beta),(\alpha',\beta',\gamma'))$	Fight

Modal forms which describe each Mood can be obtained by manipulating the symbols which define the four basic genders according to the previous table. The column labeled "operation" declares two locations of a Mood whose values are swapped.

Symmetrical Moods are marked by an exclamation mark. They are:

- Playful Man: $\male+ = ((\alpha,\beta,\gamma),(\alpha',\beta',\gamma'))$
- Hostile Man: $-\male = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))$
- Escaping Boy: $-*\male- = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))$
- Escaping Woman: $-\female- = ((\gamma,\alpha,\beta),(\gamma',\alpha',\beta'))$

From a formal viewpoint, symmetry of Mood means good and bad are quantified the same way. No symmetrical Mood has been found for the Girl but the Woman and Boy have one, the Escaping Mood, and the Man has two, the Playful and Hostile Mood. Do these Moods have something in common which would make them different from other Moods?

When the author was an elementary school student he once went to the schoolyard at night with a couple of friends. They scattered into a forest next to the yard. It was dark. After a while some older boys drove into the schoolyard on mopeds. They drove around a bit, quite fast. The author was a sensitive child so this was enough to make him feel like situation was somehow dangerous and out of control. Even though he didn't escape – he remained safely unnoticed in the darkness – in his mind there was a feeling of danger and excitement. This feeling, which lasted maybe ten seconds, stood out as different from usual. Perhaps it was different because Escaping Boy is a symmetrical Mood.

The feeling wasn't sexual. The author was in the latent stage of childhood and was quite asexual just like anyone of that age. But

in retrospect, if it had been a sexual feeling it would've been more intense. This would seem to apply to all symmetrical Moods.

In the author's experience, many women get satisfaction from being manhandled in moderation. This situation between the two sexes isn't quite symmetrical because women also have a higher threshold for pain. It has frequently been okay for the author to hurt a woman sexually in such a way that he wouldn't allow himself to be hurt like that. Apparently this kind of treatment can trigger an Escaping Mood which increases sexual satisfaction. In order to do that to a woman it would be good for a man to be in a Hostile Mood, especially if he's inexperienced, because then he has a psychological barrier which prevents him from caring too much about the fact that he's doing something to the woman which he wouldn't want to be done to himself.

Symmetrical Moods aren't necessarily sexual. They can also involve humor or relaxation. The symmetry of the Playful and Hostile Moods could explain why the Man relates differently to violence than others. Violent behavior can be a serious problem, but on the other hand, Men are capable of engaging in a kind of horseplay. Among their own Men can defuse situations that could have escalated into violence as mere play.

Women aren't like this. Violence is serious business for the Woman. Women have a tendency to try to do as much damage as possible if they want to. Nothing playful is involved, let alone some notion of fair game.

Linking symmetrical Moods to sexuality could explain why children who see adults having sex tend to misinterpret the situation so that the man is hurting the woman. If a man's arousal needs either the Playful or Hostile Mood and a woman's arousal requires a mental feeling of Escaping, which could be intensified by the rhythmic movement of the man's pelvis, children who make this judgment could actually be quite right about what they're seeing even though they don't understand the woman isn't really being victimized – this is just her way to experience arousal.

The symmetry of the Mood of Escaping Boy could also be linked to sexual arousal by pointing out that getting to copulate with a female when the alpha male of the pack isn't around can be a very exciting experience.

If linking symmetrical Moods to sexual arousal is correct it also explains some aspects of male and female homosexuality. Firstly, male homosexuality doesn't necessarily render the bottom feminine if we interpret this model so that the bottom is infantilized, instead. In other words, the bottom assumes the gender of Boy instead of Man and experiences sexual arousal in the Escaping Mood similarly to Women. Secondly, if Girls don't have any symmetrical Mood they're largely asexual, which could explain why lack of sex is a common occurrence in lesbian relationships and lifestyle.

2.9.10 *Equal* Moods

Equal Moods are numbered. Turns out that Men and Boys can sometimes experience Moods whose modal forms are the same even though they're different Moods. In this case their difference apparently means that the conditions which cause these Moods are different.

- Peaceful Man is equal to Caring Boy: $♂ = *♂-$

- Peaceful Boy is equal to Caring Man: $*♂ = ♂-$
- Hostile Man is equal to Escaping Boy: $-♂ = -*♂-$
- Hostile Boy is equal to Escaping Man: $-*♂ = -♂-$

No equal Moods have been found for the Girl and Woman! This could reflect a deep difference between males and females. It could explain a root cause of women feeling inferior to men in terms of something cognitive instead of patriarchy and penis envy. This finding could have profound implications regarding the origin of male solidarity and also male chauvinism.

Why does a mother throw a temper tantrum when her offspring reminds her of its individuality? Because she'd want her offspring to be an extension of her own self? Because she needs to make an effort to understand the difference between two separate people?

What contemporary feminism may perceive as oppression and exclusion of women could, in fact, be a natural consequence of males understanding other males better and especially more effortlessly than women understand other people in general. For women it's an important priority to be free to behave as if inequality didn't exist, which is highly restrictive towards their understanding of social matters. For example, women feel victimized by "Barbie" dolls which depict somewhat pretty although skinny females whereas males don't feel victimized by "He-Man" dolls which depict strong males. This is an instance of women focusing on a symptom instead of the underlying problem which is inequality.

Women don't consider themselves bad. If they feel insufficient anyway they project this feeling into some kind of an identity project such as feminist activity or an eating disorder. Men and boys, on the other hand, do not cease to relate to each other upon finding inequality among themselves. They prefer to avoid each other or to focus their social interaction on some shared activity so that they'd have something else on their minds than inequality.

Males are more likely than women to discuss their values on an abstract level so that statements are understood according to their literal meaning instead of according to who's making the statement. This is why there's no feminine equivalent for "mansplaining". Only some men mansplain but all women womansplain, and to point this out would make womanhood seem like a bad thing, which is why it isn't pointed out and no word for it is needed.

2.9.11 A Treatise on Understanding the Other

Generally speaking the Man seems best equipped to understand other genders because the Mood transition functions which change the Man to another gender and vice versa are the simplest. These functions are:

Man to Boy: $♂(\varphi', \psi') = *♂$

Man to Girl: $♂(\varphi, \psi) = *♀$

Man to Woman: $♂(\varphi, \chi) = ♀$

Each of these functions has a breadth and depth of one. The functions which change the Boy to the Girl or Woman have a breadth of two, meaning there are two parallel operations which are independent of each other.

Boy to Man: $*♂(\varphi', \psi') = ♂$

Boy to Girl: $*♂(\varphi, \psi)(\varphi', \psi') = *♀$

Boy to Woman: $*♂(\varphi, \chi)(\varphi', \psi') = ♀$

The function which changes the Girl to the Woman and vice versa has a breadth of one but a depth of two, meaning the operation consists of two steps which must be performed in sequence.

Girl to Man: $*♀(\varphi, \psi) = ♂$

Girl to Boy: $*♀(\varphi, \psi)(\varphi', \psi') = *♂$

Girl to Woman: $*♀(\varphi, \psi)(\varphi, \chi) = ♀$

This makes it seem like the Woman and Girl are the worst at understanding other kind of people or need to make the greatest effort to do so.

Woman to Man: $♀(\varphi, \chi) = ♂$

Woman to Boy: $♀(\varphi, \chi)(\varphi', \psi') = *♂$

Woman to Girl: $♀(\varphi, \psi)(\varphi, \chi) = *♀$

In practice the issue isn't quite as straightforward as it seems to be on paper. It can be rather complicated because men tend to choose not to understand women especially if a woman's intelligence makes them feel insecure about their masculinity. Groups which consist predominantly of men sometimes shut out the opinion of a woman but approve of the same opinion when it's voiced by a man. The author doesn't remember having done so himself and considers it unfair but does admit expressing approval towards the woman's opinion, and consequently towards the woman, tends to detach him and the woman from the group.

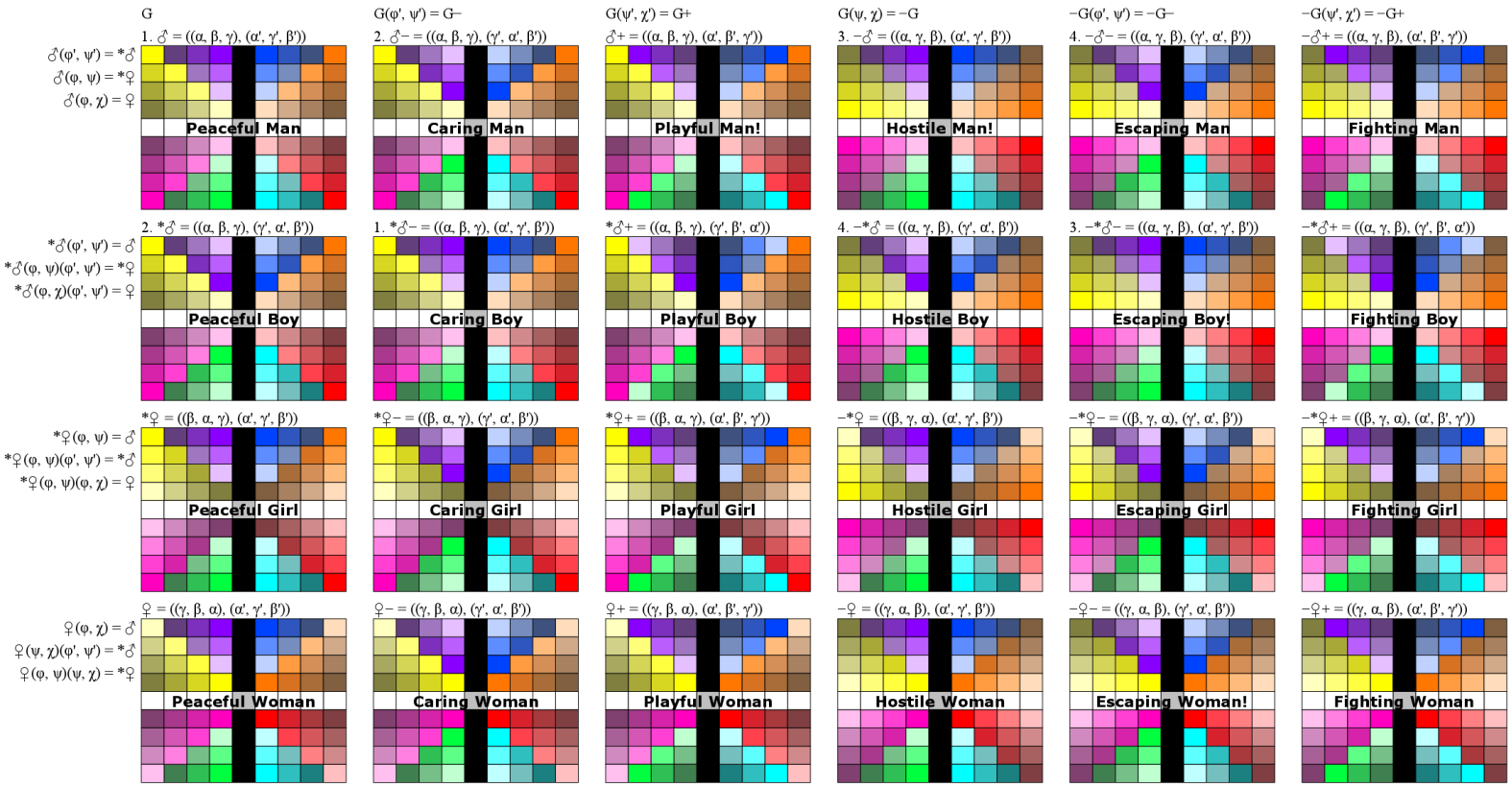

Figure 2.4: The genders and their Moods. Symmetrical Moods are followed by an exclamation mark. Equal Moods are numbered.

In their present form, gender and identity studies offer a rather subjective and fragmented conception of reality. The normative theory of gender could introduce logical rigor into this field and, in fact, turn gender studies into a hard science.

The author figures that the Peaceful, Fighting and Playful Man and the Escaping and Caring Boy have a selfless cognition. This is because value is quantified so that α and α' are in the proximal position. These modal forms do not include the variable r which stands for resolution.

Furthermore, the author interprets his model so that the Peace-

ful, Caring and Playful male have the most objective mindset because they associate high quality with high complexity. Insofar as the conscious mind can serve as a guiding light for human endeavor, no other Mood is predisposed to exert it to the individual's full capacity. This is because every other kind of Mood would be content with less than maximum complexity.

Women place high quality in the proximal position. This position is near the origin where only simple things are found. Pursuit of the simplest forms of good would trivialize humanity if everyone did only that.

2.9.12 Evaluation Arithmetic

We can see from the following table that there are three modal forms which match no known Mood.

modal form	intrinsic value V	instrum. value K	found in Moods
(α, β, γ)	Y	$X - Y$	♂, ♂−, ♂+, ∗♂, ∗♂−, ∗♂+. (6)
$(\alpha', \beta', \gamma')$	X	$X - Y$	♂+, −♂+, ∗♀+, −∗♀+, ♀+, −♀+. (6)
(α, γ, β)	$X - Y$	Y	−♂, −♂−, −♂+, −∗♂, −∗♂−, −∗♂+. (6)
$(\alpha', \gamma', \beta')$	$X - Y$	Y	♂, −♂, ∗♂−, ∗♀, −∗♀, ♀, −♀. (8)
(β, α, γ)	Y	$r - X$	∗♀, ∗♀−, ∗♀+. (3)
$(\beta', \alpha', \gamma')$	$-X$	$Y - r$	(0)
(β, γ, α)	$X - Y$	$r - X$	−∗♀, −∗♀−, −∗♀+. (3)
$(\beta', \gamma', \alpha')$	$X - Y$	$Y - r$	(0)
(γ, α, β)	$r - X$	Y	−♀, −♀−, −♀+. (3)
$(\gamma', \alpha', \beta')$	$Y - r$	$-X$	♂−, −♂−, ∗♂, −∗♂, ∗♀−, −∗♀−, ♀−, −♀−. (8)
(γ, β, α)	$r - X$	$X - Y$	♀, ♀−, ♀+. (3)
$(\gamma', \beta', \alpha')$	$Y - r$	$X - Y$	∗♂+, −∗♂+. (2)

The blank fields make the impression that we might not have found all Moods. We could, at least for the sake of experiment, conduct a deeper analysis to see if there are more Moods to be found.

2.9.13 Deep Analysis of Moods

If we increase the depth of Mood transition functions we obtain more modal forms. In order to choose whether be believe them to indicate actual Moods we need to first check what they are.

Derivatives of Peaceful Man:

1. $\male = ((\alpha,\beta,\gamma),(\alpha',\gamma',\beta'))$
2. $\male(\varphi',\psi') \Leftrightarrow \male- = ((\alpha,\beta,\gamma),(\gamma',\alpha',\beta'))$
3. $\male(\psi',\chi') \Leftrightarrow \male+ = ((\alpha,\beta,\gamma),(\alpha',\beta',\gamma'))$!
4. $\male(\varphi',\psi')(\psi',\chi') \Leftrightarrow \male-+ = ((\alpha,\beta,\gamma),(\gamma',\beta',\alpha'))$
5. $\male(\psi',\chi')(\varphi',\psi') \Leftrightarrow \male+- = ((\alpha,\beta,\gamma),(\beta',\alpha',\gamma'))$
6. $\male(\varphi',\psi')(\psi',\chi')(\varphi',\psi') \Leftrightarrow \male-+- = ((\alpha,\beta,\gamma),(\beta',\gamma',\alpha'))$
6. $\male(\psi',\chi')(\varphi',\psi')(\psi',\chi') \Leftrightarrow \male+-+ = ((\alpha,\beta,\gamma),(\beta',\gamma',\alpha'))$

$\male-+- = \male+-+$

Derivatives of Hostile Man:

7. $-\male = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))$!
8. $-\male(\varphi',\psi') \Leftrightarrow -\male- = ((\alpha,\gamma,\beta),(\gamma',\alpha',\beta'))$
9. $-\male(\psi',\chi') \Leftrightarrow -\male+ = ((\alpha,\gamma,\beta),(\alpha',\beta',\gamma'))$
10. $-\male(\varphi',\psi')(\psi',\chi') \Leftrightarrow -\male-+ = ((\alpha,\gamma,\beta),(\gamma',\beta',\alpha'))$
11. $-\male(\psi',\chi')(\varphi',\psi') \Leftrightarrow -\male+- = ((\alpha,\gamma,\beta),(\beta',\alpha',\gamma'))$
12. $-\male(\varphi',\psi')(\psi',\chi')(\varphi',\psi') \Leftrightarrow -\male-+- = ((\alpha,\gamma,\beta),(\beta',\gamma',\alpha'))$
12. $-\male(\psi',\chi')(\varphi',\psi')(\psi',\chi') \Leftrightarrow -\male+-+ = ((\alpha,\gamma,\beta),(\beta',\gamma',\alpha'))$

$-\male-+- = -\male+-+$

Derivatives of Peaceful Boy:

2. $*\male = ((\alpha,\beta,\gamma),(\gamma',\alpha',\beta'))$
1. $*\male(\varphi',\psi') \Leftrightarrow *\male- = ((\alpha,\beta,\gamma),(\alpha',\gamma',\beta'))$
4. $*\male(\psi',\chi') \Leftrightarrow *\male+ = ((\alpha,\beta,\gamma),(\gamma',\beta',\alpha'))$
3. $*\male(\varphi',\psi')(\psi',\chi') \Leftrightarrow *\male-+ = ((\alpha,\beta,\gamma),(\alpha',\beta',\gamma'))$!
6. $*\male(\psi',\chi')(\varphi',\psi') \Leftrightarrow *\male+- = ((\alpha,\beta,\gamma),(\beta',\gamma',\alpha'))$
5. $*\male(\varphi',\psi')(\psi',\chi')(\varphi',\psi') \Leftrightarrow *\male-+- = ((\alpha,\beta,\gamma),(\beta',\alpha',\gamma'))$
5. $*\male(\psi',\chi')(\varphi',\psi')(\psi',\chi') \Leftrightarrow *\male+-+ = ((\alpha,\beta,\gamma),(\beta',\alpha',\gamma'))$

$*\male-+- = *\male+-+$

Derivatives of Hostile Boy:

8. $-*\male = ((\alpha,\gamma,\beta),(\gamma',\alpha',\beta'))$
7. $-*\male(\varphi',\psi') \Leftrightarrow -*\male- = ((\alpha,\gamma,\beta),(\alpha',\gamma',\beta'))$!
10. $-*\male(\psi',\chi') \Leftrightarrow -*\male+ = ((\alpha,\gamma,\beta),(\gamma',\beta',\alpha'))$
9. $-*\male(\varphi',\psi')(\psi',\chi') \Leftrightarrow -*\male-+ = ((\alpha,\gamma,\beta),(\alpha',\beta',\gamma'))$
12. $-*\male(\psi',\chi')(\varphi',\psi') \Leftrightarrow -*\male+- = ((\alpha,\gamma,\beta),(\beta',\gamma',\alpha'))$
11. $-*\male(\varphi',\psi')(\psi',\chi')(\varphi',\psi') \Leftrightarrow -*\male-+- = ((\alpha,\gamma,\beta),(\beta',\alpha',\gamma'))$
11. $-*\male(\psi',\chi')(\varphi',\psi')(\psi',\chi') \Leftrightarrow -*\male+-+ = ((\alpha,\gamma,\beta),(\beta',\alpha',\gamma'))$

$-*\male-+- = -*\male+-+$

Derivatives of Peaceful Girl:

$$*\varphi = ((\beta, \alpha, \gamma), (\alpha', \gamma', \beta'))$$

$$*\varphi(\varphi', \psi') \Leftrightarrow *\varphi- = ((\beta, \alpha, \gamma), (\gamma', \alpha', \beta'))$$

$$*\varphi(\psi', \chi') \Leftrightarrow *\varphi+ = ((\beta, \alpha, \gamma), (\alpha', \beta', \gamma'))$$

$$*\varphi(\varphi', \psi')(\psi', \chi') \Leftrightarrow *\varphi-+ = ((\beta, \alpha, \gamma), (\gamma', \beta', \alpha'))$$

$$*\varphi(\psi', \chi')(\varphi', \psi') \Leftrightarrow *\varphi+- = ((\beta, \alpha, \gamma), (\beta', \alpha', \gamma')) \ !$$

$$*\varphi(\varphi', \psi')(\psi', \chi')(\varphi', \psi') \Leftrightarrow *\varphi-+- = ((\beta, \alpha, \gamma), (\beta', \gamma', \alpha'))$$

$$*\varphi(\psi', \chi')(\varphi', \psi')(\psi', \chi') \Leftrightarrow *\varphi+-+ = ((\beta, \alpha, \gamma), (\beta', \gamma', \alpha'))$$

$$*\varphi-+- = *\varphi+-+$$

Derivatives of Hostile Girl:

$$-*\varphi = ((\beta, \gamma, \alpha), (\alpha', \gamma', \beta'))$$

$$-*\varphi(\varphi', \psi') \Leftrightarrow -*\varphi- = ((\beta, \gamma, \alpha), (\gamma', \alpha', \beta'))$$

$$-*\varphi(\psi', \chi') \Leftrightarrow -*\varphi+ = ((\beta, \gamma, \alpha), (\alpha', \beta', \gamma'))$$

$$-*\varphi(\varphi', \psi')(\psi', \chi') \Leftrightarrow -*\varphi-+ = ((\beta, \gamma, \alpha), (\gamma', \beta', \alpha'))$$

$$-*\varphi(\psi', \chi')(\varphi', \psi') \Leftrightarrow -*\varphi+- = ((\beta, \gamma, \alpha), (\beta', \alpha', \gamma'))$$

$$-*\varphi(\varphi', \psi')(\psi', \chi')(\varphi', \psi') \Leftrightarrow -*\varphi-+- = ((\beta, \gamma, \alpha), (\beta', \gamma', \alpha')) \ !$$

$$-*\varphi(\psi', \chi')(\varphi', \psi')(\psi', \chi') \Leftrightarrow -*\varphi+-+ = ((\beta, \gamma, \alpha), (\beta', \gamma', \alpha')) \ !$$

$$-*\varphi-+- = -*\varphi+-+$$

Derivatives of Peaceful Woman:

$$\varphi = ((\gamma, \beta, \alpha), (\alpha', \gamma', \beta'))$$

$$\varphi(\varphi', \psi') \Leftrightarrow \varphi- = ((\gamma, \beta, \alpha), (\gamma', \alpha', \beta'))$$

$$\varphi(\psi', \chi') \Leftrightarrow \varphi+ = ((\gamma, \beta, \alpha), (\alpha', \beta', \gamma'))$$

$$\varphi(\varphi', \psi')(\psi', \chi') \Leftrightarrow \varphi-+ = ((\gamma, \beta, \alpha), (\gamma', \beta', \alpha')) \ !$$

$$\varphi(\psi', \chi')(\varphi', \psi') \Leftrightarrow \varphi+- = ((\gamma, \beta, \alpha), (\beta', \alpha', \gamma'))$$

$$\varphi(\varphi', \psi')(\psi', \chi')(\varphi', \psi') \Leftrightarrow \varphi-+- = ((\gamma, \beta, \alpha), (\beta', \gamma', \alpha'))$$

$$\varphi(\psi', \chi')(\varphi', \psi')(\psi', \chi') \Leftrightarrow \varphi+-+ = ((\gamma, \beta, \alpha), (\beta', \gamma', \alpha'))$$

$$\varphi-+- = \varphi+-+$$

Derivatives of Hostile Woman:

$$-\varphi = ((\gamma, \alpha, \beta), (\alpha', \gamma', \beta'))$$

$$-\varphi(\varphi', \psi') \Leftrightarrow -\varphi- = ((\gamma, \alpha, \beta), (\gamma', \alpha', \beta')) \ !$$

$$-\varphi(\psi', \chi') \Leftrightarrow -\varphi+ = ((\gamma, \alpha, \beta), (\alpha', \beta', \gamma'))$$

$$-\varphi(\varphi', \psi')(\psi', \chi') \Leftrightarrow -\varphi-+ = ((\gamma, \alpha, \beta), (\gamma', \beta', \alpha'))$$

$$-\varphi(\psi', \chi')(\varphi', \psi') \Leftrightarrow -\varphi+- = ((\gamma, \alpha, \beta), (\beta', \alpha', \gamma'))$$

$$-\varphi(\varphi', \psi')(\psi', \chi')(\varphi', \psi') \Leftrightarrow -\varphi-+- = ((\gamma, \alpha, \beta), (\beta', \gamma', \alpha'))$$

$$-\varphi(\psi', \chi')(\varphi', \psi')(\psi', \chi') \Leftrightarrow -\varphi+-+ = ((\gamma, \alpha, \beta), (\beta', \gamma', \alpha'))$$

$$-\varphi-+- = -\varphi+-+$$

This new inquiry makes our previous inquiry appear to lack depth. On the other hand, it might seem to be of dubious value to dissect Moods at such great detail as to differentiate between *Playfully Caring* and *Carefully Playful*. But if our hypothesis of the link between symmetrical Mood and sexual arousal is correct this is the only way to explain the sexuality of the Girl, as the deep analysis has found two symmetrical Moods per each gender. This refutes our earlier result about the Girl having no symmetrical Mood. However, females still have no different Moods whose modal forms are equal.

2.9.14 $G{-}{+}$, The Playfully Caring Mood

$$G(\varphi', \psi')(\psi', \chi') = G{-}{+}$$

$$\male{-}{+} = ((\alpha, \beta, \gamma), (\gamma', \beta', \alpha'))$$

$$*\male{-}{+} = ((\alpha, \beta, \gamma), (\alpha', \beta', \gamma'))!$$

$$*\female{-}{+} = ((\beta, \alpha, \gamma), (\gamma', \beta', \alpha'))$$

$$\female{-}{+} = ((\gamma, \beta, \alpha), (\gamma', \beta', \alpha'))!$$

The Playfully Caring Mood is symmetrical for the Boy and Woman. If symmetry of Mood is linked to sexuality it would make sense to associate this Mood to the specific desire to stimulate the partner's genitalia. While doing that to a male partner it would be important to avoid hurting him as males have a lower threshold of pain. This goal is readily kept in mind because γ' is in the proximal position for the Woman, asserting the importance of avoiding small and simple mistakes.

γ' is in the proximal position for everyone else than the Boy. The Boy has this value in the diagonal position which means he requires playing to be fun, inclusive, fair or sincere. The Boy isn't worried about someone getting hurt.

For everyone except the Boy, bad locations labeled as *apathy*, *withhold*, $fake$ and *wrong* are of least concern. This could be interpreted in many ways. If $fake$ is only marginally bad then it's quite okay for the Woman to pretend arousal in this sexual mindset. On the other hand, if *wrong* is only marginally bad then, for the Woman, this could mean it isn't such a big deal if she wants to have sex with a man just because her friend has a crush on him.

Instrumental badness β' is in the axial position for every gender. This makes the Playfully Caring Mood quite mindful of long-term goals such as those which motivate the use of a condom.

2.9.15 $G{+}{-}$, The Carefully Playful Mood

$$G(\psi', \chi')(\varphi', \psi') = G{+}{-}$$

$$\male{+}{-} = ((\alpha, \beta, \gamma), (\beta', \alpha', \gamma'))$$

$$*\male{+}{-} = ((\alpha, \beta, \gamma), (\beta', \gamma', \alpha'))$$

$$*\female{+}{-} = ((\beta, \alpha, \gamma), (\beta', \alpha', \gamma'))!$$

$$\female{+}{-} = ((\gamma, \beta, \alpha), (\beta', \alpha', \gamma'))$$

For the Girl, Man and Woman the Carefully Playful Mood seems to represent an idealized world in which nothing bad can happen. When we call this Mood "Careful" we mean this Mood makes these kind of subjects try to carefully preserve and foster such an illusion.

In reality, the Carefully Playful Mood seems like a sexual risk factor for the Girl for whom it's a symmetrical Mood. Atomic badness α' is in the axial position, downplaying the importance of events which have long-term consequences. For the Girl, this Mood seems like a probable cause for failure to use contraception.

Also experienced adult women may assume this mindset as Girls if they're infantilized by stressful circumstances, which is more likely to happen if they're weakened by old age or illness. When this happens, the woman may start giving unusually bad advice about how to deal with the source of stress.

Interestingly, this Mood appears to make the Boy more aware of danger. If the author tries to recall own experiences of being in this Mood as a boy he remembers an occasion when he was in a pit with a few other people, shooting at targets with a rifle. Every now and then someone needed to go put more targets on the range. During these moments, when the author wasn't the one replacing the targets but waited for someone else to do so, he remembers feeling worried about the fact that someone is there on the shooting range so that there's a gun and cartridges at the firing point. This was a puzzling feeling because nobody had any reason to load the gun and point it towards the range. The author believes that if he were at the pit now, as an adult, he wouldn't even think about that.

2.9.16 $G\pm$, The *Playful & Caring* Mood

$$G(\varphi', \psi')(\psi', \chi')(\varphi', \psi') = G{-}{+}{-}$$

$$G(\psi', \chi')(\varphi', \psi')(\psi', \chi') = G{+}{-}{+}$$

$$♂\pm = ((\alpha, \beta, \gamma), (\beta', \gamma', \alpha'))$$

$$*♂\pm = ((\alpha, \beta, \gamma), (\beta', \alpha', \gamma'))$$

$$*♀\pm = ((\beta, \alpha, \gamma), (\beta', \gamma', \alpha'))$$

$$♀\pm = ((\gamma, \beta, \alpha), (\beta', \gamma', \alpha'))$$

This Mood makes the Boy unaware of danger but increases awareness of danger for all other genders. The Playful & Caring Mood isn't symmetrical for any gender. It seems like a safe way for everyone to spend time at troubling times, such as when someone has become seriously ill.

2.9.17 $-G-+$, The *Fightingly Escaping* Mood

$$-G(\varphi', \psi')(\psi', \chi') = -G{-}{+}$$

$$-♂-+ = ((\alpha, \gamma, \beta), (\gamma', \beta', \alpha'))$$

$$-*♂-+ = ((\alpha, \gamma, \beta), (\alpha', \beta', \gamma'))$$

$$-*♀-+ = ((\beta, \gamma, \alpha), (\gamma', \beta', \alpha'))$$

$$-♀-+ = ((\gamma, \alpha, \beta), (\gamma', \beta', \alpha'))$$

In the Fightingly Escaping Mood the motive of escaping appears to have a higher priority than the motive of fighting. All genders except the Boy value escaping unhurt. The Boy would seem to find injuries sustained while escaping to be some kind of status symbols. It makes sense except that these injuries could prevent taking care of one's responsibilities or prevent one from courting a partner. But the Boy wouldn't care about that because boys are just boys.

2.9.18 $-G+-$, The *Escapingly Fighting* Mood

$$-G(\psi', \chi')(\varphi', \psi') = -G+-$$

$$-\sigma^{\male}+- = ((\alpha, \gamma, \beta), (\beta', \alpha', \gamma'))$$

$$-*\sigma^{\male}+- = ((\alpha, \gamma, \beta), (\beta', \gamma', \alpha'))$$

$$-*\varphi+- = ((\beta, \gamma, \alpha), (\beta', \alpha', \gamma'))$$

$$-\varphi+- = ((\gamma, \alpha, \beta), (\beta', \alpha', \gamma'))$$

The Escapingly Fighting Mood may result from a rude remark in a social gathering if one doesn't retort immediately but starts brooding over it. It's triggered when someone has been wronged and attempts to correct it while disengaging from the wrongdoer. It's important to keep all messages short and straight to the point so that the wrongdoer doesn't obtain a reason to prolong the conflict. The goal is to end the conflict as soon as possible and to feel righteous afterwards. It isn't necessary to leave the scene if the wrongdoer assumes a more cooperative attitude – hence the fighting motive is more important than the escaping motive. This Mood doesn't include a sense of serious danger for any gender except the Boy.

2.9.19 $-G\pm$, The *Escaping & Fighting* Mood

$$-G(\varphi', \psi')(\psi', \chi')(\varphi', \psi') = -G-+-$$

$$-G(\psi', \chi')(\varphi', \psi')(\psi', \chi') = -G+-+$$

$$-\sigma^{\male}\pm = ((\alpha, \gamma, \beta), (\beta', \gamma', \alpha'))$$

$$-*\sigma^{\male}\pm = ((\alpha, \gamma, \beta), (\beta', \alpha', \gamma'))$$

$$-*\varphi\pm = ((\beta, \gamma, \alpha), (\beta', \gamma', \alpha'))!$$

$$-\varphi\pm = ((\gamma, \alpha, \beta), (\beta', \gamma', \alpha'))$$

Discovering and establishing the Escaping & Fighting Mood by a formal method seems to provide some insight into the notion of corrective rape as it's known in Islamic societies. The author has seen a video of a Muslim woman being group raped by Muslim men, more or less in broad daylight. She is yelling angrily at her rapists throughout the entire clip.

Given that the Escaping & Fighting Girl is a symmetrical Mood, the function of corrective rape appears to be to infantilize the victim. Ostensibly, this would discourage her from repeating her offensive behaviour, whatever it was. As far as the author can tell, the woman in the video is responding to corrective rape in the intended way since she's trying to escape and fight at the same time.

The theory of Primal Moods provides a reason to believe she needs to react this way in order to alleviate her suffering by experiencing sexual arousal.

This observation would seem to explain why corrective rape doesn't work in Western societies. Western women could be blank, docile or mentally absent during any kind of rape. They could be intimidated by the idea of yelling at someone who's raping them. There seems to even be some kind of an expectation for women to feel troubled later if they've had an orgasm during rape. Of course, since Western mainstream culture includes no notion of corrective rape the victim's default expectation is that making noise could aggravate a rapist who's afraid of getting caught because his behaviour isn't culturally accepted. However, according to Wikipedia, the Cheyenne people of North America and the Munduruku people of South America have also condoned group rape as punishment for female transgressions.

2.9.20 Girls Have Symmetrical Moods

Our earlier hypothesis about lack of sex in lesbian relationships has turned out wrong. The earlier hypothesis was that, given a "butch" and a "femme", the femme is infantilized and the lack of sex is caused by the Girl not having any symmetrical Mood. Now it turns out the Girl does have symmetrical Moods. However, they appear to be complicated to access.

If the Girl's sexual arousal requires either the Playfully Caring or Escaping & Fighting Mood then it may be complicated to arrange. The transition function that produces the former Mood has a depth of two. For the latter Mood the depth is three and the breadth is two. This is quite different from the Man who can attain two symmetrical Moods by functions whose depth is one. Furthermore, since these Moods of the Man are Playful and Hostile, they're easily accessible under a wide variety of circumstances. The Man can attain a symmetrical Mood even if he's feeling bad if he can turn that bad feeling into some kind of aggression which makes it possible to become Hostile. So Men would seem more self-sufficient with regards to finding ways to become sexually aroused.

Being Escaping & Fighting, like the Girl might need to be, would seem to be possible only if external conditions are right for it. Being in a steady relationship with a committed partner would make this Mood difficult to access if the partner is known to be safe. The Playfully Caring Mood, on the other hand, can be accomplished with a committed partner. But if this is the only option then apparently lesbians do have some difficulty metabolizing negative feelings in a sexual way and there are no such difficulties in relationships which involve the Man because the Man can become Hostile.

However, it would be overly simplistic to assume that the ability to sexualize Hostility would empower only the Man. The Woman also affords worse behaviour if the Man can enjoy sex with her despite being in the Hostile Mood. Even if the man becomes Hostile because he's displeased by the Woman's behaviour he may forgive her if he gets to have sex with her. Therefore this cognitive mechanism doesn't just empower men – it also makes it possible to exploit them. Of course, if contraception were impossible and there were no need to pay child support it would be easy to argue that having sex with a woman is an adequate compensation for almost any

sacrifice.

Perhaps this is an origin of the Madonna–whore-dichotomy: the Man has sex with the whore when Hostile and sex with the Madonna when Playful. However, it would be easy to confuse this mechanism with the fact that women can also experience sexual arousal while feeling like Boys. More on this later.

2.9.21 Evaluation Arithmetic, Revisited

The form of our theory is more even now, suggesting we're on the right track.

modal form	intrinsic value V	instrum. value K	found in Moods
(α, β, γ)	Y	$X - Y$	♂, ♂−, ♂+, ♂−+, ♂+−, ♂±, ∗♂, ∗♂−, ∗♂+, ∗♂−+, ∗♂+−, ∗♂±. (12)
$(\alpha', \beta', \gamma')$	X	$X - Y$	♂+, −♂+, ∗♂−+, −∗♂−+, ∗♀+, −∗♀+, ♀+, −♀+. (8)
(α, γ, β)	$X - Y$	Y	−♂, −♂−, −♂+, −♂−+, −♂+−, −♂±, −∗♂, −∗♂−, −∗♂+, −∗♂−+, −∗♂+−, −∗♂±. (12)
$(\alpha', \gamma', \beta')$	$X - Y$	Y	♂, −♂, ∗♂−, ∗♂−+, −∗♂−+, ∗♀, −∗♀, ♀, −♀. (8)
(β, α, γ)	Y	$r - X$	∗♀, ∗♀−, ∗♀+, ∗♀−+, ∗♀+−, ∗♀±. (6)
$(\beta', \alpha', \gamma')$	$-X$	$Y - r$	♂+−, −♂+−, ∗♂±, −∗♂±, ∗♀+−, −∗♀+−, ♀+−, −♀+− (8)
(β, γ, α)	$X - Y$	$r - X$	−∗♀, −∗♀−, −∗♀+, −∗♀−+, −∗♀+−, −∗♀±. (6)
$(\beta', \gamma', \alpha')$	$X - Y$	$Y - r$	♂±, −♂±, ∗♂+−, −∗♂+−, ∗♀±, −∗♀±, ♀±, −♀±(8)
(γ, α, β)	$r - X$	Y	−♀, −♀−, −♀+, −♀−+, −♀+−, −♀±. (6)
$(\gamma', \alpha', \beta')$	$Y - r$	$-X$	♂−, ♂−, ∗♂, −∗♂, ∗♀−, −∗♀−, ♀−, −♀−. (8)
(γ, β, α)	$r - X$	$X - Y$	♀, ♀−, ♀+, ♀−+, ♀+−, ♀±. (6)
$(\gamma', \beta', \alpha')$	$Y - r$	$X - Y$	♂−+, −♂−+, ∗♂+, −∗♂+, ∗♀−+, −∗♀−+, ♀−+, −♀−+. (8)

2.10 The Multipolar *Mosaic Plane*

2.10.1 *Sex* and *Gender*

Interpreting modal form as a theory about gender only works under usual or stereotypical conditions. Modal form doesn't account for any possible difference between a subject's sex and gender. But in fact, these can be different.

Sex is more absolute than gender. The sex of a subject is that according to which the subject is most conditioned to behave. This doesn't render sex an entirely cultural convention. Hormones surely affect conditioning. Subjects also obtain conditioning about their sex by interacting with their own genitalia, which are not a cultural construct. Usually it's easier for subjects to obtain conditioning which is in agreement with their physical characteristics. However, our model doesn't make any difference between cisgender and transgender people. Both kind of people are equally right about what their sex is.

The most common notion about sex is that there are two sexes:

male and female. We use a model in which there are four sexes: Man, Boy, Girl and Woman. There are also four genders whose names are the same. The difference between sex and gender is that sex is relative to all of a subject's experience as a whole but gender is relative to some particular experience.

Under normal conditions, all subjects experience one sex change: that from Boy to Man or that from Girl to Woman. This change happens by way of gendered experience. Once a Boy has enough particular experience of being a Man his sex turns into that of Man. Once a Girl begins to experience in the gender of a Woman her sex begins to turn into that of Woman. The change happens when the subject has more adult conditioning than child conditioning. Usually we don't call this a change of sex but, perhaps, a coming of age. In some cultures there are ceremonies for performing this change.

It's also possible that a subject obtains so much conditioning of being a member of the opposite sex that it exceeds the amount of conditioning the subject has for his or her previous sex. In this case the subject experiences a change of sex from male to female or from female to male. However, small amounts of such conditioning do not change the subject's sex. There's also a difference between conditioning which disagrees with both the subject's sex and age and conditioning which only disagrees with the subject's sex but not age.

2.10.2 *Inverse Morality*

If a subject experiences a gender which disagrees with both the subject's sex and age we call this experience inverse morality.

Once the author was at a nightclub with his ex when they noticed a young woman with an exceptionally well-endowed booty go by. She stopped near the counter to turn her body left and right as if she were looking for something. Her feet stood firmly on the floor but her booty turned with her body. It was as if the actual event which was taking place was less about her looking for something and more about her showing off her butt.

The author noticed his ex to be completely absorbed in this sight. So he came into his ex's line of sight and moved his own body like this young woman had done, saying in a girly tone: "I need to ventilate because my ass is overheating." His ex burst into laughter and forgot about the young woman.

Clearly the author was doing something feminine and clearly this was a good thing to do. But on the other hand he seemed to do this feminine thing in a way that females don't do. If the author tries to imagine a female impersonating that young woman with the booty he feels like his ex wouldn't have laughed at that. So even though he was doing something feminine it apparently wouldn't have been such a good thing to do if a female had done it.

For another example of inverse morality, consider the following image:

Figure 2.5: The girl above appears to be in a Mood of Man, probably Hostile Man. It would be more risky for a man to behave this way towards a soldier. To be sure, it isn't safe for a girl, either.

These examples suggest there's a morally acceptable form of behavior that's contrary to gender stereotypes. Males can exhibit feminine behavior and vice versa so that said behavior, although not essentially offensive, is grotesque in a manner that's sometimes humorous. In this case it's necessary for both the gender and relative age of the subject to mismatch the subject's sex and absolute age. We may model this so that the signs of value and karma change: bad locations turn good and good locations turn bad.

There seems to be a pitfall here: society cannot accept crimes like murder just because they were done by someone who was experiencing inverse morality. But this work is not a code of law. Indeed it has been related to the author that a witness observed two perpetrators of violent murder to be "giggling like little girls" when they hadn't yet been caught and were in the same apartment with the victim's body. If that is to be taken literally, these men weren't being masculine when they giggled like little girls and they'd also done a terrible thing, but it wasn't terrible in a way that would immediately threaten the integrity of their sexual identity.

Killing and cutting the victim was a different event than that of giggling like girls after it had already been done. Here, the hypothesis of inverse morality is applied only to the latter event. This could be quite justified considering that many people would have difficulty relating to the perpetrators and that relating to the perpetrators isn't the same thing as accepting what they did. This treatise doesn't justify their behaviour but merely explains how could they laugh about it. Such laughter would require a cause that's perceived as positive.

2.10.3 *Pure Bad*

If a subject experiences a gender which disagrees with the subject's sex but not the subject's age, this is not a case of inverse morality. The author would like to call it "pure evil" but to call a deed evil is to denounce the motive for which it was done. This wouldn't be right because also curiosity could motivate such behaviour. So the author calls it pure bad because this kind of experience directly undermines the subject's sexual identity.

It is pure bad for a subject to experience a gender that's different

from the subject's sex yet whose age is the same. This rule applies to males extroverting such behavior and females introverting such behavior.

- It is pure bad for a Woman to introvert as a Man.
- It is pure bad for a Girl to introvert as a Boy.
- It is pure bad for a Boy to extrovert as a Girl.
- It is pure bad for a Man to extrovert as a Woman.

Males are allowed to have empathy for females and females can do things which are usually done by males. But behaving like a Woman undermines a man's sexual identity and feeling like a Man undermines a woman's sexual identity. However, in practice the issue is complicated by the way people speak.

A man has told the author he's really a woman so that he didn't mean his gender is Woman. The author didn't ask what does he mean but he could tell this man said that as a Man and was honest. Perhaps the man tried to refer to his lack of proficiency in tasks that are traditionally considered masculine. He is $INFR$ in Model M so he may have tried to express that. It would also make some sense to associate extroversion to masculinity and introversion to femininity even though they obviously aren't the same thing. Furthermore, in Nordic cultures Feeling is sometimes considered feminine.

Also a woman has told the author she's really a man so that she didn't seem to refer to her gender. Perhaps she meant something like "I don't play games like some women" or "I take more responsibility than the average woman". In this case her message was a metaphor. In both cases it's possible these people didn't quite know the literal meaning of the words they said because they'd never experienced gender confusion.

People with gender identity disorder experience disagreement with their biological sex. This can cause a lot of suffering. It isn't necessary to try to deliberately attain knowledge by acquaintance of how does it feel like to be a member of the opposite sex if knowledge by description is good enough for understanding people. To be sure, it might be interesting to experiment with gender.

The author has observed he can tell from a distance of about two hundred meters if a man is experiencing the gender of Woman. Already as a child he was capable of telling if a boy feels like a Girl. When this happened the boy's face would appear to become geometrically distorted in a frightening way.

As a child the author didn't comprehend the meaning of this phenomenon. Even as a teenager he still didn't understand although he had become curious of this due to its novelty value. He thought the experience is all in his head and that it's a symptom of schizophrenia. It didn't occur to him that the source of the experience could be the other person.

Once, in high school, a male student the author was looking at began seeming like a sticker that's placed on his field of vision. Behind the sticker, he felt, there was a hole into outer space. Then the geometry of the school hallway began to distort. The author felt he could have chosen to stay in the distorted reality but didn't because it was frightening.

The author didn't learn anything about this by listening to *Songs for the Deaf* by Queens of the Stone Age or *She's Like Heroin*

by System of a Down.

Women feeling like Men aren't as easy to detect than men feeling like Women. Once the author walked behind a suspect for about one hundred meters on the street. At first he didn't identify her as a whole person but instead perceived her by her attributes: gait, clothing, body shape. He felt there's something wrong with her and that she isn't feeling alright but it took a few days for him to come to think of this as the probable reason why she stood out.

2.10.4 *Pure Good*

Our model is irregular if we have pure bad but no pure good. Previous experience suggests such irregularity to be symptomatic of us having missed something important. In pure bad good locations turn bad so in pure good bad locations should turn good. Under what kind of circumstances might this actually be true?

When the author was in elementary school he frequently got into debates with the teacher. The debates were about art. Many times in art class the author had drawn something which was, surprisingly to him, deemed inappropriate by the teacher. Consequently, he and the teacher debated in the hallway on numerous occasions. The teacher was $ESFR$ with extroverted Thinking bound to her Vulnerable function so her arguments didn't make much sense even though she managed to retain a position of authority.

At first the author only paid attention to the poor quality of the teacher's arguments. Her intentions were good, even ambitious, but her arguments were so bad the author enjoyed prolonging the debate by tearing them apart. His conscience was clear as he didn't have anything against the teacher.

The teacher called the author's parents a few times to ask what should she do about this. She was advised to resolve the issue by way of authority – to force the author to do her bidding. The author didn't know much about these telephone conversations. But one day, in yet another debate, he encountered something new. The teacher said the curriculum requires her to behave this way.

Although the author was pretty sure the curriculum doesn't say that, he now identified some foreign thing to have crept into the debate. It wasn't just the curriculum. It was a sensation of danger. Suddenly exposing the teacher's argumentation as nonsensical began seeming juvenile. He sensed that the teacher could hurt him if he doesn't do her bidding.

When this dispute began the author operated in terms of child conditioning. A child would expect grownups to be able to tell him why affairs of the world are such and such. If some grownup can't do that the child doesn't assume responsibility of the grownup or the situation but may be content pointing out why the grownup's arguments are balderdash – unless the grownup is aggressive or otherwise scary. However, this teacher indeed turned scary when she began referring to the curriculum which surely didn't really support her decisions. This was scary because she was no longer searching for arguments which would end the debate. Now she had began searching for methods.

At this point the author ceased to operate according to child conditioning. As a Boy the author had placed high negative value in the proximal position, meaning that his primary goal in the situation had been to identify and eliminate bad arguments. He didn't

do that as an act of rebellion but to preserve his own integrity. As a child he was obedient and believed there should be capital punishment for some offences, such as smoking cigarettes. He wanted to *believe* in any rules he was required to follow so he had demanded to understand why are there such rules. But the sensation of danger made him rethink his priorities. He realized that if the teacher will inflict permanent harm to him by resorting to overwhelming force it won't matter that her arguments don't make sense. Therefore he placed high negative value in the axial location like a Man.

It goes without saying that he didn't participate in military service even though this is compulsory for men in Finland. People say military service turns boys into men. But the author had already began turning into a Man in elementary school upon finding a debate to turn into a dispute he in all likelihood shall lose.

Perhaps all this happened too soon. Turning into a Man in elementary school, while a child is in the latent phase, will cause difficulties with relating to females because the child isn't sexual. Therefore if someone turns into a Man already in elementary school he will need to turn into a Man again, in relation to females, after he has hit puberty. This requirement will be confusing without any guidance.

Nevertheless, turning into a Man in elementary school marked the beginning of a process in which the perceived duty of obtaining formal education turned into a disturbance. Already in high school the author mostly knew what he needed to do and deemed being told to do something else a waste of time. Completing high school was unpleasant for him and trying to study in the University would've been disastrous for his career as an independent researcher. He had become a Man and didn't need to be told what to do anymore.

Where is the pure good in all this?

It is pure good for a Boy to obtain conditioning for being a Man. It builds character to endure hardships without making a fuss of it. In Western cultures this usually happens by way of some authority telling males what to do. It is also pure good for a Girl to obtain conditioning for being a Woman. Western society seems to be different for females in the sense that it doesn't seem to include any rituals for becoming a Woman even though there are rituals for becoming a Man, such as the army. Instead, an ordinary secular Girl becomes a Woman by way of completely unsupervised intimate interaction with a male.

The author's manhood began by way of accepting that a grownup who's responsible of him and has power over him can be a lot less intelligent than him. This was a case of $defeat$: the other party's lack of intelligence made negotiation impossible.

When the teacher quit using arguments and began using methods she was no longer helping the author to believe in the rules that are but, instead, demanded blind obedience. Therefore she and the likes of her were no longer to be trusted. After this experience a teacher could still earn the author's respect but it wasn't there by default. The author now knew teachers might not have the time to care about the likes of him and even if they did they might not know of any useful advice or meaningful assignments. So even though $defeat$ is a bad location it was good to learn that some teachers are incapable of intelligent conversation. To not accept $defeat$ would've been the choice of a Boy who wants the teacher to

be like a mom to him which she is not – she's just another professional who needs a job to get by.

Of course it could be a problem for society if teachers in general were so incompetent that pupils would need to grow up already in elementary school. This would probably cause young people to drop out from society. For example, the author could be considered a dropout because he's a pensioner even though in reality he makes more progress on research than his academic peers and probably works longer hours, too. The author thinks the real dropouts are the grownups who accept and perhaps endorse or even require the humiliation of studying compulsory University courses that are irrelevant, such as learning the Swedish language. From the moment he graduated from high school to the age of thirty-one the author has so far never had time for anything like that and to him it seems like there's no way these people could be busy with something comparatively important. More students apply to the University than the University admits so they're replaceable. The author, on the other hand, clearly isn't replaceable because no other person in the world is making this kind of research. This isn't anything an employer couldn't as well tell an employee – and most employers are replaceable, too.

Securing a stable source of funding for the author that's proportional to the merit and importance of this inquiry would be the best way of becoming irreplaceable. Admittedly, the author is so convinced of the excellence of his genetic material that he entertains the thought of having other people than family members mother or raise his children for him so that he'd have the time for focusing on continuing on his line of work – theoretical research, programming and artistic expression – as an unsurpassed cognitive top athlete. He thinks the children would find comfort in the thought of being related to him. They could find their place in the world as genetic experiments. All of us are genetic experiments anyway.

Certainly the children would find more comfort in the thought of being related to him than in the thought of him interrupting, sacrificing or compromising his career for their sake. It is hard to be the child of a genius. How does one thrive in the shadow of one's own parent? If such abominations as adoption and sperm banks are to be condoned at all this would be the best way of doing so. Besides, my genes have a good track record for surviving divorce which, from the child's point of view, bears some semblance to being adopted, which the adopted child might consider a permanent affliction. The author has a permanent affliction, too: that way in which society perceives his career. He knows what it's like to bear a burden others don't have and to bear that for a long time with no surety of ever being relieved. In this state he would be most sympathetic to his adopted children even if he were later relieved of said burden by reaching the middle-class living standard which was everything he himself knew when he was a child.

When he asked his father why do people have children his father replied: "For the survival of the species." The author once called his father a genius when he was a small child even though his father wasn't that really.

Among animals, to have a longer childhood is associated to better cognitive faculties. It seems bad to have one's childhood cut short. But the end of childhood is a transformative experience which the subject is unable to evaluate objectively as he doesn't

know what would've he become had his childhood ended at some other moment, in some other way. Therefore, in the mind of the subject, the experiences which ended childhood are merely lessons and as such, their value cannot be other than positive. The Boy and the Man differ from each other only in terms of how they evaluate badness so, in fact, it seems necessary that the experiences which end a Boy's childhood would be bad if they weren't lessons. This is probably different for females.

In order to complete the symmetry between pure bad and pure good we may include vertness into the hypothesis:

- It is pure good for a Boy to introvert as a Man.
- It is pure good for a Girl to extrovert as a Woman.

2.10.5 Karma Is Indifferent to Non-Stereotypical Gender

Our theory now includes several instances of bad locations turning good and good locations turning bad. If this is to be interpreted so that merely the sign of each location's value and karma changes, we end up with a model in which bad and good are completely antagonistic towards each other. This isn't necessarily the best interpretation.

The author finds it prudent to consider the possibility than when a good location, whose value or karma is n, turns bad, the new value or karma n' is calculated so that $n' = n - r$. And when a bad location turns good the new value or karma is calculated so that $n' = n + r$. This way, for example, *dysphoria* of the Peaceful Man has a value of 1 when experienced by a Girl. However, *greed* of the Peaceful Man has a value of 3 when experienced by a Girl. The original value of *dysphoria* is -3 and that of *greed*, -1.

This is to say, even though bad turns good, this doesn't cause locations of negative low value to become inferior to locations of negative high value. In a similar vein, locations of positive low value do not become superior to locations of positive high value when good turns into bad.

Formally, converting good locations into bad ones may be accomplished by substituting α with γ' and γ with α'. Bad locations may be converted into good ones by substituting α' with γ and γ' with α. When the conversion is implemented in this manner, karma remains unaffected by pure bad, inverse morality and pure good. This is probably a desirable feature for the model.

If a male-to-female cross-dresser prevented a ship from sinking by welding shut some hole in its hull this would be good even though its bad to be a male-to-female cross-dresser. It would be possible to consider the cross-dressing as separate from saving the lives of everyone on board. In this sense, it isn't *impossible* that something good could result from pure bad or that something bad could result from pure good. However, the range of circumstances under which these things happen is a very limited one.

This is a very good finding because now we don't need a metatheory for explaining the obvious fact that since all people are sometimes in a rightful need of help, such help could be provided also by someone whose current mood is pure bad. Needing some unspecified metatheory for that would've rendered this metaphysical gender theory contingent. If this were contingent it would apply only

under some circumstances yet not apply in other circumstances. In this case it would be unjustified to fully believe this all without any reservation. This would have been awkward because in other parts of this work we boast about the fact that our theory can be modeled in provably consistent arithmetic. Now we can explain the possibility of good in people whose mood is pure bad, and we can provide this explanation at object level – at the same level at which we provide similar explanations of related phenomena.

2.10.6 *Complex Modal Form*

If we are to include inverse morality, pure bad and pure good into our model we need to express them as Moods. This further increases the number of Moods defined in our model. We also need a new language for describing Moods because modal form cannot express any difference between sex and gender. In fact, modal form doesn't even express the difference between equal moods such as those of the Man and the Boy. The code of these Moods is different but this difference cannot be inferred from their modal form. If we were to know only the modal form but not the code of any of these Moods we couldn't determine whether their gender is Man or Boy.

Let Σ stand for sex and Γ stand for gender. We may define a *complex modal code* according to the template $\Sigma(\Gamma)$ so that Σ is substituted by ♂, ∗♂, ∗♀ or ♀. Γ is substituted by any modal code. The *simple modal codes* we previously used can refer only to moods for which it holds that Σ is equal to G in Γ.

In a similar vein, we may define a complex modal form according to the following template:

$$\Sigma(G((\varphi, \psi, \chi), (\varphi', \psi', \chi')))$$

In complex modal form, if Σ is the sex of a child and G is the gender of a same-sex adult. The absolute symbols φ, ψ, χ, φ', ψ' and χ' are replaced with relative symbols α, β and γ so that each relative symbol is used twice. If G is of the same age than Σ but its gender is different the absolute symbols are replaced with α', β' and γ' so that each relative symbol is used twice. If G differs from Σ in terms of both sex and age then φ, ψ and χ are substituted by α', β' and γ' whereas φ', ψ' and χ' are substituted by α, β and γ. In other cases the innermost ordered pair of the complex modal form is treated the same way as a simple modal form.

2.10.7 Objects, Subjects, Feminine and Masculine

We have now examined different combinations of sex and gender. The bigger picture is that we are in the process of defining a model which has also another feature: to model the interaction between subjects and objects. By subject we mean one or more *agents* who have initiative in some situation and by object we mean one or more agents who are affected by the subject.

Those familiar with Pirsig's work will pay special attention to the inclusion of subjects and objects. Pirsig notoriously opposed a form of philosophy he called "subject–object-metaphysics". Essentially, we are going to ignore this. If the model we're going to de-

velop next is the only correct model of subject–object-metaphysics then Pirsig's reason for opposing such metaphysics probably was that he'd never heard of a good model of that.

Even though the author ended up developing a model of subject–object-metaphysics he was deeply affected by Pirsig's criticism. The first version of the mosaic plane was published in 2017 and all the way until 2019 the author kept using a mosaic plane whose *domains* were those of the self and the other, not those of subject and object. He kept using such a model until a certain thought experiment broke it.

The model of the self and the other seemed to work somewhat reasonably when there were only two agents present in the situation that was being modeled. But what if the model includes a self who's an observer and seven other people who are all doing the same thing? Then the effect of the other people towards the observer would be sevenfold. If the value of what each of the seven people are doing would be, say, four, then the observer would accumulate a staggering $7 \times 4 = 28$ units of value. This seems wrong for many reasons.

Firstly, this appears to be an instance of multiplication by variable. No other part of our model involves multiplication by variable. No consistent system of arithmetic has been proven to facilitate such an operation.

Secondly, in real life the amount of people present doesn't affect the value of the result in this way. Let's suppose a self who's a student in a class of fifteen students. The entire class is working on some assignment given by the teacher. The value of this experience wouldn't change if there were thirty students in the classroom. Larger classes can be more cost-efficient and it's easier to get personal assistance from the teacher in a smaller class but these factors do not immediately affect the value of the experience. In the context of the mosaic plane model a teacher telling a class something is a subject, all of the students in the classroom are an object and any third person observing the situation is also, by default, an object.

To be sure, there are techniques the third person could use to become a subject so that the situation becomes an object. For example, if he kept repeating in his mind the command: "Look towards me" then even if this wouldn't affect the others in any way the intention of making them look towards him could turn the third person into a subject from his own point of view. Under some circumstances it might make sense to do this. If one of the students happened to look at him accidentally then the student might perceive him as a subject, too. Sometimes it's better to be a subject than an object. For example, if a man is looking at a woman he might need to do this because if the woman were to happen to notice him he'd seem to be in control of himself instead of staring at her mesmerized.

We may generally refer to subjects and objects as *agents*. Let us assume each agent to simultaneously have both the aspect of being a subject and the aspect of being an object even though the agent is either a subject or an object in any given situation. When an agent is a subject this agent's aspect of being an object is latent, meaning that the aspect exists in a certain configuration, as a quality plane, but does not manifest. Similarly, when an agent is an object the agent's aspect of being a subject is latent. The quality planes of subject and object are mirror images of each other.

Let us assume each agent to also have a feminine and a masculine side which exist simultaneously even though the agent's gender is either feminine or masculine at any given moment. For example, when an agent's gender is feminine this agent's masculine side is latent, meaning that it exists in a certain configuration which is a Mood but it is inactive. We may say that every agent consists of two beings, one of which is masculine and the other, feminine.

The feminine and masculine domains are in a different orientation. When sex and gender are equal the x-axis of feminine domains associates to good locations and the y-axis associates to bad locations. For masculine domains it is the other way around.

wisdom You are good	**relevance** You would contribute to that	**would** You would relate to that	**reason** Why are you like that?	THINK 4	**method** How do I do this?	**should** This puts me in charge	**right** This makes me a priority	**success** I do something good
withhold You would harm that	**metalevel** You can relate like that	**use** You relate to that	**kind** You are like that	THINK 3	**tool** This makes me independent	**order** This puts me in control	**social** I cooperate	*wrong* I harm someone for no reason
deceive You shall falsely relate to that	*reject* You don't relate to that	**purpose** You relate like that	**meaning** You can be that	THINK 2	**need** This makes me whole	**life** I preserve this	*problem* I need help with this	*loss* I need this but don't preserve it
condemn You are bad	*impose* You aren't like that	*exclude* You can't be that	**form** You are that	THINK 1	**body** I perceive this	*pain* This makes me not whole	*shame* Others need help because of me	*fail* I do something bad
INTUIT 4	INTUIT 3	INTUIT 2	INTUIT 1	Peaceful Subject Man	SENSE 1	SENSE 2	SENSE 3	SENSE 4
destroy We do something bad	*hate* We don't want them	*greed* We don't want this	**norm** We do this	FEEL 1	**belief** That matters to us	*fear* That makes us feel bad	*detach* That breaks us apart	*dysphoria* Something bad happens to us
confusion We don't know what we want	*awkward* We don't want to do this together	**culture** We want to do things this way	**want** We want this	FEEL 2	**like** That makes us feel good	**love** That brings us together	*burden* That makes us feel bad about ourselves	*defeat* That isn't possible for us
apathy We don't want anything	**freedom** We let this happen	**join** We do this together	**integrity** We are these people	FEEL 3	**motive** That unites us	**style** That distinguishes us	**happiness** That keeps us together	*fake* That makes us pretentious
beauty We do something good	**event** We pay attention to this	**could** We prepare for this	**innocence** Who does this, when and where?	FEEL 4	**peace** What happens to us?	**can** That is possible for us	**fun** That makes us attractive	**epiphany** Something good happens to us

Figure 2.6: The Peaceful Subject Man according to *mosaic form*.

This difference between masculine and feminine domains, and domains of subject and object, cannot be expressed in modal form. Modal form remains good for comparing different Moods in isolation. It includes no unnecessary factors which would disturb this specific kind of comparison. But the mosaic plane consists of several quality planes whose different orientation affects the results of calculations. In order to specify enough instructions for creating these planes we need to define a more expressive language, mosaic form.

wisdom You are good	*withhold* You would harm that	*deceive* You shall falsely relate to that	*condemn* You are bad	INTUIT 4	*destroy* We do something bad	*confusion* We don't know what we want	*apathy* We don't want anything	**beauty** We do something good
relevance You would contribute to that	**metalevel** You can relate like that	*reject* You don't relate to that	*impose* You aren't like that	INTUIT 3	*hate* We don't want them	*awkward* We don't want to do this together	**freedom** We let this happen	**event** We pay attention to this
would You would relate to that	**use** You relate to that	**purpose** You relate like that	*exclude* You can't be that	INTUIT 2	*greed* We don't want this	**culture** We want to do things this way	**join** We do this together	**could** We prepare for this
reason Why are you like that?	**kind** You are like that	**meaning** You can be that	**form** You are that	INTUIT 1	**norm** We do this	**want** We want this	**integrity** We are these people	**innocence** Who does this, when and where?
THINK 4	THINK 3	THINK 2	THINK 1	Peaceful Subject Woman	FEEL 1	FEEL 2	FEEL 3	FEEL 4
method How do I do this?	**should** This puts me in charge	**right** This makes me a priority	**success** I do something good	SENSE 1	**belief** That matters to us	**like** That makes us feel good	**motive** That unites us	**peace** What happens to us?
tool This makes me independent	**order** This puts me in control	**social** I cooperate	*pain* This makes me not whole	SENSE 2	*fear* That makes us feel bad	**love** That brings us together	**style** That distinguishes us	**can** That is possible for us
need This makes me whole	**life** I preserve this	*problem* I need help with this	*shame* Others need help because of me	SENSE 3	*detach* That breaks us apart	*burden* That makes us feel bad about ourselves	**happiness** That keeps us together	**fun** That makes us attractive
body I perceive this	*wrong* I harm someone for no reason	*loss* I need this but don't preserve it	*fail* I do something bad	SENSE 4	*dysphoria* Something bad happens to us	*defeat* That isn't possible for us	*fake* That makes us pretentious	**epiphany** Something good happens to us

Figure 2.7: The Peaceful Subject Woman according to mosaic form.

2.10.8 Mosaic Form

Let us denote masculine gender $G_{♂}$ and feminine gender by $G_{♀}$. Expressions of the form x_n denote locations associated with the x-axis and expressions x_y denote locations which associate to the y-axis. Proximal locations are denoted by x_1, y_1, x_4 and y_4. Axial locations are denoted by x_2, y_2, x_5 and y_5 and diagonal locations by x_3, y_3, x_6 and y_6. We may define an expression of mosaic form according to the template:

$$\Sigma(G_{♂}((x_1, x_2, x_3), (y_1, y_2, y_3)), G_{♀}((x_4, x_5, x_6), (y_4, y_5, y_6)))$$

When the absolute symbols of the form x_n and y_n are substituted by relative symbols α, α', β, β', γ and γ' the mosaic form contains enough information for specifying a particular configuration of the mosaic plane. The mosaic plane consists of four domains:

- ♂′, the masculine object
- ♂, the masculine subject
- ♀, the feminine subject
- ♀′, the feminine object

The feminine subject and object are in the same Mood and the masculine subject and object are in the same Mood. We shall formalize the mosaic plane as a 2×2 array of quality planes so that masculine planes are above and feminine planes are below. Each domain of object is neighbored by domains of subject and vice versa. Domains which are situated diagonally in relation to each other are not neighbors.

At all times, every agent is in some location of his or her mosaic plane and the domain of this location determines whether the agent is a subject or an object, whether the agent's gender is feminine or masculine and what is the agent's Mood.

The basic principle of interaction on the mosaic plane is that when a subject does something the subject is placed into that location of the mosaic plane which describes his action. All objects affected by said action are placed in a location that's the vector sum of their current location and the subject's location in relation to the subject's origin.

2.10.9 Vectors of the Mosaic Plane

Every agent in the model is in a certain location of the mosaic plane. When the first event happens within the model, all subjects are in the origin of their domain. All objects, if any, are also in their respective origin. These locations may be denoted so that:

Masculine objects are at $♂'(0, 0)$.

Masculine subjects are at $♂(0, 0)$.

Feminine subjects are at $♀(0, 0)$.

Feminine objects are at $♀'(0, 0)$.

We may use coordinates whose absolute value is greater than the resolution of their domain. In this case the agent ends beyond its original domain. For example, $♂(5, 0) = ♂'(-4, 0)$. If a subject

was beyond his own domain before performing an action he will be placed back into his domain in the location that matches his action.

The mosaic plane is wrapped around its edges so that any coordinate which exceeds the boundaries of the mosaic plane will extend back into the mosaic plane from the opposite edge. If a coordinate goes too far right to fit on the plane it will come back into the plane from the left side.

success I do something good	right This makes me a priority	should This puts me in charge	method How do I do this?	THINK 4	reason Why are you like that?	would You would relate to that	relevance You would contribute to that	wisdom You are good	wisdom You are good	relevance You would contribute to that	would You would relate to that	reason Why are you like that?	THINK 4	method How do I do this?	should This puts me in charge	right This makes me a priority	success I do something good
wrong *I harm someone for no reason*	social I cooperate	order This puts me in control	tool This makes me independent	THINK 3	kind You are like that	use You relate to that	metalevel You can relate like that	*withhold* *You would harm that*	*withhold* *You would harm that*	metalevel You can relate like that	use You relate to that	kind You are like that	THINK 3	tool This makes me independent	order This puts me in control	social I cooperate	*wrong* *I harm someone for no reason*
loss *I need this but don't preserve it*	*problem* *I need help with this*	life I preserve this	need This makes me whole	THINK 2	meaning You can be that	purpose You relate like that	*reject* *You don't relate to that*	*deceive* *You shall falsely relate to that*	*deceive* *You shall falsely relate to that*	*reject* *You don't relate to that*	purpose You relate like that	meaning You can be that	THINK 2	need This makes me whole	life I preserve this	*problem* *I need help with this*	*loss* *I need this but don't preserve it*
fail *I do something bad*	*shame* *Others need help because of me*	*pain* *This makes me not whole*	body I perceive this	THINK 1	form You are that	*exclude* *You can't be that*	*impose* *You aren't like that*	*condemn* *You are bad*	*condemn* *You are bad*	*impose* *You aren't like that*	*exclude* *You can't be that*	form You are that	THINK 1	body I perceive this	*pain* *This makes me not whole*	*shame* *Others need help because of me*	*fail* *I do something bad*
SENSE 4	SENSE 3	SENSE 2	SENSE 1	object: Peaceful Man	INTUIT 1	INTUIT 2	INTUIT 3	INTUIT 4	INTUIT 4	INTUIT 3	INTUIT 2	INTUIT 1	subject: Peaceful Man	SENSE 1	SENSE 2	SENSE 3	SENSE 4
dysphoria *Something bad happens to us*	*detach* *That breaks us apart*	*fear* *That makes us feel bad*	belief That matters to us	FEEL 1	norm We do this	*greed* *We don't want this*	*hate* *We don't want them*	*destroy* *We do something bad*	*destroy* *We do something bad*	*hate* *We don't want them*	*greed* *We don't want this*	norm We do this	FEEL 1	belief That matters to us	*fear* *That makes us feel bad*	*detach* *That breaks us apart*	*dysphoria* *Something bad happens to us*
defeat *That isn't possible for us*	*burden* *That makes us feel bad about ourselves*	love That brings us together	like That makes us feel good	FEEL 2	want We want this	culture We want to do things this way	*awkward* *We don't want to do this together*	*confusion* *We don't know what we want*	*confusion* *We don't know what we want*	*awkward* *We don't want to do this together*	culture We want to do things this way	want We want this	FEEL 2	like That makes us feel good	love That brings us together	*burden* *That makes us feel bad about ourselves*	*defeat* *That isn't possible for us*
fake *That makes us pretentious*	happiness That keeps us together	style That distinguishes us	motive That unites us	FEEL 3	integrity We are these people	join We do this together	freedom We let this happen	*apathy* *We don't want anything*	*apathy* *We don't want anything*	freedom We let this happen	join We do this together	integrity We are these people	FEEL 3	motive That unites us	style That distinguishes us	happiness That keeps us together	*fake* *That makes us pretentious*
epiphany Something good happens to us	fun That makes us attractive	can That is possible for us	peace What happens to us?	FEEL 4	innocence Who does this, when and where?	could We prepare for this	event We pay attention to this	beauty We do something good	beauty We do something good	event We pay attention to this	could We prepare for this	innocence Who does this, when and where?	FEEL 4	peace What happens to us?	can That is possible for us	fun That makes us attractive	epiphany Something good happens to us
wisdom You are good	*withhold* *You would harm that*	*deceive* *You shall falsely relate to that*	*condemn* *You are bad*	INTUIT 4	*destroy* *We do something bad*	*confusion* *We don't know what we want*	*apathy* *We don't want anything*	beauty We do something good	beauty We do something good	*apathy* *We don't want anything*	*confusion* *We don't know what we want*	*destroy* *We do something bad*	INTUIT 4	*condemn* *You are bad*	*deceive* *You shall falsely relate to that*	*withhold* *You would harm that*	wisdom You are good
relevance You would contribute to that	metalevel You can relate like that	*reject* *You don't relate to that*	*impose* *You aren't like that*	INTUIT 3	*hate* *We don't want them*	*awkward* *We don't want to do this together*	freedom We let this happen	event We pay attention to this	event We pay attention to this	freedom We let this happen	*awkward* *We don't want to do this together*	*hate* *We don't want them*	INTUIT 3	*impose* *You aren't like that*	*reject* *You don't relate to that*	metalevel You can relate like that	relevance You would contribute to that
would You would relate to that	use You relate to that	purpose You relate like that	*exclude* *You can't be that*	INTUIT 2	*greed* *We don't want this*	culture We want to do things this way	join We do this together	could We prepare for this	could We prepare for this	join We do this together	culture We want to do things this way	*greed* *We don't want this*	INTUIT 2	*exclude* *You can't be that*	purpose You relate like that	use You relate to that	would You would relate to that
reason Why are you like that?	kind You are like that	meaning You can be that	form You are that	INTUIT 1	norm We do this	want We want this	integrity We are these people	innocence Who does this, when and where?	innocence Who does this, when and where?	integrity We are these people	want We want this	norm We do this	INTUIT 1	form You are that	meaning You can be that	kind You are like that	reason Why are you like that?
THINK 4	THINK 3	THINK 2	THINK 1	subject: Peaceful Woman	FEEL 1	FEEL 2	FEEL 3	FEEL 4	FEEL 4	FEEL 3	FEEL 2	FEEL 1	object: Peaceful Woman	THINK 1	THINK 2	THINK 3	THINK 4
method How do I do this?	tool This makes me independent	need This makes me whole	body I perceive this	SENSE 1	belief That matters to us	like That makes us feel good	motive That unites us	peace What happens to us?	peace What happens to us?	motive That unites us	like That makes us feel good	belief That matters to us	SENSE 1	body I perceive this	need This makes me whole	tool This makes me independent	method How do I do this?
should This puts me in charge	order This puts me in control	life I preserve this	*pain* *This makes me not whole*	SENSE 2	*fear* *That makes us feel bad*	love That brings us together	style That distinguishes us	can That is possible for us	can That is possible for us	style That distinguishes us	love That brings us together	*fear* *That makes us feel bad*	SENSE 2	*pain* *This makes me not whole*	life I preserve this	order This puts me in control	should This puts me in charge
right This makes me a priority	social I cooperate	*problem* *I need help with this*	*shame* *Others need help because of me*	SENSE 3	*detach* *That breaks us apart*	*burden* *That makes us feel bad about ourselves*	happiness That keeps us together	fun That makes us attractive	fun That makes us attractive	happiness That keeps us together	*burden* *That makes us feel bad about ourselves*	*detach* *That breaks us apart*	SENSE 3	*shame* *Others need help because of me*	*problem* *I need help with this*	social I cooperate	right This makes me a priority
success I do something good	*wrong* *I harm someone for no reason*	*loss* *I need this but don't preserve it*	*fail* *I do something bad*	SENSE 4	*dysphoria* *Something bad happens to us*	*defeat* *That isn't possible for us*	*fake* *That makes us pretentious*	epiphany Something good happens to us	epiphany Something good happens to us	*fake* *That makes us pretentious*	*defeat* *That isn't possible for us*	*dysphoria* *Something bad happens to us*	SENSE 4	*fail* *I do something bad*	*loss* *I need this but don't preserve it*	*wrong* *I harm someone for no reason*	success I do something good

Figure 2.8: This multipolar mosaic plane models Peaceful beings.

When a subject uses a lateral circuit to perform an action the action manifests as a pair of vectors. If the lateral circuit is bound to a romantic Element and the romantic magnitude of one member of the pair is n then the romantic magnitude of the other member is $r-(n-1)$. The classical magnitudes are determined dialectically for each case. If the lateral circuit is bound to a classical Element the classical magnitudes of both members of the pair are equal and the romantic magnitudes are again determined dialectically for each case.

In usual vector mathematics such as those used in physics, when two vectors are added only the result of the operation is relevant. For example, if $\boldsymbol{a} = (-2, 2)$ and $\boldsymbol{b} = (2, 2)$ then $\boldsymbol{a} + \boldsymbol{b} = \boldsymbol{c}$ so that $\boldsymbol{c} = (0, 4)$. In this case $\boldsymbol{a}$ could have as well been $(-4, 4)$ if $\boldsymbol{b}$ had been $(4, 0)$ because only the result would matter. This is not the case with mosaic plane vectors.

When calculating mosaic plane vectors the constituent vectors may not be omitted because their value and karma affects the total value and karma of the result. Therefore we write $\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c}$ instead of $\boldsymbol{a} + \boldsymbol{b} = \boldsymbol{c}$. For example:

$\boldsymbol{a} = \male(-2, 2),\ purpose.\ V = 2, K = 0.$

$\boldsymbol{b} = \male(2, 2),\ life.\ V = 2, K = 0.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \male(0, 4),\ THINK\ 4.\ V = 0, K = 4.$

Total: $V = 4, K = 4.$

This describes an event in which the subject accumulates value and karma for himself, as a subject. Whenever agents move on the mosaic plane they accumulate the quality of the locations via which they traverse into themselves. Depending on the domain they accumulate this quality as an object or a subject and as feminine or masculine.

Interestingly, if lateral circuits always manifest as vector pairs, every masculine way of using a lateral circuit bound to a romantic Element accumulates also negative value and results in the subject becoming an object because adding the vector pair together always moves the subject into the masculine object's domain. On the other hand, it's comparatively easy for women to cooperate by using lateral circuits bound to a classical Element.

We shall adjust our notation one last time by adopting the convention of denoting vector $\boldsymbol{a}$ by $\boldsymbol{a}_E$ if it's extroverted and by $\boldsymbol{a}_I$ if it's introverted. Let's proceed to a case study of how gender affects the interpretation of an event.

2.10.10 A Case Study of a Use of Lateral Circuit on the Mosaic Plane

One day of the January of 2019 the author put a picture of the mosaic plane on display in the internet and asked how does it differ from a previous picture of the mosaic plane he had put on display in 2017. He received a cryptic response: "At first I was going to say it's more colorful."

This response didn't seem interesting at first. But then the author looked at the picture again and noticed the rotation of the masculine planes to be so that it's easy for men to cooperate whereas the feminine planes were oriented so that cooperation was difficult:

there was a gap of bad quality between the feminine origins of subject and object.

The author realized he'd gotten the rotation of feminine and masculine planes the wrong way around and that the man who had replied to him had noticed this before he had. But this man didn't break it to him. Instead, he insinuated something so elusive that by the time the author had realized what it meant he was already fixing the problem on his own accord. The merit of this man's cryptic message was that of ensuring the author's project still feels like his own even though someone else had pointed out a mistake in it.

In all likelihood, this man's type is $ENTR$ like the author's and he used the Harvester for expressing his response. Let's use this as an example of what kind of a reality does the mosaic plane portray.

2.10.11 Masculine Subject and Masculine Object

After praising this man the author proceeded to analyze the event in the language of the mosaic plane. Assuming this man was Peaceful, what action did he perform upon telling the author: "At first I was going to say it's more colorful"? Let's say the action consisted of *beauty*, because he found a way to participate by pointing out a mistake without being intrusive, and of *meaning*, because he correctly predicted the author to understand his message after he's understood his own mistake.

$\boldsymbol{a} = \male'_E(-4,-4),\ beauty.\ V = 4, K = 0.$

$\boldsymbol{b} = \male_E(-1,2),\ meaning.\ V = 1, K = 1.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \male'_E(4,-2),\ confusion.\ V = -2, K = -2.$

Total: $V = 3, K = -1.$

What does it mean that the man arrived at *confusion* as an object? Perhaps his self-imposed requirement not to directly point out the mistake confused him at first about what *can* he point out. He may also have been confused after making his remark about whether he succeeded in formulating the right kind of message. To deliberately craft hidden messages is contrary to the mystical notion of innocence which means *things are what they appear to be.* But this negative worth doesn't weigh much in the result.

How about the author, then? What did he experience? According to the mosaic plane theory we can determine the form of the object's experience from the form of the subject's experience.

$\boldsymbol{a} = \male'_I(4,-4),\ epiphany.\ V = 4, K = 0.$

$\boldsymbol{b} = \male'_I(1,2),\ need.\ V = 1, K = 1.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \male_I(-4,-2),\ defeat.\ V = -2, K = -2.$

Total: $V = 3, K = -1.$

The *epiphany* for the author was that of realizing he's walking in the footsteps of someone else once again, after a long time, albeit only for a short while. The *need* may have been that of company or that of finding clarity in a confusing message. The *defeat* was that of being outsmarted – this could be discouraging if it happened all the time. The worth of the result is the same for the object as it is for the subject.

2.10.12 Masculine Subject and Feminine Object

Let's suppose the object of the man's message would've been a woman. Her experience would have been:

$\boldsymbol{a} = \female'_I(4,-4),\ epiphany.\ V = 0, K = 0.$

$\boldsymbol{b} = \female'_I(1,2),\ greed.\ V = -1, K = 0.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \female_I(-4,-2),\ can.\ V = 0, K = 2.$

Total: $V = -1, K = 2.$

The message would've made the Woman feel *greed*. Perhaps the Woman dislikes being tricked like this. However, the Woman also perceives cooperation, *can*, where the Man would perceive $defeat$. The worth of the result is ambiguous.

2.10.13 Feminine Subject and Masculine Object

The subject is a woman who experiences:

$\boldsymbol{a} = \female_E(4,4),\ beauty.\ V = 0, K = 0.$

$\boldsymbol{b} = \female_E(1,-2),\ meaning.\ V = 2, K = 1.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \male'_E(2,-4),\ could.\ V = 2, K = 3.$

Total: $V = 4, K = 4.$

The result is positive because extroverting masculinity isn't bad for the Woman – introverting is.

The object is a man who experiences:

$\boldsymbol{a} = \male'_I(4,4),\ wisdom.\ V = 4, K = 0.$

$\boldsymbol{b} = \male'_I(1,-2),\ pain.\ V = -1, K = 0.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \female_I(2,-4),\ defeat.\ V = -2, K = -2.$

Total: $V = 1, K = -2.$

Apparently this experience is worth less for the object man when the subject is a woman. However, if the man's feminine side would've happened to be the Peaceful Girl so that inverse morality would apply, $defeat$ would've been worth $V = 2, K = 2$, resulting in a total of $V = 3, K = 2$. Perhaps it can make a man more resilient to have a feminine side. In fact, the saying "Take it like a man!" sometimes literally means "Take it like a girl!" Which means not to take revenge by passing it on except possibly if innocence was lost by learning a new way to be nasty.

2.10.14 Feminine Subject and Feminine Object

The experience of the feminine subject remains the same but the object's experience changes.

$\boldsymbol{a} = \female'_I(4,4),\ wisdom.\ V = 0, K = 0.$

$\boldsymbol{b} = \female'_I(1,-2),\ want.\ V = 2, K = 1.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \male_I(2,-4),\ can.\ V = -2, K = -2.$

Total: $V = 0, K = -1.$

The worth of $\boldsymbol{c}$ is negative because the woman is introverting masculinity.

This case study only concerns a lateral circuit bound to a romantic Element. Longitudinal and vertical circuits also manifest on the mosaic plane but not as the aforementioned kind of vector pairs.

Chapter 3

Cross-Disciplinary Application of Model M and the Metaphysics of Quality

3.1 Gender in Intertype Relations

According to a certain article by Sergei Gainin, the meaning of the Information Element bound to the Mobilizing function of each type can be summarized by using very few words. These meanings summarize each type's "hidden agenda". The psychological meaning of the hidden agenda is of secondary importance now. The form is more important. The hidden agendas and their respective Information Elements are:

$ISFC$, $ISTC$: Ne. "to believe"

$ISFR$, $INFR$: Te. "to know"

$ISTR$, $INTR$: Fe. "to be loved"

$INFC$, $INTC$: Se. "to be healthy"

$ESFC$, $ESTC$: Ni. "to be perfect"

$ESFR$, $ENFR$: Ti. "to understand"

$ESTR$, $ENTR$: Fi. "to love"

$ENFC$, $ENTC$: Si. "to be wealthy"

Rostislav Persion has redefined "to be perfect" as "to be believed". This means the types with this hidden agenda want to belong perfectly to their *culture*, that is, to be perfectly decent citizens. The hidden agenda of "to believe", on the other hand, can be equated with $freedom$. Someone who believes in what they're doing is doing it out of their own free will.

When the hidden agendas are defined like this also the Information Elements are implicitly defined. Even though socionics was developed independently of the Metaphysics of Quality these definitions match specific locations of the quality plane with strange accuracy. The intrinsic value of every location is different for the Woman, ♀, and the Not-a-Woman, ¬♀.

types	IE	hidden agenda	quality	intrinsic value
$ISFC$ $ISTC$	Ne	"to believe"	$freedom$	♀ : 2 ¬♀ : 3
$ISFR$ $INFR$	Te	"to know"	$purpose$	♀ : 3 ¬♀ : 2
$ISTR$ $INTR$	Fe	"to be loved"	$happiness$	♀ : 2 ¬♀ : 3
$INFC$ $INTC$	Se	"to be healthy"	$life$	♀ : 3 ¬♀ : 2
$ESFC$ $ESTC$	Ni	"to be perfect"	$culture$	♀ : 3 ¬♀ : 2
$ESFR$ $ENFR$	Ti	"to understand"	$metalevel$	♀ : 2 ¬♀ : 3
$ESTR$ $ENTR$	Fi	"to love"	$love$	♀ : 3 ¬♀ : 2
$ENFC$ $ENTC$	Si	"to be wealthy"	$social$	♀ : 2 ¬♀ : 3

The table shows how some types have a more valuable hidden agenda than others! Perhaps this could be interpreted so that the types with the more valuable hidden agenda pay more attention to their relationships. If so, this looks like a precursor for division of labor: it makes for a better relationship to have one party slightly more focused into the relationship and the other party slightly less focused. The other option would be to have both partners pay little attention to their relationship or to have both partners pay a lot of attention. In the former case it's easy to imagine there could be slacking, boredom, and especially failure to solve problems. In the latter case both partners would have activity suggestions so they'd have to choose one partner's suggestion over the other's.

If the result is correct this is a landmark case: the first gender-specific application of socionics.

Firstly, when hidden agendas are evaluated in a gender-specific way it becomes possible to make generalizations about quadras and gender. Alphas and gammas are gender-neutral quadras. Deltas are predisposed towards matriarchy and betas are predisposed towards patriarchy. This can be deduced by checking all Dual pairs.

Secondly, if inequality of hidden agenda makes for a better pair Semi-Duality is better as a same-sex relationship. Because of these kind of surprising findings it seems like a good idea to methodically check all relations and, for each instance of a relation, report whether it's better as a same-sex relation or mixed-sex relation.

Identical:

$ISFR(\neg♀ < ♀)$ IDN $ISFR(\neg♀ < ♀)$: mixed

All Identical relations are better as mixed.

Mirror:

$ISFR(\neg♀ < ♀)$ MRR $ISFC(\neg♀ > ♀)$: same

$ISTR(\neg♀ > ♀)$ MRR $ISTC(\neg♀ > ♀)$: mixed

$INFR(\neg♀ < ♀)$ MRR $INFC(\neg♀ < ♀)$: mixed

$INTR(\neg♀ > ♀)$ MRR $INTC(\neg♀ < ♀)$: same

$ESFR(\neg♀ > ♀)$ MRR $ESFC(\neg♀ < ♀)$: same

$ESTR(\neg\female < \female)$ MRR $ESTC(\neg\female < \female)$: mixed

$ENFR(\neg\female > \female)$ MRR $ENFC(\neg\female > \female)$: mixed

$ENTR(\neg\female < \female)$ MRR $ENTC(\neg\female > \female)$: same

Contrary:

$ISFR(\neg\female < \female)$ CTR $ESFR(\neg\female > \female)$: same

$ISFC(\neg\female > \female)$ CTR $ESFC(\neg\female < \female)$: same

$ISTR(\neg\female > \female)$ CTR $ESTR(\neg\female < \female)$: same

$ISTC(\neg\female > \female)$ CTR $ESTC(\neg\female < \female)$: same

$INFR(\neg\female < \female)$ CTR $ENFR(\neg\female > \female)$: same

$INFC(\neg\female < \female)$ CTR $ENFC(\neg\female > \female)$: same

$INTR(\neg\female > \female)$ CTR $ENTR(\neg\female < \female)$: same

$INTC(\neg\female < \female)$ CTR $ENTC(\neg\female > \female)$: same

Quasi-Identical:

$ISFR(\neg\female < \female)$ QID $ESFC(\neg\female < \female)$: mixed

$ISFC(\neg\female > \female)$ QID $ESFR(\neg\female > \female)$: mixed

$ISTR(\neg\female > \female)$ QID $ESTC(\neg\female < \female)$: same

$ISTC(\neg\female > \female)$ QID $ESTR(\neg\female < \female)$: same

$INFR(\neg\female < \female)$ QID $ENFC(\neg\female > \female)$: same

$INFC(\neg\female < \female)$ QID $ENFR(\neg\female > \female)$: same

$INTR(\neg\female > \female)$ QID $ENTC(\neg\female > \female)$: mixed

$INTC(\neg\female < \female)$ QID $ENTR(\neg\female < \female)$: mixed

Conflict:

$ISFR(\neg\female < \female)$ CNF $INTC(\neg\female < \female)$: mixed

$ISFC(\neg\female > \female)$ CNF $INTR(\neg\female > \female)$: mixed

$ISTR(\neg\female > \female)$ CNF $INFC(\neg\female < \female)$: same

$ISTC(\neg\female > \female)$ CNF $INFR(\neg\female < \female)$: same

$ESFR(\neg\female > \female)$ CNF $ENTC(\neg\female > \female)$: mixed

$ESFC(\neg\female < \female)$ CNF $ENTR(\neg\female < \female)$: mixed

$ESTR(\neg\female < \female)$ CNF $ENFC(\neg\female > \female)$: same

$ESTC(\neg\female < \female)$ CNF $ENFR(\neg\female > \female)$: same

Super-Ego:

$ISFR(\neg\female < \female)$ SEG $INTR(\neg\female > \female)$: same

$ISFC(\neg\female > \female)$ SEG $INTC(\neg\female < \female)$: same

$ISTR(\neg\female > \female)$ SEG $INFR(\neg\female < \female)$: same

$ISTC(\neg\female > \female)$ SEG $INFC(\neg\female < \female)$: same

$ESFR(\neg\female > \female)$ SEG $ENTR(\neg\female < \female)$: same

$ESFC(\neg\female < \female)$ SEG $ENTC(\neg\female > \female)$: same

$ESTR(\neg\female < \female)$ SEG $ENFR(\neg\female > \female)$: same

$ESTC(\neg\female < \female)$ SEG $ENFC(\neg\female > \female)$: same

Activator:

$ISFR(\neg\female < \female)\ ACT\ ENTC(\neg\female > \female)$: same

$ISFC(\neg\female > \female)\ ACT\ ENTR(\neg\female < \female)$: same

$ISTR(\neg\female > \female)\ ACT\ ENFC(\neg\female > \female)$: mixed

$ISTC(\neg\female > \female)\ ACT\ ENFR(\neg\female > \female)$: mixed

$INFR(\neg\female < \female)\ ACT\ ESTC(\neg\female < \female)$: mixed

$INFC(\neg\female < \female)\ ACT\ ESTR(\neg\female < \female)$: mixed

$INTR(\neg\female > \female)\ ACT\ ESFC(\neg\female < \female)$: same

$INTC(\neg\female < \female)\ ACT\ ESFR(\neg\female > \female)$: same

Dual:

$ISFR(\neg\female < \female)\ DLT\ ENTR(\neg\female < \female)$: mixed

$ISFC(\neg\female > \female)\ DLT\ ENTC(\neg\female > \female)$: mixed

$ISTR(\neg\female > \female)\ DLT\ ENFR(\neg\female > \female)$: mixed

$ISTC(\neg\female > \female)\ DLT\ ENFC(\neg\female > \female)$: mixed

$INFR(\neg\female < \female)\ DLT\ ESTR(\neg\female < \female)$: mixed

$INFC(\neg\female < \female)\ DLT\ ESTC(\neg\female < \female)$: mixed

$INTR(\neg\female > \female)\ DLT\ ESFR(\neg\female > \female)$: mixed

$INTC(\neg\female < \female)\ DLT\ ESFC(\neg\female < \female)$: mixed

Supervision 1:

$ISFR(\neg\female < \female)\ SP\!\rightarrow INFC(\neg\female < \female)$: mixed

$INFC(\neg\female < \female)\ SP\!\rightarrow INTR(\neg\female > \female)$: same

$INTR(\neg\female > \female)\ SP\!\rightarrow ISTC(\neg\female > \female)$: mixed

$ISTC(\neg\female > \female)\ SP\!\rightarrow ISFR(\neg\female < \female)$: same

Supervision 2:

$ISFC(\neg\female > \female)\ SP\!\rightarrow ISTR(\neg\female > \female)$: mixed

$ISTR(\neg\female > \female)\ SP\!\rightarrow INTC(\neg\female < \female)$: same

$INTC(\neg\female < \female)\ SP\!\rightarrow INFR(\neg\female < \female)$: mixed

$INFR(\neg\female < \female)\ SP\!\rightarrow ISFC(\neg\female > \female)$: same

Supervision 3:

$ESFR(\neg\female > \female)\ SP\!\rightarrow ENFC(\neg\female > \female)$: mixed

$ENFC(\neg\female > \female)\ SP\!\rightarrow ENTR(\neg\female < \female)$: same

$ENTR(\neg\female < \female)\ SP\!\rightarrow ESTC(\neg\female < \female)$: mixed

$ESTC(\neg\female < \female)\ SP\!\rightarrow ESFR(\neg\female > \female)$: same

Supervision 4:

$ESFC(\neg\female < \female)\ SP\!\rightarrow ESTR(\neg\female < \female)$: mixed

$ESTR(\neg\female < \female)\ SP\!\rightarrow ENTC(\neg\female > \female)$: same

$ENTC(\neg\female > \female)\ SP\!\rightarrow ENFR(\neg\female > \female)$: mixed

$ENFR(\neg\female > \female)\ SP\!\rightarrow ESFC(\neg\female < \female)$: same

Comparative:

$ISFR(\neg\female < \female)$ CMP $ISTR(\neg\female > \female)$: same

$ISFC(\neg\female > \female)$ CMP $INFC(\neg\female < \female)$: same

$ISTC(\neg\female > \female)$ CMP $INTC(\neg\female < \female)$: same

$INFR(\neg\female < \female)$ CMP $INTR(\neg\female > \female)$: same

$ESFR(\neg\female > \female)$ CMP $ESTR(\neg\female < \female)$: same

$ESFC(\neg\female < \female)$ CMP $ENFC(\neg\female > \female)$: same

$ESTC(\neg\female < \female)$ CMP $ENTC(\neg\female > \female)$: same

$ENFR(\neg\female > \female)$ CMP $ENTR(\neg\female < \female)$: same

Benefit 1:

$ISFR(\neg\female < \female)$ $BN\rightarrow$ $ESTC(\neg\female < \female)$: mixed

$ESTC(\neg\female < \female)$ $BN\rightarrow$ $INTR(\neg\female > \female)$: same

$INTR(\neg\female > \female)$ $BN\rightarrow$ $ENFC(\neg\female > \female)$: mixed

$ENFC(\neg\female > \female)$ $BN\rightarrow$ $ISFR(\neg\female < \female)$: same

Benefit 2:

$ISFC(\neg\female > \female)$ $BN\rightarrow$ $ENFR(\neg\female > \female)$: mixed

$ENFR(\neg\female > \female)$ $BN\rightarrow$ $INTC(\neg\female < \female)$: same

$INTC(\neg\female < \female)$ $BN\rightarrow$ $ESTR(\neg\female < \female)$: mixed

$ESTR(\neg\female < \female)$ $BN\rightarrow$ $ISFC(\neg\female > \female)$: same

Benefit 3:

$ISTR(\neg\female > \female)$ $BN\rightarrow$ $ESFC(\neg\female < \female)$: same

$ESFC(\neg\female < \female)$ $BN\rightarrow$ $INFR(\neg\female < \female)$: mixed

$INFR(\neg\female < \female)$ $BN\rightarrow$ $ENTC(\neg\female > \female)$: same

$ENTC(\neg\female > \female)$ $BN\rightarrow$ $ISTR(\neg\female > \female)$: mixed

Benefit 4:

$ISTC(\neg\female > \female)$ $BN\rightarrow$ $ENTR(\neg\female < \female)$: same

$ENTR(\neg\female < \female)$ $BN\rightarrow$ $INFC(\neg\female < \female)$: mixed

$INFC(\neg\female < \female)$ $BN\rightarrow$ $ESFR(\neg\female > \female)$: same

$ESFR(\neg\female > \female)$ $BN\rightarrow$ $ISTC(\neg\female > \female)$: mixed

Illusionary:

$ISFR(\neg\female < \female)$ LLS $ESTR(\neg\female < \female)$: mixed

$ISFC(\neg\female > \female)$ LLS $ENFC(\neg\female > \female)$: mixed

$ISTR(\neg\female > \female)$ LLS $ESFR(\neg\female > \female)$: mixed

$ISTC(\neg\female > \female)$ LLS $ENTC(\neg\female > \female)$: mixed

$INFR(\neg\female < \female)$ LLS $ENTR(\neg\female < \female)$: mixed

$INFC(\neg\female < \female)$ LLS $ESFC(\neg\female < \female)$: mixed

$INTR(\neg\female > \female)$ LLS $ENFR(\neg\female > \female)$: mixed

$INTC(\neg\female < \female)$ LLS $ESTC(\neg\female < \female)$: mixed

Look-Alike:

$ISFR(\neg\female < \female)$ LKL $INFR(\neg\female < \female)$: mixed

$ISFC(\neg\varphi > \varphi)$ LKL $ISTC(\neg\varphi > \varphi)$: mixed

$ISTR(\neg\varphi > \varphi)$ LKL $INTR(\neg\varphi > \varphi)$: mixed

$INFC(\neg\varphi < \varphi)$ LKL $INTC(\neg\varphi < \varphi)$: mixed

$ESFR(\neg\varphi > \varphi)$ LKL $ENFR(\neg\varphi > \varphi)$: mixed

$ESFC(\neg\varphi < \varphi)$ LKL $ESTC(\neg\varphi < \varphi)$: mixed

$ENFC(\neg\varphi > \varphi)$ LKL $ENTC(\neg\varphi > \varphi)$: mixed

$ENTR(\neg\varphi < \varphi)$ LKL $ESTR(\neg\varphi < \varphi)$: mixed

Semi-Dual:

$ISFR(\neg\varphi < \varphi)$ SDL $ENFR(\neg\varphi > \varphi)$: same

$ISFC(\neg\varphi > \varphi)$ SDL $ESTC(\neg\varphi < \varphi)$: same

$ISTR(\neg\varphi > \varphi)$ SDL $ENTR(\neg\varphi < \varphi)$: same

$ISTC(\neg\varphi > \varphi)$ SDL $ESFC(\neg\varphi < \varphi)$: same

$INFR(\neg\varphi < \varphi)$ SDL $ESFR(\neg\varphi > \varphi)$: same

$INFC(\neg\varphi < \varphi)$ SDL $ENTC(\neg\varphi > \varphi)$: same

$INTR(\neg\varphi > \varphi)$ SDL $ESTR(\neg\varphi < \varphi)$: same

$INTC(\neg\varphi < \varphi)$ SDL $ENFC(\neg\varphi > \varphi)$: same

3.2 Parity of Coordinates and Vertness of Information Elements

Let's recap the table which associates hidden agendas to qualities.

types	IE	hidden agenda	quality	value
$ISFC$ $ISTC$	Ne	"to believe"	$freedom$	$\varphi : 2$ $\neg\varphi : 3$
$ISFR$ $INFR$	Te	"to know"	$purpose$	$\varphi : 3$ $\neg\varphi : 2$
$ISTR$ $INTR$	Fe	"to be loved"	$happiness$	$\varphi : 2$ $\neg\varphi : 3$
$INFC$ $INTC$	Se	"to be healthy"	$life$	$\varphi : 3$ $\neg\varphi : 2$
$ESFC$ $ESTC$	Ni	"to be perfect"	$culture$	$\varphi : 3$ $\neg\varphi : 2$
$ESFR$ $ENFR$	Ti	"to understand"	$metalevel$	$\varphi : 2$ $\neg\varphi : 3$
$ESTR$ $ENTR$	Fi	"to love"	$love$	$\varphi : 3$ $\neg\varphi : 2$
$ENFC$ $ENTC$	Si	"to be wealthy"	$social$	$\varphi : 2$ $\neg\varphi : 3$

The table clearly associates introverted Mystical Elements Fi and Ni to locations on the Feeling side of the quality plane for which $X = 2$ and $Y = 2$. Their extroverted forms are associated to locations on the same side for which $X = 3$ and $Y = 3$. On the other hand, extroverted Objective Elements Se and Te associate to

the Thinking side of the plane, at coordinates $X = 2$ and $Y = 2$. Their introverted forms associate to coordinates $X = 3$ and $Y = 3$ on the same side.

This is a pattern without an explanation. If locations whose $X = 3$ and $Y = 3$ on the Thinking side of the quality plane associate to an introverted Element doesn't this mean these locations essentially *are* introverted?

On the Thinking side of the plane, if we know the coordinate pair $X = 3$ and $Y = 3$ to indicate an introverted quality and the pair $X = 2$, $Y = 2$ to indicate an extroverted quality then what about $♂(1, 2), need$? Is this also an extroverted location?

Even classical magnitude seems to associate to extroversion on the Thinking side of the plane and odd classical magnitude, to introversion. On the Feeling side of the plane even magnitude would associate to introversion and odd magnitude to extroversion.

Let's assume a feminine subject firing a lateral circuit towards the direction of iNtuition. The third vector is introverted in every possible case. If she fires towards the Sensing axis the third vector is extroverted in all cases. But a masculine subject firing a lateral circuit in either of his corresponding directions may end up with either kind of third vector. For males, a third vector whose vertness cannot be decided by this method is also possible if the third vector is co-directional with the axis.

We need to revise our case study of the mosaic plane in light of this new finding.

success I do something good	right This makes me a priority	should This puts me in charge	method How do I do this?	THINK 4E	reason Why are you like that?	would You would relate to that	relevance You would contribute to that	wisdom You are good	wisdom You are good	relevance You would contribute to that	would You would relate to that	reason Why are you like that?	THINK 4E	method How do I do this?	should This puts me in charge	right This makes me a priority	success I do something good
wrong I harm someone for no reason	social I cooperate	order This puts me in control	tool This makes me independent	THINK 3I	kind You are like that	use You relate to that	metalevel You can relate like that	withhold You would harm that	withhold You would harm that	metalevel You can relate like that	use You relate to that	kind You are like that	THINK 3I	tool This makes me independent	order This puts me in control	social I cooperate	wrong I harm someone for no reason
loss I need this but don't preserve it	problem I need help with this	life I preserve this	need This makes me whole	THINK 2E	meaning You can be that	purpose You relate like that	reject You don't relate to that	deceive You shall falsely relate to that	deceive You shall falsely relate to that	reject You don't relate to that	purpose You relate like that	meaning You can be that	THINK 2E	need This makes me whole	life I preserve this	problem I need help with this	loss I need this but don't preserve it
fail I do something bad	shame Others need help because of me	pain This makes me not whole	body I perceive this	THINK 1I	form You are that	exclude You can't be that	impose You aren't like that	condemn You are bad	condemn You are bad	impose You aren't like that	exclude You can't be that	form You are that	THINK 1I	body I perceive this	pain This makes me not whole	shame Others need help because of me	fail I do something bad
SENSE 4	SENSE 3	SENSE 2	SENSE 1	object: Peaceful Man	INTUIT 1	INTUIT 2	INTUIT 3	INTUIT 4	INTUIT 4	INTUIT 3	INTUIT 2	INTUIT 1	subject: Peaceful Man	SENSE 1	SENSE 2	SENSE 3	SENSE 4
dysphoria Something bad happens to us	detach That breaks us apart	fear That makes us feel bad	belief That matters to us	FEEL 1E	norm We do this	greed We don't want this	hate We don't want them	destroy We do something bad	destroy We do something bad	hate We don't want them	greed We don't want this	norm We do this	FEEL 1E	belief That matters to us	fear That makes us feel bad	detach That breaks us apart	dysphoria Something bad happens to us
defeat That isn't possible for us	burden That makes us feel bad about ourselves	love That brings us together	like That makes us feel good	FEEL 2I	want We want this	culture We want to do things this way	awkward We don't want to do this together	confusion We don't know what we want	confusion We don't know what we want	awkward We don't want to do this together	culture We want to do things this way	want We want this	FEEL 2I	like That makes us feel good	love That brings us together	burden That makes us feel bad about ourselves	defeat That isn't possible for us
fake That makes us pretentious	happiness That keeps us together	style That distinguishes us	motive That unites us	FEEL 3E	integrity We are these people	join We do this together	freedom We let this happen	apathy We don't want anything	apathy We don't want anything	freedom We let this happen	join We do this together	integrity We are these people	FEEL 3E	motive That unites us	style That distinguishes us	happiness That keeps us together	fake That makes us pretentious
epiphany Something good happens to us	fun That makes us attractive	can That is possible for us	peace What happens to us?	FEEL 4I	innocence Who does this, when and where?	could We prepare for this	event We pay attention to this	beauty We do something good	beauty We do something good	event We pay attention to this	could We prepare for this	innocence Who does this, when and where?	FEEL 4I	peace What happens to us?	can That is possible for us	fun That makes us attractive	epiphany Something good happens to us
wisdom You are good	withhold You would harm that	deceive You shall falsely relate to that	condemn You are bad	INTUIT 4	destroy We do something bad	confusion We don't know what we want	apathy We don't want anything	beauty We do something good	beauty We do something good	apathy We don't want anything	confusion We don't know what we want	destroy We do something bad	INTUIT 4	condemn You are bad	deceive You shall falsely relate to that	withhold You would harm that	wisdom You are good
relevance You would contribute to that	metalevel You can relate like that	reject You don't relate to that	impose You aren't like that	INTUIT 3	hate We don't want them	awkward We don't want to do this together	freedom We let this happen	event We pay attention to this	event We pay attention to this	freedom We let this happen	awkward We don't want to do this together	hate We don't want them	INTUIT 3	impose You aren't like that	reject You don't relate to that	metalevel You can relate like that	relevance You would contribute to that
would You would relate to that	use You relate to that	purpose You relate like that	exclude You can't be that	INTUIT 2	greed We don't want this	culture We want to do things this way	join We do this together	could We prepare for this	could We prepare for this	join We do this together	culture We want to do things this way	greed We don't want this	INTUIT 2	exclude You can't be that	purpose You relate like that	use You relate to that	would You would relate to that
reason Why are you like that?	kind You are like that	meaning You can be that	form You are that	INTUIT 1	norm We do this	want We want this	integrity We are these people	innocence Who does this, when and where?	innocence Who does this, when and where?	integrity We are these people	want We want this	norm We do this	INTUIT 1	form You are that	meaning You can be that	kind You are like that	reason Why are you like that?
THINK 4E	THINK 3I	THINK 2E	THINK 1I	subject: Peaceful Woman	FEEL 1E	FEEL 2I	FEEL 3E	FEEL 4I	FEEL 4I	FEEL 3E	FEEL 2I	FEEL 1E	object: Peaceful Woman	THINK 1I	THINK 2E	THINK 3I	THINK 4E
method How do I do this?	tool This makes me independent	need This makes me whole	body I perceive this	SENSE 1	belief That matters to us	like That makes us feel good	motive That unites us	peace What happens to us?	peace What happens to us?	motive That unites us	like That makes us feel good	belief That matters to us	SENSE 1	body I perceive this	need This makes me whole	tool This makes me independent	method How do I do this?
should This puts me in charge	order This puts me in control	life I preserve this	pain This makes me not whole	SENSE 2	fear That makes us feel bad	love That brings us together	style That distinguishes us	can That is possible for us	can That is possible for us	style That distinguishes us	love That brings us together	fear That makes us feel bad	SENSE 2	pain This makes me not whole	life I preserve this	order This puts me in control	should This puts me in charge
right This makes me a priority	social I cooperate	problem I need help with this	shame Others need help because of me	SENSE 3	detach That breaks us apart	burden That makes us feel bad about ourselves	happiness That keeps us together	fun That makes us attractive	fun That makes us attractive	happiness That keeps us together	burden That makes us feel bad about ourselves	detach That breaks us apart	SENSE 3	shame Others need help because of me	problem I need help with this	social I cooperate	right This makes me a priority
success I do something good	wrong I harm someone for no reason	loss I need this but don't preserve it	fail I do something bad	SENSE 4	dysphoria Something bad happens to us	defeat That isn't possible for us	fake That makes us pretentious	epiphany Something good happens to us	epiphany Something good happens to us	fake That makes us pretentious	defeat That isn't possible for us	dysphoria Something bad happens to us	SENSE 4	fail I do something bad	loss I need this but don't preserve it	wrong I harm someone for no reason	success I do something good

Figure 3.1: The classical coordinate of this mosaic plane determines vertness in quadrants of the domain.

3.2.1 Masculine Subject and Masculine Object, Revisited

Subject:

$\boldsymbol{a} = \male_I(-4,-4),\ beauty.\ V = 4, K = 0.$

$\boldsymbol{b} = \male_E(-1,2),\ meaning.\ V = 1, K = 1.$

$\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \male'_I(4,-2),\ confusion.\ V = -2, K = -2.$

Total: $V = 3, K = -1.$

Vectors $\boldsymbol{a}$ and $\boldsymbol{c}$ turn introverted.

Object:

$\boldsymbol{a} = \male'_I(4,-4),\ epiphany.\ V = 4, K = 0.$

$\boldsymbol{b} = \male'_E(1,2),\ need.\ V = 1, K = 1.$

$\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \male_I(-4,-2),\ defeat.\ V = -2, K = -2.$

Total: $V = 3, K = -1.$

Vector $\boldsymbol{b}$ turns extroverted.

3.2.2 Masculine Subject and Feminine Object, Revisited

Object:

$\boldsymbol{a} = \female'_I(4,-4),\ epiphany.\ V = 0, K = 0.$

$\boldsymbol{b} = \female'_E(1,2),\ greed.\ V = -1, K = 0.$

$\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \female_I(-4,-2),\ can.\ V = 0, K = 2.$

Total: $V = -1, K = 2.$

Vector $\boldsymbol{b}$ turns extroverted.

3.2.3 Feminine Subject and Masculine Object, Revisited

Subject:

$\boldsymbol{a} = \female_I(4,4),\ beauty.\ V = 0, K = 0.$

$\boldsymbol{b} = \female_E(1,-2),\ meaning.\ V = 2, K = 1.$

$\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \male'_I(2,-4),\ could.\ V = -2, K = -3.$

Total: $V = 0, K = -2.$

Vector $\boldsymbol{a}$ turns introverted. Also $\boldsymbol{c}$ turns introverted, decreasing the value of the experience. Is this unfeminine behavior?

Object:

$\boldsymbol{a} = \male'_E(4,4),\ wisdom.\ V = 4, K = 0.$

$\boldsymbol{b} = \male'_I(1,-2),\ pain.\ V = -1, K = 0.$

$\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \female_I(2,-4),\ defeat.\ V = -2, K = -2.$

Total: $V = 1, K = -2.$

Vector $\boldsymbol{a}$ turns extroverted. The object man remains able to improve his situation by experiencing inverse morality.

3.2.4 Feminine Subject and Feminine Object, Revisited

Object:

$\boldsymbol{a} = \varphi'_E(4,4),\ wisdom.\ V = 0, K = 0.$

$\boldsymbol{b} = \varphi'_I(1,-2),\ want.\ V = 2, K = 1.$

$\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \sigma_I(2,-4),\ can.\ V = -2, K = -2.$

Total: $V = 0, K = -1.$

Vector $\boldsymbol{a}$ turns extroverted but the worth of the result doesn't improve.

3.3 *Circuit Script*

In order to have a longitudinal conception of cognition we need some way for expressing cognitive activity as sequences of symbolic expressions. Let us call this form circuit script. The following is an example circuit script in which $'$ stands for a reversed circuit:

$$1(Se)a2(Si)g3(Fi)b4(Fe)i5(Ne)c6(Ni)j3(Fi)b4(Fe)'f1(Se)$$

This path describes the author's cognitive activity on one occasion. He was at a party when he noticed a flimsy lamp stand to be easy to take apart and put back together,$^{1(Se)}$ then began gently bashing the stand,$^{a2(Si)}$ felt good about making it fall apart,$^{g3(Fi)}$ others paid positive attention to the scene,$^{b4(Fe)}$ he noticed he's making a good impression without effort,$^{i5(Ne)}$ and felt like a bear because he'd seen a movie in which a tame bear tore a table apart for fun,$^{c6(Ni)}$ felt good about feeling that way,$^{j3(Fi)}$ decided to put the stand back together,$^{b4(Fe)}$ and did so.$^{'f1(Se)}$

This example circuit script is completely psychological. We may substitute appearances of Information Elements and circuits with quality plane vectors. In order to do so we need to dialectically determine the quality of each appearance, one by one.

1. $1(Se) \rightarrow \sigma_E(2,2),\ life.$ The host is a living being who needs her lamp stand, which shall be preserved. Unvalued Role function doesn't accumulate value.
2. $a,\ Love\ Detector.$ Strong, unvalued, mental circuit.
   - 2.1. $\boldsymbol{a} = \sigma_E(1,4),\ method.$ The right way to dismantle the lamp stand is to poke it against the window sill until the parts dislodge.
   - 2.2. $\boldsymbol{b} = \sigma_I(4,-4),\ epiphany.$ "Where do I get these ideas?"
   - 2.3. $\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c} = \sigma'(0,-4),\ SENSE\ 4.$ "This looks stupid if I break something."
   - 2.4. Result: Unvalued circuit doesn't accumulate value.
3. $2(Si) \rightarrow \sigma_I(3,3),\ social.$ "I cooperate by dismantling the lamp stand because I've got what it takes and made sure not to break it." $V = 3, K = 1.$
4. $g,\ Super\text{-}Id.$ Weak, valued, vital circuit.
5. $3(Fi) \rightarrow \sigma_I(3,-4),\ fun.$ Bashing the lamp stand is fun to do and fun to watch. Mobilizing function accumulates $V = 3, K = 1.$

6. b, *Weakest Link*. Weak, unvalued, vital circuit.
   - 6.1. $\boldsymbol{a} = \sigma^{\prime}{}_{I}(4,-4)$, *epiphany*. We get to witness a spontaneous performance.
   - 6.2. $\boldsymbol{b} = \sigma^{\prime}{}_{I}(-4,-4)$, *beauty*. This is something pure and pleasant.
   - 6.3. $\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \varphi^{\prime}(0,1)$, $INTUIT$ 1. "I'm attracting an excessive amount of attention to myself."
   - 6.4. Result: Unvalued circuit doesn't accumulate value.
7. $4(Fe) \rightarrow \sigma^{\prime}{}_{E}(3,-3)$, *happiness*. This scene has silenced the guests. Unvalued Vulnerable function doesn't accumulate value.
8. i, *Neurosomatic Circuit*. Strong, valued, vital circuit.
9. $5(Ne) \rightarrow \sigma^{\prime}{}_{E}(-3,-4)$, *event*. Guests aren't doing anything else than paying attention to this. Leading function accumulates $V = 3, K = 1$.
10. c, *Challenge Detector*. Weak, valued, mental circuit.
    - 10.1. $\boldsymbol{a} = \sigma^{\prime}{}_{I}(-4,-4)$, *beauty*. Guests haven't turned to face the author but retain the same posture they had before he began doing this. They're almost pretending they aren't watching. $V = 4, K = 0$.
    - 10.2. $\boldsymbol{b} = \sigma^{\prime}{}_{I}(-1,3)$, *kind*. "I am like the bear I saw in that movie." $V = 1, K = 2$.
    - 10.3. $\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \sigma^{\prime}{}_{E}^{\prime} = (4,-1)$, *destroy*. Others cannot respond to this. The author has singled himself out. $V = -3, K = -1$.
11. $6(Ni) \rightarrow \sigma^{\prime}{}_{I}(-2,-4)$, *could*. "Because I resemble a real bear in a movie, I resemble a real bear. I possess this bear spirit." Unvalued Ignoring function doesn't accumulate value.
12. j, *Metaprogramming Circuit*. Weak, unvalued, mental circuit.
13. $3(Fi) \rightarrow \sigma^{\prime}{}_{I}(4,-4)$, *epiphany*. It feels empowering to possess the bear as a spirit animal. Mobilizing function accumulates $V = 4, K = 0$.
14. b, *Weakest Link*. Weak, unvalued, vital circuit.
    - 14.1. $\boldsymbol{a} = \sigma^{\prime}{}_{I}(2,-2)$, *love*. From a ritualistic viewpoint, reassembling the lamp stand concludes the ceremony.
    - 14.2. $\boldsymbol{b} = \sigma^{\prime}{}_{I}(-2,-2)$, *culture*. It is customary to clean up after oneself.
    - 14.3. $\boldsymbol{a}+\boldsymbol{b} : \boldsymbol{c} = \sigma^{\prime}(0,-4)$, $FEEL$ 4. This arises harmonious feelings.
    - 14.4. Result: Unvalued circuit doesn't accumulate value.
15. $4(Fe) \rightarrow \sigma^{\prime}{}_{E}(3,-3)$, *happiness*. "Guests appreciate not needing to tell me anything afterwards." Unvalued Vulnerable function doesn't accumulate value.
16. $^{\prime}f$, *Reversed Super-Ego*. Weak, unvalued, mental circuit.
17. $1(Se) \rightarrow \sigma^{\prime}{}_{E}(2,2)$, $life$. The author carries out his original intention of preserving the lamp stand. Unvalued Role function doesn't accumulate value.
18. Total: $V = 15, K = 4$.

Circuit script helps at producing highly detailed accounts of events, which can already be useful. But this analysis also seems to reveal something about our model: longitudinal and vertical circuits are unvalued. To be more specific, the notion of value is meaningless when these circuits are examined in isolation, without their constituent functions.

When the author earlier stated, for example, that the Ego is a "valued circuit", this only meant it consists of two valued functions. We assumed the Neurosomatic Circuit to be valued but this meant nothing else than its producing function being valued. And stating the Metaprogramming Circuit to be unvalued meant that its accepting function is unvalued, but it was ignored that its producing function is valued.

In light of this new finding the author's intuition suggests it's best to proceed by using a model in which all lateral circuits are valued. If we were very strict we'd immediately rewrite the previous interpretation of a circuit script. But we don't seem to really need to revise any other part than the total result, which turns out to be $V = 31, K = 7$. On the other hand, figure 2.1 and its associated tables are to be revised completely.

3.4 Revised Model M

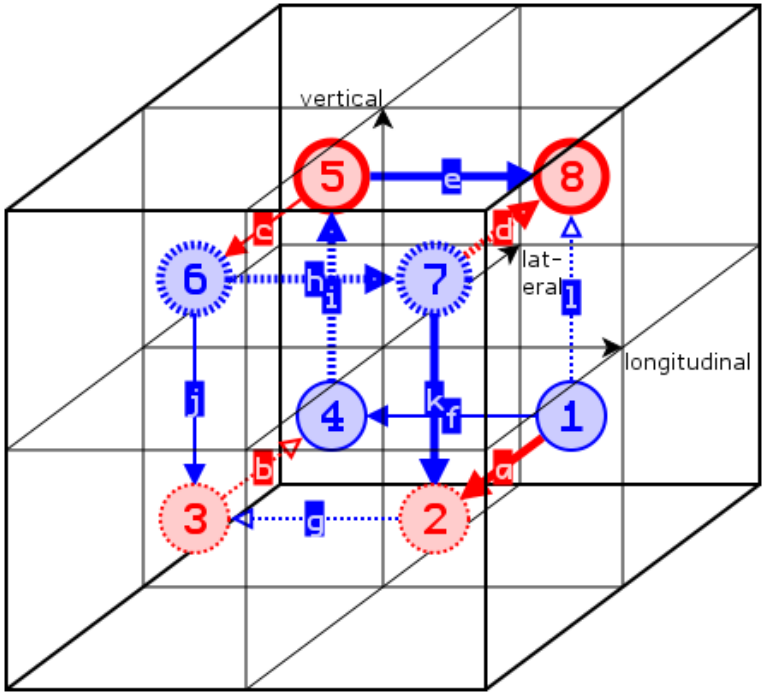

Figure 3.2: Revised structure of the Model M type. Strong faculties are denoted by thick lines, valued faculties by red color and vital faculties by dotted lines.

#	function	s	v	m
1	Role	F	F	T
2	Suggestive	F	T	F
3	Mobilizing	F	T	F
4	Vulnerable	F	F	T
5	Leading	T	T	T
6	Ignoring	T	F	F
7	Demonstrative	T	F	F
8	Creative	T	T	T

#	circuit	s	v	m
a	Love Detector	T	T	T
b	Weakest Link	F	T	F
c	Challenge Detector	F	T	T
d	Harvester	T	T	F
e	Ego	T	F	T
f	Super-Ego	F	F	T
g	Super-Id	F	F	F
h	Id	T	F	F
i	Neurosomatic	T	F	F
j	Metaprogramming	F	F	T
k	Morphogenetic	T	F	T
l	Meta-Ego	F	F	F

3.4.1 Conclusions Regarding the Mosaic Plane

We are finally equipped to use the mosaic plane for interpreting Model M. In section 3.2 we analyzed a hypothesis of a link between vertness and coordinate parity. If this hypothesis is correct, females seem to have a hard time accumulating value by using the lateral circuit bound to iNtuition even though this circuit technically does exist. This is because $\boldsymbol{c}$ in $\boldsymbol{a} + \boldsymbol{b} : \boldsymbol{c}$ is always a high-magnitude vector which introverts masculinity, and inverse morality is of no help in this situation.

This result appears to manifest somewhat differently for different types of females.

- Circuit a is impaired for $ISFR$, $ISTR$, $ESFR$ and $ESTR$.
- Circuit b is impaired for $ISFC$, $ISTC$, $ESFC$ and $ESTC$.
- Circuit c is impaired for $INFR$, $INTR$, $ENFR$ and $ENTR$.
- Circuit d is impaired for $INFC$, $INTC$, $ENFC$ and $ENTC$.

It remains comparatively easy for females to use lateral circuits bound to a classical Element. In subsection 2.9.11 we pointed out that females seem to have some trouble understanding other kind of people, but in light of the mosaic plane they don't *need* such understanding for cooperating with other females and they cooperate among themselves better than males cooperate among their own kind.

Chapter 4

On the Foundations of this Theory

4.1 Evolution from Myers–Briggs Type Indicator® to Model M

The author used to wonder why it's so difficult to find a resource which compares the Myers–Briggs Type Indicator® with Model A. Upon finally deciding to make such a resource he found a possible reason: the theoretical difference between the Myers–Briggs Type Indicator® and Model A isn't as great as some Model A enthusiasts had made it sound like.

The practical need for Model A is, in part, a result of the abundance and poor quality of resources about the MBTI®. If someone wants to find a good quality resource by googling then googling for socionics reliably yields a better result. There seem to be no bad sources for socionics but many MBTI® resources read like horoscopes: feeble, insipid and mix literal meaning with metaphors.

MBTI® types have the same structure as socionics types but the parts are named and numbered differently. In MBTI® the names and descriptions of the parts seem immature and kind of silly. Functions are called "roles" which isn't quite fitting. A subject could have a role which consists of several or all of his functions. We don't say the screwdriver and the saw are different roles – we say they're different tools.

MBTI®		Socionics		
#	"role"	# in A	function	# in M
1	Leading	1	Leading	5
2	"Supporting"	2	Creative	8
3	"Relief"	5	Suggestive	2
4	"Aspirational"	6	Mobilizing	3
5	"Opposing"	7	Ignoring	6
6	"Critical Parent"	8	Demonstrating	7
7	"Deceiving"	4	Vulnerable	4
8	"Devilish"	3	Role	1

Despite the similarities it would go a bit too far to say Model A simply renames MBTI® concepts. When we compare MBTI® with Model A we find out the developers of the MBTI® didn't follow through their inquiry but began applying the results before they were done. We can also determine the result to which their inquiry would have led to.

MBTI® definitions for concepts corresponding to the Information Elements are vague. Especially introverted and extroverted Sensing are defined so differently in MBTI® that the author can understand those who say the MBTI® and Model A are theories about a "different topic" and that therefore they shouldn't be compared. But understanding doesn't mean agreeing.

To argue for no connection between MBTI® and Model A is the easy way out: the loser's way. This is not the way of Aušra Augustinavičiūtė who developed Model A. Obviously, at the beginning of her inquiry she had nothing else than MBTI® concepts to work with – and the intuition that this inquiry into psychology had been left unfinished.

Because of structural similarities we may make conclusions about the intended meaning of an MBTI® type even if the concepts which correspond to Information Elements are badly defined in MBTI®. This is because even though there are also differences between MBTI® and Model A, the *differences* do not lead us anywhere. There is no "MBTI® 2.0" which is different from Model A and which is that which the original MBTI® was destined to become.

The following table clearly shows that MBTI® types have the exact same structure as Model A types but they and their parts are named differently. The judging–perceiving attribute is defined differently for introverts in MBTI®. Consequently, the Dual of an MBTI® type has all the letters changed instead of having the first three letters changed like in Model A – an important difference.

As for the Information Elements, the MBTI® and Model A resemble each other more than Model A and Model M resemble each other. In the context of types, the names of Information Elements are interchangeable between the MBTI® and Model A despite the different nuances in the descriptions. In the following table we shall write the names of the Elements according to Model M. As we have previously noted, in Model M the vertness of Sensing and iNtuition is reversed. The exclamation mark denotes a difference between MBTI® and Model A.

Model M type	Model A type	MBTI® type	1	2	3	4	5	6	7	8
$ISFR$	$ESFp$	$ESFP$	Si	Fi	Te	Ne	Se	Fe	Ti	Ni
$ISFC$	$ISFj$	$ISFP!$	Fi	Si	Ne	Te	Fe	Se	Ni	Ti
$ISTR$	$ESTp$	$ESTP$	Si	Ti	Fe	Ne	Se	Te	Fi	Ni
$ISTC$	$ISTj$	$ISTP!$	Ti	Si	Ne	Fe	Te	Se	Ni	Fi
$INFR$	$ENFp$	$ENFP$	Ni	Fi	Te	Se	Ne	Fe	Ti	Si
$INFC$	$INFj$	$INFP!$	Fi	Ni	Se	Te	Fe	Ne	Si	Ti
$INTR$	$ENTp$	$ENTP$	Ni	Ti	Fe	Se	Ne	Te	Fi	Si
$INTC$	$INTj$	$INTP!$	Ti	Ni	Se	Fe	Te	Ne	Si	Fi
$ESFR$	$ISFp$	$ISFJ!$	Se	Fe	Ti	Ni	Si	Fi	Te	Ne
$ESFC$	$ESFj$	$ESFJ$	Fe	Se	Ni	Ti	Fi	Si	Ne	Te
$ESTR$	$ISTp$	$ISTJ!$	Se	Te	Fi	Ni	Si	Ti	Fe	Ne
$ESTC$	$ESTj$	$ESTJ$	Te	Se	Ni	Fi	Ti	Si	Ne	Fe
$ENFR$	$INFp$	$INFJ!$	Ne	Fe	Ti	Si	Ni	Fi	Te	Se
$ENFC$	$ENFj$	$ENFJ$	Fe	Ne	Si	Ti	Te	Ni	Se	Fe
$ENTR$	$INTp$	$INTJ!$	Ne	Te	Fi	Si	Ni	Ti	Fe	Se
$ENTC$	$ENTj$	$ENTJ$	Te	Ne	Si	Fi	Ti	Ni	Se	Fe

The Dual of a type is found by changing all letters except the last, like in Model A. In Model A changing all of the letters results in a Conflicting type whereas in Model M this results in the type's Activator. The Conflicting type in Model M is obtained by changing all letters except the first.

4.2 *Life Positions* of Transactional Analysis

We're done with the focal point of this successful inquiry. The author has the option to finish off by pointing out some peripheral details. Too much of that will undermine the dignity of the primary result. Too little of that might cause regrets later.

According to Transactional Analysis there are four so-called Life Positions. So far the author hasn't needed them for proving or demonstrating anything. But he has needed them for creating something. The Life Positions are:

- "I'm NOT Ok, You're NOT Ok"
- "I'm NOT Ok, You're OK"
- "I'm OK, You're NOT Ok"
- "I'm OK, You're OK"

These concepts were *important* for defining the locations of the quality plane. The author ended up with quite unsatisfactory definitions until he associated the following notions.

Life Position	Metaphysics
"I'm NOT Ok, You're NOT Ok"	sUbjectivity
"I'm NOT Ok, You're OK"	Objectivity
"I'm OK, You're NOT Ok"	Logic
"I'm OK, You're OK"	Mysticality

In the case of sUbjectivity the associated Life Position "I'm NOT Ok, You're NOT Ok" shouldn't be interpreted simplistically as "me" and "you" being sick or having done something bad. Instead, it may be thought of as an objection to the separateness of different beings. If *we* are one then it's the "me" and "you" which are not okay. This Life Position would better support this interpretation if it read like "'I' is NOT Ok, 'You' is NOT Ok". But renaming the original Life Positions like this would create as many new issues as it would solve.

4.2.1 Process Positions

The author has come up with a pair for the Life Positions. They are *Process Positions*. The Process Positions are:

- "I'm BUSY, You're BUSY"
- "I'm BUSY, You're DONE"
- "I'm DONE, You're BUSY"
- "I'm DONE, You're DONE"

These can be used in conjunction with Life Positions. The interesting thing about Life and Process Positions is that Model M and the Metaphysics of Quality include plenty of concepts for which it seems possible to unambiguously assign one specific Life and Process Position. It's unclear what's the value of such information. The concepts aren't restricted to one specific Life Position but they seem to have one Life Position as some kind of a "default" value.

Process Position	Metaphysics
”I’m DONE, You’re BUSY”	sUbjectivity
”I’m BUSY, You’re BUSY”	Objectivity
”I’m DONE, You’re DONE”	Logic
”I’m BUSY, You’re DONE”	Mysticality

#	Life Position	Process Position
a	”I’m NOT Ok, You’re NOT Ok”	”I’m BUSY, You’re BUSY”
b	”I’m NOT Ok, You’re OK”	”I’m BUSY, You’re DONE”
c	”I’m OK, You’re OK”	”I’m DONE, You’re DONE”
d	”I’m OK, You’re NOT Ok”	”I’m DONE, You’re BUSY”
e	”I’m NOT Ok, You’re NOT Ok”	”I’m BUSY, You’re BUSY”
f	”I’m NOT Ok, You’re OK”	”I’m DONE, You’re BUSY”
g	”I’m OK, You’re OK”	”I’m DONE, You’re DONE”
h	”I’m OK, You’re NOT OK”	”I’m BUSY, You’re DONE”
i	”I’m NOT Ok, You’re NOT Ok”	”I’m BUSY, You’re BUSY”
j	”I’m OK, You’re NOT Ok”	”I’m BUSY, You’re DONE”
k	”I’m NOT Ok, You’re OK”	”I’m DONE, You’re BUSY”
l	”I’m OK, You’re OK”	”I’m DONE, You’re DONE”

As a side note, Leary associates the ”I” of Life Positions to the Super-Ego and the ”You” to the Ego, producing a model which includes the four arcane elements of earth, water, air and fire and the four arcane temperaments called melancholic, phlegmatic, sanguine and choleric. The purpose of this model is to represent a subject’s imprints from early childhood. Such imprints may be modeled as Life Positions but in the author’s opinion Leary is conflating a normative theory of discrete differences with a descriptive theory of diffuse differences here, possibly in an opportunistic attempt to blame mainstream people of slave morality. In order to follow the spirit and usual methods of normative science Life and Process Positions should be associated to circuits in a static manner which doesn’t depend on imprints.

Furthermore, the connection between qualities and hidden agendas makes it possible to associate Information Elements to metaphysics even though the Information Elements are situated on the axes of the quality plane instead of the quadrants. It also seems possible to associate each metaphysics with either introversion or extroversion.

Feeling associates to Subjectivity and hence introversion.

Sensing associates to Objectivity and hence extroversion.

Thinking associates to Logic and hence introversion.

INtuition associates to Mysticality and hence extroversion.

4.2.2 Reversed Circuits

In section 3.3 we used, without explanation, the concept of a reversed circuit. A circuit is a directed relation but sometimes it's possible to reverse the direction of this relation. The reversed circuit doesn't seem to work without its accepting function so this doesn't change the identity of the accepting and producing function. Interestingly, though, it does seem to swap the "I" and "You" of Life and Process Positions. This affects only those Positions in which the "I" and "You" have a different value.

The author has experience of using the reversed Morphogenetic circuit for preemptive strikes. Once he was sitting in the terrace of a cafe with his wife as a woman walked just past his line of sight, then adjusted her position so that she'd be directly in his line of sight. This prompted the author to use circuit k for insinuating taunts in a slightly louder voice than usual. The Life and Process positions associated to this situation were "I'm OK, You're NOT Ok" and "I'm BUSY, You're DONE".

4.3 An Arithmetic with Negative Numbers and Subtraction

Our value and karma calculations include several instances of subtraction. It is by no means self-evident we may subtract numbers from each other because any theory could be subjected to the following requirements:

- Consistency. It must be impossible to prove any statement and its negation.
- Completeness. For every statement of the theory it must be possible to prove it or its negation.
- Decidability. There must be an algorithm for deciding whether any statement of the theory is a theorem or not.

Theoretical physics does not satisfy these requirements. The most widely known system of arithmetic which satisfies all these requirements is Presburger arithmetic, introduced in 1929. This theory of arithmetic doesn't include negative numbers and subtraction.

If it's possible to include negative numbers and subtraction into a system of arithmetic that's consistent, complete and decidable then Model M, including its interpretation of the Metaphysics of Quality, might also be consistent, complete and decidable. At least it will become possible to define some core part of the theory which provably satisfies all these criteria.

We explain how negative numbers and subtraction can be added to Presburger arithmetic so that the resulting system remains consistent, complete and decidable.

Let the language L and axioms of Presburger arithmetic PrA be the standard ones. Let us define some helpful relations as well-formed formulas of L as follows:

$$\mathrm{Neg}(x,y) :=_{def} ((x+1)=(y+y))$$

$$\mathrm{Pos}(x,y) :=_{def} (\neg(x=0) \wedge (x=(y+y)))$$

$$\mathrm{Opp}(x,y) :=_{def} (((x=0) \Rightarrow (y=0)) \wedge \forall z((\mathrm{Neg}(x,z) \Rightarrow \mathrm{Pos}(y,z)) \wedge (\mathrm{Pos}(x,z) \Rightarrow \mathrm{Neg}(y,z))))$$

$$\mathrm{Add}(x,y,z) :=_{def}$$

$$((((x=0) \vee (y=0)) \Rightarrow (z=(x+y)))$$

$$\wedge$$

$$($$

$$\neg((x=0) \vee (y=0))$$

$$\Rightarrow$$

$$($$

$$\forall u \forall v((\mathrm{Pos}(x,u) \wedge \mathrm{Pos}(y,v)) \Rightarrow \mathrm{Pos}(z,(u+v)))$$

$$\wedge$$

$$\forall u \forall v((\mathrm{Neg}(x,u) \wedge \mathrm{Neg}(y,v)) \Rightarrow \mathrm{Neg}(z,(u+v)))$$

$$\wedge$$

$$\forall u \forall v((\mathrm{Pos}(x,u) \wedge \mathrm{Neg}(y,v)) \Rightarrow (((u=v) \Rightarrow (z=0)) \wedge \forall t(((u=((v+t)+1)) \Rightarrow \mathrm{Pos}(z,(t+1))) \wedge ((((u+t)+1)=v) \Rightarrow \mathrm{Neg}(z,(t+1))))))$$

$$\wedge$$

$$\forall u \forall v((\mathrm{Neg}(x,u) \wedge \mathrm{Pos}(y,v)) \Rightarrow (((u=v) \Rightarrow (z=0)) \wedge \forall t(((u=((v+t)+1)) \Rightarrow \mathrm{Neg}(z,(t+1))) \wedge ((((u+t)+1)=v) \Rightarrow \mathrm{Pos}(z,(t+1))))))$$

$$)$$

$$))$$

$$\mathrm{Sub}(x,y,z) :=_{def} \forall t(\mathrm{Opp}(y,t) \Rightarrow \mathrm{Add}(x,t,z))$$

We can prove that for any parameter x there is a unique y for which $\mathrm{Opp}(x, y)$ holds in PrA and that for any parameters x and y there are unique numbers z for which $\mathrm{Add}(x, y, z)$ and $\mathrm{Sub}(x, y, z)$ hold. So we may add the following to language L:

(a) A unary function $\overline{-}(x)$, written $\overline{-}x$. This returns the unique y for which $\mathrm{Opp}(x, y)$ holds.

(b) A binary function $\overline{+}(x, y)$, written $x\overline{+}y$. This returns the unique z for which $\mathrm{Add}(x, y, z)$ holds.

(c) A binary function $\overline{-}(x, y)$, written $x\overline{-}y$. This returns the unique z for which $\mathrm{Sub}(x, y, z)$ holds.

We may also now rename the even numbers of L as follows: 2 is henceforth $\overline{1}$, 4 is $\overline{2}$, 6 is $\overline{3}$ and so on. We immediately note that the odd numbers 1, 3, 5, ... then correspond to $\overline{-1}$, $\overline{-2}$, $\overline{-3}$, ... where the sign is really the unary function $\overline{-}$.

This way we have formed a new system with both positive and negative numbers (and zero, which is left unchanged) and new symbols to handle opposite numbers, addition and subtraction. In essence, these are just renamed numbers and already definable functions of PrA, so we do not alter consistency, completeness or decidability in any way; any statement of the new system is really a statement of PrA just in another format.

4.4 On *Relativizability*

In this section we identify a way of using concepts that is incompatible with logic, analytic philosophy and normative science. Contemporary academic philosophers are already able to make this distinction. However, we have chosen to make it again because Robert Pirsig famously exposed a certain chairman at the University of Chicago as a fraud. This has created mistrust towards academic philosophy among the general public.

We might like to obtain academic credentials if any were available for us. But we prefer to have independence from sources which have dubious reputation even if they happened to be right about something. We don't establish such independence to punish the academia but to present *credible* advice for young people to abstain from trying to create metaphysical systems which are impossible.

Let there be a language $\mathscr{L}$ which is a set of *well-formed sentences*, that is, sequences of some predefined symbols formed by given well-defined recursive rules. Henceforth we write simply "sentences" instead of "well-formed sentences". A *theory* is a set Γ of sentences which are called *theorems*. Based on certain basic theorems, or *axioms*, deductive arguments can be made so that the results are also to be taken as theorems.

We may think that the set Γ is at least potentially *closed*, that is, it contains all logical consequences of its axioms. Note that for the purposes of this article, we do not have to do so. In practice any collection of explicit deduced theorems of a theory Γ is always open. Even if A and $A \Rightarrow B$ were to belong to the deduced portion of a potential theory Γ, B would not have to belong to it. This would be the case if B had not *yet* been deduced. Let us demonstrate this with the case of the not-yet-resolved Goldbach conjecture. Suppose either it or its negation follows logically from the Peano axioms. Now it would be so that a human actor deducing theorems of the theory based on these axioms would necessarily also hold either any sentence describing the Goldbach conjecture or any sentence describing its negation as a theorem, even if this is (probably) not the case for any human actor at least at the time of the writing of this article. Very often, however, we may suppose that our theories are closed, as this makes the formalization of theories simpler and hardly does any real harm to the generality of our thinking.

A *predicate* is a sentence $p(x)$ with one free variable x. The variable can naturally be something else than x. For example, $x+2 = 4$ or "the person y who was the President of Finland in 1998" are predicates. By the word "predicate" we refer also to more informal expressions which could be interpreted as predicates. For example, the expressions $4 - 2$ an "the President of Finland in 1998" can be understood to correspond with the aforementioned predicates. Rather generally and informally speaking, we may think that predicates are descriptions of some elements in the universe of our discourse.

Historically the "predicate" concept used here originates from a slightly simplified theory of definite descriptions by Bertrand Russell. Our definitions do not rest on the details of this theory, however, so the reader is not required to know them.

The *extension* of a given predicate in theory Γ is the whole of elements a for which a theorem of Γ is formed when the free variable of the description is substituted with a. Generally speaking,

the extension of a predicate can be empty, it can have only one element or it can have many elements.

Existence is a property of a predicate. A predicate exists in theory Γ if and only if $\exists x(p(x))$ is a sentence of Γ. This is equivalent to the extension of predicate $p(x)$ being nonempty.

Let us have a logically valid predicate, such as $p(x) \Rightarrow p(x)$, which is an instance of the tautology $A \Rightarrow A$ of propositional logic. Its extension in theory Γ is now called the *domain* of the theory. The domain contains all elements which can be in an extension of a predicate. This is so because a logically valid predicate is always a theorem when any symbol denoting any element is substituted for its free variable and thus this element is in its extension.

Let us have theory Γ. Γ is *relativized to a predicate* $p(x)$ as follows. In every sentence φ of Γ, every subsentence $\forall y(\psi)$ is substituted by the form $\forall y(p(y) \Rightarrow \psi)$ and every subsentence $\exists y(\psi)$ by the form $\exists y(p(y) \wedge \psi)$. After this we go through all free variables $y_1, \ldots, y_k$ of the thus obtained sentence φ' and substitute φ' by the form $p(y_1) \wedge \ldots \wedge p(y_k) \Rightarrow \varphi'$. If there are no such free variables, we instead substitute φ' by the form $\exists y(p(y)) \Rightarrow \varphi'$. This final form is called *the relativization of the sentence* φ *to the predicate* $p(x)$. Thus we have a new set of sentences Γ'.

What does relativization to a predicate $p(x)$ do to the theory, intuitively speaking? Every structure of the form $\forall y(\psi)$ amounts to the statement "for every y it holds that ψ". This is transformed into the statement "for every y for which $p(y)$, it holds that ψ. Every structure of the form $\exists y(\psi)$ amounts to the statement "there is y in such a way that ψ. This is transformed into the statement "there is y, for which $p(y)$, in such a way that ψ. If the sentence has free variables it states that by placing any term which is free for the variable in question, a theorem results. The new sentence states that this applies to all terms t, which are free for the variable in question, to whom it holds that $p(t)$. If the sentence has no free variables we must just ensure that the extension of $p(x)$ is non-empty because otherwise any closed sentence would become a theorem of the original theory. For instance, $\forall y(p(y) \Rightarrow y \neq y)$ would be a theorem if there were no such y that $p(y)$, but $\exists y(p(y)) \Rightarrow \forall y(p(y) \Rightarrow y \neq y)$ would not be. (In open sentences with free variables this is checked implicitly.) In other words, relativizing Γ to $p(x)$ forces Γ to refer exclusively to those elements x for whom it holds that $p(x)$.

Finally it is added that for every value of function $f(x_1, \ldots, x_n)$ it holds that $p(f(x_1, \ldots, x_n))$. In other words, relativizing Γ to $p(x)$ forces Γ to refer exclusively to those elements x for whom it holds that $p(x)$.

For example, let theory Γ be the set of all sentences which are theorems according to Mr. Smith, that is, sentences which Mr. Smith holds true. Let us have description $J(x) :=_{def}$ "x is in the domain of Mr. Smith′s theory". When we relativize Γ to predicate $J(x)$ we get a new theory Γ' whose every sentence is about matters being such and such in Mr. Smith's theory instead of being about matters being such and such in some unspecified, more general context. If Mr. Smith holds the sentence "Unicorns do not exist", formally $\neg\exists x(Y(x))$, as a theorem, the corresponding sentence of theory Γ' states that $\neg\exists x(J(x) \wedge Y(x))$ which can be interpreted as: "In Mr. Smith's theory, unicorns do not exist". This could also be expressed simply as: "According to Mr. Smith, unicorns do not exist".

Let us once again have a theory Γ. We now define how to *expand* this theory. First we take another theory Δ of the same language and some predicate $r(x)$ such that $r(x)$ doesn't hold for any x in the theory Γ. Then we relativize Γ to the predicate $p(x)$ and Δ to the predicate $r(x)$. Finally we combine the relativized theories into one larger theory by forming a union of their theorems. Should this be convenient to us, we may add some additional symbols to the language of the theories before the process – this does not add theorems (save for logically valid formulas) to any of the language's theories as the new symbols do not occur in any of their older theorems.

For example, if there are theories Γ and Δ which define the natural (non-negative) numbers and the negative numbers respectively, and the predicates "$x \in \mathbb{N}$" and "$x \in \mathbb{Z}_-$" (we may here add the needed extra symbols to the language), we can relativize both to these respective predicates and then combine the results into one theory, getting the theory of integers as the final product of our operation. This can be seen as expanding the theory Γ, or alternatively Δ, should we like to think of it that way.

A predicate *is used nonrelativizably* in a certain discourse if its usage there implies that the extension of this predicate in a theory must adjust to something else if the theory is relativized with any arbitrary predicate and expanded to any possible larger theory. A *relativizable use* of a predicate is any use of a predicate that is not nonrelativizable.

Generally speaking its possible to use a predicate either in a relativizable or in a nonrelativizable way. For example, let us have the predicate "a thing x" used nonrelativizably in our context, for instance by using it to refer to an arbitrary "thing" or element in any theory of our language, as is more or less often done in at least informal discourse. Let us expand a theory Γ of our context by combining this theory relativized to the predicate $q(x) :=_{def}$ "x of the domain of the theory " and some suitable arbitrary alternative theory Δ relativized to the predicate $r(x) :=_{def}$ "x of the domain of the theory ". By hypothesis, the extension of the nonrelativizable predicate "thing x" should also contain all the new elements of the expanded theory, not just the elements which were "things", that is, arbitrary elements, in the theory Γ. The extension is therefore ambiguous because when using the predicate we did not mention whether we mean the "things" of the theory Γ or this expanded theory or some other arbitrary theory of our language.

On the other hand, any time we use a predicate relativizably, it is relativized whenever a theory where we use it is relativized. When we use the aforementioned predicate "thing x" relativizably we perceive it as bound to some theory in question. In the case of this predicate we may let its extension be the domain of the theory. Used this way, the predicate "a thing x" in theory Γ changes to "a thing x of theory Γ" when relativized to $q(x)$ when that is defined as above. The extension of this predicate is the same as the extension of the original predicate even if the theory is then expanded in any way.

Now, what is the purpose of this concept of relativizability we have defined here? All predicates should be well-defined if an unambiguous discourse is desired. Their extension should not change when the theory is relativized with something. The extension of

relativizably used predicates does not change but the extension of nonrelativizably used predicates can change.

For example, let us have the predicate "a number whose successor is 0" so that it is bound to the theory of natural numbers. The extension of this predicate is empty. Let us now expand the extension in such a way that the theory is the theory of integers. If we have interpreted the predicate "a number whose successor is 0" relativizably it turns into the predicate "a natural number whose successor is 0", thus retaining an empty extension. But if we have interpreted the predicate nonrelativizably we cannot unambiguously determine whether its extension is 0 or -1.

Logicians and mathematicians sometimes use an approach identical or very similar to the method of relativization here. For instance, we may want to solve the question, "Is a given axiom ψ without free variables independent from the other axioms Σ of a given theory Γ?" The process involves some logical principles which we do not deal with here, but the basic idea goes like this. We try to find a predicate $p(x)$ such that relativizing Σ and ψ to $p(x)$ gaining a set Σ' of sentences and a sentence ψ', we may construct some presumably consistent theory Π with theorems $\exists x(p(x))$, Σ' and $\neg\psi'$. If we succeed, $\exists x(p(x)), \Sigma' \vdash \psi'$ cannot be a logically valid deduction and we may use this to prove that deducing $\Sigma \vdash \psi$ is impossible.

For a quick example, suppose the axioms of the ZFC set theory are consistent. We want to prove that the axiom of infinity ψ is independent and call the other axioms Σ. We first assume that ψ is not independent, i.e. that it can be proven from Σ. Thus there is a set of hereditary finite sets Ψ. Let $p(x)$ be $x \in \Psi$. Now we may prove $\exists x(p(x))$, Σ' and $\neg\psi'$ in ZFC itself and thus, as above, it does not hold that $\Sigma \vdash \psi$.

As a second example, Hilbert's first problem can be partially solved by relativizing the axioms of ZFC to the predicate $p(x)$ defined as "x is a member of Gödel's constructible universe" and noting that the relativization of the continuum hypothesis holds (using ZFC again as Π). Thus, the continuum hypothesis cannot be disproved in ZFC.

4.5 Inconsistency Proof of Pirsig's Metaphysics of Quality

In the state in which its original author Robert Pirsig left it, the Metaphysics of Quality is an inconsistent theory. We haven't founded our inquiry on that theory. But we have proved its inconsistency.

The academic status of Pirsig's (1928–2017) Metaphysics of Quality is unclear. The University of Montana has awarded Pirsig a honorary doctorate in 2012[1] but he hasn't published his ideas in a peer-reviewed journal. However, he has written a bestseller titled *Zen and the Art of Motorcycle Maintenance*, published in 1974.

According to Pirsig the Metaphysics of Quality is an important philosophical accomplishment because it resolves the age-old question about what's the relationship between mind and matter.[2] Here the author logically proves Pirsig's approach to entail either contradiction, that is, inconsistency, or that the Metaphysics of Quality is neither true nor a good idea. Because Pirsig states everything that exists to consist of moral value[3] it would seem to be worse for the theory if it weren't good.

Before proceeding with the proof it's important to note that all concepts of the Metaphysics of Quality cannot be subjected to logical methods. The most important such concept is Quality which is undefinable[4]. Quality means moral value.[5]

Undefinable concepts cannot be subjected to logical methods. However, according to Pirsig the workings of logic are independent of the concept of Quality.[6] Therefore the Metaphysics of Quality neither rules out the formal approach nor claims to be immune to it. Pirsig doesn't tell how could the Metaphysics of Quality be formalized but the only possible partial solution seems to be to exclude all variables, whose referent is an undefinable concept, from the formalization.

Therefore, when Pirsig states Quality to come fist, then mind and then matter,[7] from the viewpoint of logic he merely states that mind comes before matter. This statement is equivalent to idealism.

However, Pirsig also states that materialism is a valuable or good idea.[8] If so, idealism cannot be a good idea unless either the Metaphysics of Quality is inconsistent or the Metaphysics of Quality isn't a single theory.

According to Pirsig the Metaphysics of Quality is consistent.[9] So maybe the Metaphysics of Quality isn't a single theory, despite being called "the" Metaphysics of Quality. In this case the Metaphysics of Quality doesn't dialectically resolve the question about what's the relationship between mind and matter. Instead, it merely discusses both idealism and materialism in the same context. However, Pirsig claims his theory to resolve the mind–matter-problem which is dialectical by tradition. Therefore we assume the Metaphysics of Quality to be one single theory.

Consequently, idealism isn't a good idea. But the Metaphysics of Quality is idealistic. Therefore the Metaphysics of Quality by Pirsig isn't a good idea. But according to the Metaphysics of Quality everything that's true is good.[10] Therefore the Metaphysics of Quality isn't even true.

This is a dilemma with four prongs so it can be called a quadrilemma. Or a table fork. According to this quadrilemma

we must choose at least one of these four options:

- The Metaphysics of Quality is inconsistent.
- The Metaphysics of Quality isn't a good idea and isn't true.
- The Metaphysics of Quality doesn't resolve the mind–matter-problem.
- The Metaphysics of Quality should be modified.

When the subject matter includes everything Pirsig has ever published there's a risk of finding apparent problems where there really are none. This is because the subject matter can include something which explains why some problem is just an illusion but there's so much to read that the researcher misses this part.

If there's any problem with the argument the author calls a quadrilemma this problem is most likely that Pirsig somehow places idealism and materialism into different contexts. In other words, if there really were no quadrilemma this would most likely be because the statements "materialism is good" and "idealism is true" do not belong into the same language game. In fact, this is precisely what Paul Turner states in his essay *The Two Contexts of The Metaphysics of Quality* (2013).

According to Turner the Metaphysics of Quality includes two contexts. The "first" context is "largely epistemological" according to him and contrary to materialism. He also finds this context to be contrary to idealism but the only justification he presents for this involves Quality. Like the author previously pointed out, logic excludes the conceptual part of Quality. So there's no logical reason to find the first context contrary to idealism.

The "second" context, on the other hand, is accepting towards materialism and the "traditional" scientific way of thinking.[11]

The author would generalise that the first context is rhetorical by nature because it aspires to describe something which cannot be defined. Such things are beyond logic and dialectic. The second context, on the other hand, is dialectical. But the mind–matter-problem is essentially dialectical. It cannot be "solved" by mere rhetoric. When Pirsig claims "all schools to be right" about the mind–matter-problem he only demonstrates that he doesn't understand the nature of this problem. If the Metaphysics of Quality supports idealism only rhetorically it has no more integrity than a politician who says nice words to the impoverished but then cuts their welfare.

Rhetorical support of idealism doesn't cause all schools to be right about the problem because there are dialectical schools which find idealism to be true. Pirsig himself practically admits that Hegel's idealism is dialectical by nature.[12] In addition, according to materialistic monism the idealistic school wrong.

4.5.1 The Disjunctive Syllogism

The author cites his previous statement:

> "If so, idealism cannot be a good idea unless either the Metaphysics of Quality is inconsistent or the Metaphysics of Quality is not a single theory.
>
> According to Pirsig the Metaphysics of Quality is consistent. So maybe the Metaphysics of Quality isn't a single theory..."

This argument is a so-called disjunctive syllogism. Formally:

Either A or B.

Not A.

—

Therefore B.

There are forms of logic which don't include the disjunctive syllogism. Abandoning the disjunctive syllogism is common especially in paraconsistent logic. However, according to Pirsig there's no such thing as paraconsistent mathematics[13] even though its existence is widely known[14]. It's puzzling that he denies paraconsistent systems because paraconsistent logic is popular in Oriental philosophy[15] from which he draws inspiration[16]. One possible reason for rejecting paraconsistent logics is that such systems are incomplete but Pirsig doesn't mention this. That kind of finesse seems to completely escape him as he doesn't even acknowledge[17] that polar coordinates are pretty much impossible in Presburger arithmetic.

According to Pirsig, the Metaphysics of Quality is consistent. Consistent formal systems which don't include the disjunctive syllogism are possible but rather uncommon. Furthermore, Pirsig claims the Metaphysics of Quality to be in perfect accordance with logical positivism. He finds it to pass the logical positivists' criteria for "meaningfulness" with the highest marks.[18] The author isn't sure what these criteria exactly are but the Metaphysics of Quality hardly satisfies them if its formalization requires some unusual axiomatic system which is left unspecified.

4.5.2 Deviating from Pirsig

Pirsig states his Metaphysics of Quality to ultimately be a theory about static quality and Dynamic Quality. His most important accomplishment is that of equating Dynamic Quality with God without implicating theism. This idea is an essential precondition of world peace, namely, peace between Buddhists and Muslims.

Buddhism doesn't include belief in God and traditionally Buddhists aren't people of the book. However, if Buddhists are to be compared with Christians then their observance to the undefinability of Dynamic Quality is superior to that of Christians. How can Buddhists be theologically superior to Christians even though they aren't people of the book? Perhaps this is a wonder of God.

Christians would depict and define God because the *New Testament* is a recreation of something that was lost in history. Mathematician Blaise Pascal went so far as to barter about belief in God. Do us believers truly relate to a "fellow" believer who believes in God for no other reason than Pascal's wager?

Muslims and Buddhists are gnostic by definition but Christians are gnostic by exception. The "believer" who believes solely on grounds of Pascal's wager is devoid of gnosis. He doesn't contribute to our faith as he is. If he wishes to associate to us we hope he understands he will need guidance from us.

The problem with believers who aren't gnostic – agnostic believers, so to say – is the mechanical way in which they adhere to principles of faith. The author once met a spiritual teacher who had spent some time in one of his local Buddhist centers in Finland. This teacher told him about a certain regular of that center.

He'd shown this regular an animated music video in which a man was riding a skateboard. On the background there was a voice repeating vigorously: "Understand the concept of love!" This phrase was repeated the same way over and over again, with some music, as the man performed various stunts with the skateboard.

Upon seeing this video the regular said: "It would be better if it didn't have the word 'concept'."

This is exactly the problem with agnostic believers. Buddhists aren't supposed to be agnostic in the sense of being oblivious towards Dynamic Quality, but this regular clearly was being deaf. Judging from his behavior he was new to Buddhism and, in fact, probably still more influenced by Evangelical Lutheranism than Buddhism.

The video wouldn't have been better without the word "concept". If the voice on the background had repeated: "Understand the love!" the piece would've been pointless. It wouldn't have rhymed! It wouldn't have been a music video – just a weird screen recording from some computer game.

If Buddhism makes you want to ruin a music video just because its lyrics emphasize a "concept" then you don't understand Buddhism. In fact, these lyrics were more like a mantra. When "concept" is repeated as part of a mantra it turns less conceptual, not more conceptual! This regular understood the nonconceptual aspect of Buddhism in a merely nominal way. But the beauty of the lyrics becomes apparent if one just *listens* to them. "Understand" sounds like "Islam", "the concept" sounds like "Muhammad" and "of love" sounds like "Allah".

Honor to God! But there is also static quality. Pirsig equates static quality with everything that can be distinguished, that is, told apart from something else. The author wishes to spare his audience from some trouble by pointing out that Dynamic Quality and static quality are *both* nonrelativizably used concepts. Pirsig writes that all there was left to do after inventing these concepts was to "fill in the gaps"[19] but that's nonsense. In the context of analytic philosophy or normative science, if you have only the concepts of Dynamic Quality and static quality and nothing else, you don't have anything.

Pirsig claims to be or to have once been a "knower of logic". The only evidence of this is an intelligence quotient of 170 on the Stanford–Binet test.[20] He isn't a logician and shows merely cursory interest in logic. The authors of this book are clearly far better logicians than him.

Admittedly, Pirsig doesn't strive to be a normative scientist. Instead, he subscribes to empiricism. According to this philosophical doctrine, knowledge is derived from sensory experience. To put it plainly, this doctrine states the Information Element of Sensing to be of primary importance and the Element of Thinking to be of secondary importance. Feeling and iNtuition, on the other hand, are irrelevant for knowledge! Or if not, the doctrine of empiricism requires us to fabricate arguments which may have no other use than that of establishing Feeling and iNtuition as some kind of derivatives of Sensing and Thinking so that empiricism would remain true.[9]

The fact that Jungian psychology works is enough to disprove empiricism. Of course it would be interesting in a nasty way to ask an empiricist what's the significance of using provably consis-

tent arithmetic in a metaphysical theory. Do we use it because it is provably consistent or because empirical experience has so far shown other kind of arithmetic not to produce any results in this inquiry? This question is a such a waste of time but an empiricist might not see it that way.

Empiricism is a point of view. All people are sometimes empiricistic. But to believe in empiricism is something different. It is a commitment to defending the ultimacy of the empiricistic point of view. Why commit so religiously to something that isn't a religion?

Pirsig uses empiricism as some sort of protective armor for his theory. He selected empiricism for no other reason than that it fits on his theory. He would've selected some other doctrine if that would've been a better fit. To the author's best knowledge, Pirsig never retracts any statement. This code of conduct apparently left him with nothing to say. He turned out unable to make his theory grow out of the armor of empiricism because the only way to grow out from it would've been to break it.

Furthermore, Pirsig's interpretation of empiricism is actually rather questionable. He finds atoms and molecules to be inorganic.[21] These are not tangible objects which can be perceived by the senses. Their existence can be inferred from sensory experience but, in the mind of the human observer, they are incapable of existing without this inference. Therefore their existence is dependent of interpretation.

Perhaps Pirsig selected this point of view because he knew a thing or two about carbon, protein, DNA, mitosis and meiosis. But inorganic patterns exist also for people who know nothing about these. The author thinks this point of view is more important because it can be shared with all the people in the world instead of just scientists. Even small children can understand what is a "ball" or what does it mean to "throw" something. These kind of things are proper inorganic patterns. The examples of inorganic patterns provided by Pirsig seem like they could actually be intellectual patterns.

Pirsig's message turns rather flaky and peculiar when we consider the fact that, according to him, "substance" may be defined as "stable inorganic patterns of value".[22] Here he's probably trying to define forces such as gravity and magnetism as "not substance" but the result gives the impression that high explosives and plutonium cores are not substance. It would've been far easier and more in accordance with Pirsig's usual style to use some common sense notion of inorganic quality but unfortunately he wanted something fancier.

In any case, the rhetorical part of the Metaphysics of Quality is an aesthetically appealing combination of Western and Oriental philosophy because the undefinability of Quality resembles the *Diamond Sūtra* of Mahayana-Buddhism and, on the other hand, Gödel's (1906–1978) incompleteness theorems (1931) and Tarski's (1901–1983) undefinability theorem (1936).

According to the *Diamond Sūtra* the Buddha has no characteristics[23] and he and the spiritual community are manifestations of an unfamiliar force penetrating into society.[24] From the viewpoint of society this unfamiliar phenomenon represented by the Buddha is undefinable and hence resembles Quality.

In the case of the incompleteness theorems the focal point is the fact that many formal systems, such as our traditional Peano arith-

metic, don't include criteria which can be used to decide whether some of its undecidable statements should be assumed as an additional axioms or not. In the case of Peano arithmetic the external criterion is often thought to be truth in its so-called standard model[25] but also non-standard arithmetics and stronger theories such as non-standard analysis are sometimes useful[26]. On the other hand, the question of whether the axiom of choice should be included into Zermelo–Fraenkel set theory is even more multifaceted.[27] Generally speaking we may rhetorically argue that Quality is the criterion for deciding about additional axioms.

Tarski's undefinability theorem, on the other hand, states that truth cannot be defined within a system that's strong enough.[28] Hence, truth from the internal viewpoint of the system is analogous with the undefinability of Quality.

In a strictly logical sense these analogies could turn out to be more rhetorical than dialectical. However, without rhetoric there would be no dialectic.[29]

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Part III

Logiduction

Chapter 5

The Problem of *Induction*

The author doesn't understand the academic world very well. If the following treatise were offered to the academia as a solution to the problem of induction the academia might find there to be something wrong with it so that even though there would be no mistake in it it wouldn't solve the problem of induction. But the author doesn't see it that way. The author sees it so that nothing would prevent the academia from considering the following as the solution to the problem of induction. Therefore he needs to publish the result so that it wouldn't get destroyed and forgotten. After all, solving the problem of induction *was* among his original ambitions.

The default form of reasoning in normative science is *deduction*, which can be used for interpreting an observation according to a rule. There's no such thing as "the problem of deduction" because the nature of deductive reasoning is considered understood. An example of a deductive argument:

All perches are fish.

There's a perch in the lake.

—

There's a fish in the lake.

When we approach the problem of induction we begin by axiomatizing *abductive* reasoning first. Abductive reasoning is used for finding a likely explanation for some set of observations. For example:

This fish is upside-down.

—

This fish is dead.

The difference between abduction and induction is that abduction searches for a case-specific explanation for an observation whereas induction searches for a general explanation for a observation. An example of an inductive argument:

Every perch I've seen is green.

—

Every perch is green.

We begin solving the problem of induction by axiomatizing abduction as a system that's analogous with classical propositional logic. Then we define induction as a similar system of predicate logic. A concise definition of induction would thus be: induction is abduction in predicate logic. The word "induction" may refer to either induction (but not abduction) or both induction and abduction.

5.1 *Logiduction*, a Categorization of Classical Forms of Reasoning

We present a model called logiduction which divides reasoning into four forms according to how truth values are preserved.

- *Disduction* doesn't preserve truth values.
- *Deduction* preserves truth.
- *Induction* preserves falsehood.
- *Equiduction* preserves both truth and falsehood.

These are the forms of *classical reflexive reasoning* and only them.

Let us denote the set of the non-empty subsets of S by $\wp*(S)$.

Let us have a form of reasoning M in which we may infer propositions from other propositions by using rules of inference. This form of reasoning is binary in the classical sense that propositions are always true or false in a given interpretation but never both. Let us have a certain interpretation $\mathscr{I}$, let Γ be an arbitrary non-empty set of propositions and let T_Γ be the set of truth values of the latter in the former, that is, $\{0\}$, $\{1\}$ or $\{0,1\}$. Let $\Sigma \neq \emptyset$ be a set of propositions for which $\Gamma \vdash_M \Sigma$ and T_Σ the set of its truth values (when we discuss truth values we always mean truth value within $\mathscr{I}$). Let U_Γ be the union of the truth value sets T_Σ of every possible set of propositions Σ. Let $S \in \wp*(\{0,1\})$ and $F_M(S)$ be the set which is the union of all sets U_Γ when $T_\Gamma = S$. Therefore F_M is the function $F_M : \wp*(\{0,1\}) \to \wp*(\{0,1\})$. F_M tells the truth values of propositions that can be inferred from the set of truth values of a particular set of propositions by way of form of reasoning M. When we equate those forms of reasoning whose corresponding functions F_M are the same we state that the forms of classical reasoning can be divided into $3^3 = 27$ categories.

However, some of these forms of reasoning are rather peculiar, such as a form of reasoning in which only false propositions may be inferred from true propositions and vice versa. Therefore, let us assume we want a form of reasoning to allow the inference $A \vdash_M A$. We call this attribute the *reflexivity* of reasoning. In this case it holds that $\forall x \in \{0,1\} \forall S \in \wp*(\{0,1\})(x \in S \Rightarrow x \in F_M(S)))$. Therefore $0 \in F_M(\{0\})$, $1 \in F_M(\{1\})$ and $\{0,1\} \in F_M(\{0,1\})$. Now the functions, and therefore the categories of forms of reasoning, differ only with regards to whether it holds that $1 \in F_M(\{0\})$ and/or $0 \in F_M(\{1\})$. Let us list every option.

1. $1 \in F_M(\{0\})$ and $0 \in F_M(\{0\})$: Both true and false propositions may be inferred from propositions which are true and propositions which are false. This applies to disduction which

doesn't preserve truth values.

2. $1 \in F_M(\{0\})$ and $0 \notin F_M(\{0\})$: If all premises are true so are the conclusions. This applies to deduction which preserves truth.

3. $1 \notin F_M(\{0\})$ and $0 \in F_M(\{0\})$: If the conclusions include even one true proposition all premises are true. This applies to abduction and induction which preserve falsehood.

4. $1 \notin F_M(\{0\})$ and $0 \notin F_M(\{0\})$: Only true propositions are inferred from true propositions and only false propositions are inferred from false propositions. This applies to equiduction which preserves both truth and falsehood.

The logiduction model is a categorisation of reflexive classical forms of reasoning with regards to the preservation and transformation of truth values. It's partially based on Indian philosophy. The *Navya-Nyāya*-school differentiates sources of knowledge according to whether they're based on observation or proof. An important method for discovering new knowledge is *anumāna*, inference. It exists in three different forms. Citing `http://www.srimatham.com/uploads/5/5/4/9/5549439/nyaya_philosophy.pdf`:

> There are 3 types of *anumāna* or inference;–
>
> 1. It may be *a priori*, — from cause to effect; (*pūrvavat*)
> e.g. on seeing clouds, one infers that it is going to rain;
> 2. or it may be *a posteriori*, — from effect to cause; (*śeṣavat*)
> e.g. on seeing a river swollen, one infers that there has been rainfall.
> 3. It may also be what is termed 'commonly seen,' (*samānyatodṛṣṭa*) which is knowledge of one thing derived from the perception of another thing with which it is commonly seen;
> e.g. on seeing rain, one infers that there are clouds.

In a sense, deduction and *pūrvavat*, induction and *śeṣavat*, and equiduction and *samānyatodṛṣṭa* are connected because the analogies between them are interesting. As a side note, analogy, *upamāna*, is also among the *Nyāya* ways of discovering knowledge but it isn't considered reasoning. We used to think disduction and *upamāna* could have something to do with each other but we don't think so anymore because the notion of disduction appears to be useless on its own. The other, independently useful forms of reasoning may be generally referred to as *conduction*.

Chapter 6

Axiomatic Abduction

Here we formalize a form of reasoning we call axiomatic abduction, or abduction for short. Abductive reasoning means reasoning from effect to cause which is the opposite direction than that of deduction, which is valid reasoning. We present a method for transforming a deductive Hilbert-style axiomatization of propositional logic into an axiomatic system of abduction. In the former, it's possible to infer proposition β from γ if and only if it's possible to do the opposite in the latter. We call this attribute the fundamental theorem of abduction and prove it as metatheorem AMT11 of the theory we're about to formulate.

First we contemplate what should the axioms of abduction be like. Because an instance of an axiom can be appended to any proof, that is, it can be inferred from anything, it must be possible to infer anything from an instance of an abduction axiom in deduction. Therefore it has to be a contradiction. The rules of inference, on the other hand, must preserve falsehood so that we couldn't infer a contingent proposition using only the axioms. In deduction this would mean we could infer a contradiction from a contingent proposition. Therefore the axioms, rules of inference and theorems of abduction won't be intuitive, like deductive axioms can be, but instead will appear nonsensical. But this isn't the focal point of our inquiry. Instead, the focal point is the fundamental theorem of abduction which makes abduction interesting.

When ψ is an axiomatic theory we shall henceforth write $\vdash_\psi \kappa$ ("κ is provable in ψ") iff κ is a theorem of ψ and $\lambda \vdash_\psi \kappa$ ("κ is provable in ψ from proposition λ") iff κ can be inferred from proposition λ in theory ψ.

6.1 Deductive Propositional Logic τ

Let there be a formal Hilbert-style valid and complete first-order theory of propositional logic τ whose language consists recursively of propositional variables, negation $\neg$ and implication $\Rightarrow$. Henceforth "proposition" means a statement of this language. The rule of inference is *modus ponens*, that is, if $\vdash_\tau (\alpha \Rightarrow \beta)$ then $\alpha \vdash_\tau \beta)$. In this context we call this rule detachment. Here, "validity" means that when we formulate a truth table in the ordinary way for any κ for which $\vdash_\tau \kappa$ it always turns out to be a tautology so that for any combination of truth values of propositional variables the truth value of κ is T. By completeness we mean that when we formulate a truth table for any proposition κ, if it turns out to be a tautology then $\vdash_\tau \kappa$. We use the classical abbreviations $(\alpha \wedge \beta)$, $(\alpha \vee \beta)$ and $(\alpha \Leftrightarrow \beta)$ of forms $\neg(\alpha \Rightarrow \beta)$, $(\neg\alpha \Rightarrow \beta)$

and $\neg((\alpha \Rightarrow \beta) \Rightarrow \neg(\beta \Rightarrow \alpha))$.

6.2 Formulating Abductive Theory ζ

Let us form a new theory ζ of the same language by replacing every implication form $(\alpha \Rightarrow \beta)$ of every axiom and detachment rule by the *noncontraimplication* form $\neg(\beta \Rightarrow \alpha)$. Let our new rule of inference – if $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$ then $\alpha \vdash_\zeta \beta$ – be called *noncontradetachment*. When we replace the implication forms of any proposition κ by noncontraimplication forms, thus obtaining proposition κ', it trivially holds that $\vdash_\zeta \kappa'$ if $\vdash_\tau \kappa$. We shall demonstrate also the converse as metatheorem AMT4. Henceforth we call proposition κ' the ζ-equivalent of proposition κ.

Noncontradetachment preserves falsehood so that if formulas α and $\neg(\beta \Rightarrow \alpha)$ both get the value F in their truth table given certain same truth value combinations then also β gets the value F given this truth value combination. This can be observed from the lowest row of the truth table of proposition $\neg(\beta \Rightarrow \alpha)$.

6.2.1 ξ-transformation

Let κ be a proposition. Let us replace every instance of propositional variable in κ by its negation and every implication form $(\alpha \Rightarrow \beta)$ by the noncontraimplication form $\neg(\beta \Rightarrow \alpha)$. We shall denote the result of such transformation by $\xi(\kappa)$.

6.2.2 Metatheorem AMT1

For every proposition κ, $\vdash_\tau (\kappa \Leftrightarrow \neg\xi(\kappa))$.

Proof:

Let $p(n)$ mean for every $n \in \mathbb{N}$: "for every proposition λ whose length isn't greater than n it holds that $\vdash_\tau (\lambda \Leftrightarrow \neg\xi(\lambda))$".

$p(0)$ is trivially true because there's no proposition λ whose length wouldn't be greater than zero.

Let's now assume that $p(n)$ holds for an arbitrary $n \in \mathbb{N}$. Let λ be a proposition whose length is $n+1$. If λ is a propositional variable it's equivalent with its negation, that is, $\vdash_\tau (\lambda \Leftrightarrow \neg\xi(\lambda))$. If the form of λ is $\neg\alpha$ then, according to $p(n)$, $\vdash_\tau (\alpha \Leftrightarrow \neg\xi(\alpha))$, which entails that $\vdash_\tau (\lambda \Leftrightarrow \neg\xi(\lambda))$. Otherwise λ is $(\alpha \Rightarrow \beta)$ and $\xi(\lambda)$ is therefore $\neg(\xi(\beta) \Rightarrow \xi(\alpha))$. According to $p(n)$, $\vdash_\tau (\alpha \Leftrightarrow \neg\xi(\alpha))$ and $\vdash_\tau (\beta \Leftrightarrow \xi(\beta))$. According to the deduction theorem, $\lambda \vdash_\tau (\xi(\beta) \Rightarrow \xi(\alpha))$, therefore $\lambda \vdash_\tau \Rightarrow \xi(\lambda)$ and therefore, according to the deduction theorem, $\vdash_\tau (\lambda \Rightarrow \neg\xi(\lambda))$. Analogically we prove that $\vdash_\tau (\neg\xi(\lambda) \Rightarrow \lambda)$, which is how we obtain the desired result, $\vdash_\tau (\lambda \Leftrightarrow \neg\xi(\lambda))$. Thus we have reached the result $\forall n \in \mathbb{N} : (p(n) \Rightarrow p(n+1))$.

According to the induction principle $p(n)$ holds for every $n \in \mathbb{N}$. The metatheorem follows as a consequence.

6.2.3 Metatheorem AMT2

Let κ be a proposition and κ' be its ξ-equivalent. Now κ is a tautology if and only if κ' is a contradiction.

Proof:

According to AMT1, κ is equivalent with $\neg\xi(\kappa)$. If κ is a tautology, by substituting every propositional variable in $\neg\xi(\kappa)$ with its negation and by removing the resulting double negations we obtain

a tautology whose truth table is the same as that of $\neg\kappa'$. Therefore κ' is a contradiction. On the other hand, if κ' is a contradiction its truth table is the same as that of $\xi(\kappa)$ in which every propositional variable has been substituted with its negation and the resulting double negations have been removed. Therefore κ is a tautology.

6.2.4 Metatheorem AMT3: The *Contrasoundness* of Theory ζ

Theory ζ is contrasound, that is, if $\vdash_\zeta \kappa'$ then $\vdash_\tau \kappa$.

Proof:

According to AMT2 the instances of the axioms of theory ζ are contradictions, and noncontradetachment preserves falsehood.

6.2.5 Metatheorem AMT4

Let κ be a proposition and κ' be its ζ-equivalent. If $\vdash_\zeta \kappa'$ then $\vdash_\tau \kappa$.

Proof:

Let $\vdash_\zeta \kappa'$. According to AMT3, κ' is a contradiction. Therefore $\neg\kappa'$ is a tautology, and by substituting its every propositional variable with its negation we obtain the tautology $\neg\xi(\kappa)$ which, according to the completeness of τ, is a theorem of τ. AMT1 states that $\vdash_\tau (\kappa \Leftrightarrow \neg\xi(\kappa))$ so therefore $\vdash_\tau \kappa$.

6.2.6 Abbreviation Ξ

Let the abbreviation $(\alpha \,\Xi\, \beta)$ mean the ζ-equivalent of abbreviation $(\alpha \Rightarrow \beta)$ which is the form $\neg(\neg\neg(\alpha \Rightarrow \beta) \Rightarrow \neg(\beta \Rightarrow \alpha))$.

6.2.7 Metatheorem AMT5

Let λ, λ' and λ'' be propositions. In theory ζ it's provable that

(a) $\neg(\neg(\neg\lambda \,\Xi\, \neg(\lambda \,\Xi\, \lambda'))$,

(b) $\neg(\neg((\lambda \Rightarrow \lambda'') \,\Xi\, (\lambda' \Rightarrow \lambda'')) \Rightarrow \neg(\lambda \,\Xi\, \lambda'))$ and

(c) $\neg(\neg((\lambda'' \Rightarrow \lambda) \,\Xi\, (\lambda'' \Rightarrow \lambda')) \Rightarrow \neg(\lambda \,\Xi\, \lambda'))$.

Proof:

Let α, β and γ be propositional variables. In theory τ it's possible to prove theorems $((\alpha \Leftrightarrow \beta) \Rightarrow (\neg\alpha \Leftrightarrow \neg\beta))$, $((\alpha \Leftrightarrow \beta) \Rightarrow ((\alpha \Rightarrow \gamma) \Leftrightarrow (\beta \Rightarrow \gamma)))$, and $((\alpha \Rightarrow \beta) \Leftrightarrow (\gamma \Rightarrow \alpha) \Leftrightarrow (\gamma \Rightarrow \beta)))$. By substituting α with λ, β with λ' and γ with λ'' in the proofs of their ζ-equivalents in theory ζ we obtain the desired proofs because instances of axioms remain instances of axioms and instances of use of noncontradectachment remain instances of use of noncontradetachment.

6.2.8 Metatheorem AMT6: Abduction Replacement Theorem

If α appears in proposition κ and κ' is a proposition in which some appearance has been substituted with α' then if $\vdash_\zeta \neg(\alpha \,\Xi\, \alpha')$ then $\vdash_\zeta \neg(\kappa \,\Xi\, \kappa')$.

Proof:

Let $\vdash_\zeta \neg(\alpha \,\Xi\, \alpha')$. Let $p(n)$ mean for each $n \in \mathbb{N}$: "For each proposition λ whose length isn't greater than n and in which proposition α appears, it holds that if λ' is a proposition in which some appearance of α is substituted with α' then $\vdash_\zeta \neg(\lambda \,\Xi\, \lambda')$".

$p(0)$ is trivially true because there's no proposition λ whose length wouldn't be greater than zero.

Let's now assume that $p(n)$ holds for an arbitrary $n \in \mathbb{N}$. Let λ be a proposition whose length is $n+1$ and in which proposition α appears. Let λ' be a proposition in which some appearance of α is substituted with α'. If λ is α then $\vdash_\zeta \neg(\lambda \,\Xi\, \lambda')$. Let's assume λ isn't α. Then λ isn't a propositional variable. If λ is of form $\neg\beta$ then, according to assumption $p(n)$, $\vdash_\zeta \neg(\beta \,\Xi\, \beta)$. According to part (a) of AMT5, $\vdash_\zeta \neg(\neg(\neg\beta \,\Xi\, \neg\beta') \Rightarrow \neg(\beta \,\Xi\, \beta'))$ so, according to noncontradetachment, $\vdash_\zeta \neg(\neg\beta \Rightarrow \neg\beta')$, therefore $\vdash_\zeta \neg(\lambda \,\Xi\, \lambda')$. If the form of λ is $(\beta \Rightarrow \gamma)$, in which an appearance of proposition α is in proposition β, then, according to assumption $p(n)$, $\vdash_\zeta \neg(\beta \,\Xi\, \beta')$. According to part (b) of AMT5, $\vdash_\zeta \neg(\neg((\beta \Rightarrow \gamma) \,\Xi\, (\beta' \Rightarrow \gamma)) \Rightarrow \neg(\beta \,\Xi\, \beta'))$, so according to noncontradetachment $\vdash_\zeta \neg((\beta \Rightarrow \gamma) \,\Xi\, (\beta' \Rightarrow \gamma))$, that is, $\vdash_\zeta \neg(\lambda \,\Xi\, \lambda')$. If the form of λ is $(\beta \Rightarrow \gamma)$ so that an appearance of proposition α is in proposition γ we shall analogically use part (c) of AMT5 to prove that $\vdash_\zeta \neg(\lambda \,\Xi\, \lambda')$ again. Thus we end up with the result $\forall n \in \mathbb{N} : (p(n) \Rightarrow p(n+1))$.

According to the principle of mathematical induction $p(n)$ holds for all $n \in \mathbb{N}$. The metatheorem follows as a result.

6.2.9 Metatheorem AMT7

If κ is a proposition then $\vdash_\zeta \neg(\neg\neg\kappa \,\Xi\, \kappa)$.

Proof:

Let α be a propositional variable. From $\vdash_\tau (\neg\neg\alpha \Leftrightarrow \alpha)$ it follows that $\vdash_\zeta \neg(\neg\neg\alpha \,\Xi\, \alpha)$. We obtain the proof of the metatheorem by substituting α with κ in the latter proof.

6.2.10 Metatheorem AMT8: Removing Double Negation in Abduction

If κ is a proposition in which proposition $\neg\neg\alpha$ appears, and κ' is a proposition in which some instance has been substituted with α, then if $\vdash_\zeta \kappa$ then $\vdash_\zeta \kappa'$.

Proof:

According to AMT7, $\vdash_\zeta \neg(\neg\neg\alpha \,\Xi\, \alpha)$, so according to AMT6, $\vdash_\zeta \neg(\kappa \,\Xi\, \kappa')$. Let α and β be propositional variables. From $\vdash_\zeta ((\alpha \Leftrightarrow \beta) \Rightarrow (\alpha \Rightarrow \beta))$ it follows that $\vdash_\zeta \neg(\neg(\beta \Rightarrow \alpha) \Rightarrow \neg(\alpha \,\Xi\, \beta))$. By substituting α with κ in the latter proof and β with κ' and by using the noncontraimplication twice we learn that $\vdash_\zeta \kappa'$.

6.2.11 Metatheorem AMT9: The *Contracompleteness* of Theory ζ

Theory ζ is contracomplete, by which we mean that if κ is a contradiction then $\vdash_\zeta \kappa$.

Proof:

Let proposition κ be a contradiction. According to AMT2 its ζ-equivalent κ' is a tautology, therefore $\vdash_\tau \kappa'$. For its ζ-equivalent κ'' it holds that $\vdash_\zeta \kappa''$. According to AMT8 the double negations of κ'', which were formed while substituting implication forms $\alpha \Rightarrow \beta$ with corresponding noncontraimplication forms $\neg\neg(\alpha \Rightarrow \beta)$, may be removed one by one. Therefore $\vdash_\zeta \kappa$.

6.2.12 Metatheorem AMT10: The Abduction Theorem

Let α and β be propositions. If $\alpha \vdash_\zeta \beta$ then $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$.

Proof:

Let the ζ-equivalents of α and β be α' and β'. Let us substitute each intermediary step of the proof of proposition β from proposition α in theory ζ with its ζ-equivalent. Every instance of an axiom of theory ζ is a ζ-equivalent of an instance of an axiom λ of theory τ, so we can infer the ζ-equivalent of the ζ-equivalent of λ in theory τ from λ by adding a double negation before every implication. This way we obtain the proof of proposition β' from α' in theory τ. According to the deduction theorem, $\vdash_\tau (\alpha' \Rightarrow \beta')$. Hence, $\vdash_\zeta \neg(\beta'' \Rightarrow \alpha'')$ so that α'' and β'' are the ζ-equivalents of propositions α' and β'. According to AMT8 we may remove the double negations of proposition $\neg(\beta'' \Rightarrow \alpha'')$ one by one. These were formed when the implication forms $(\gamma \Rightarrow \delta)$ of proposition $\neg(\beta \Rightarrow \alpha)$ were substituted with the corresponding noncontraimplication forms of noncontraimplication forms $\neg\neg(\gamma \Rightarrow \delta)$. Hence, $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$.

6.2.13 Metatheorem AMT11: The Fundamental Theorem of Abduction

Let α and β be propositions. $\alpha \vdash_\tau \beta$ if and only if $\beta \vdash_\zeta \alpha$.

Proof:

If $\beta \vdash_\zeta \alpha$ then, according to AMT10, $\vdash_\zeta \neg(\alpha \Rightarrow \beta)$. Hence, $\neg(\alpha \Rightarrow \beta)$ is a contradiction and $(\alpha \Rightarrow \beta)$ is a tautology, therefore $\vdash_\tau (\alpha \Rightarrow \beta)$. According to detachment, $\alpha \vdash_\tau \beta$. If $\alpha \vdash_\tau \beta$ then, according to the deduction theorem, $\vdash_\tau (\alpha \Rightarrow \beta)$. Hence, $(\alpha \Rightarrow \beta)$ is a tautology and $\neg(\alpha \Rightarrow \beta)$ is a contradiction so, according to AMT9, $\vdash_\zeta \neg(\alpha \Rightarrow \beta)$. According to noncontradetachment, $\beta \vdash_\zeta \alpha$.

6.2.14 An Example of an Axiomatic Theory of Abduction

Let theory τ be an axiomatization of propositional logic by Jan Łukasiewicz. Its axioms are:

$$\alpha \Rightarrow (\beta \Rightarrow \alpha)$$

$$((\alpha \Rightarrow (\beta \Rightarrow \gamma)) \Rightarrow ((\alpha \Rightarrow \beta) \Rightarrow (\alpha \Rightarrow \gamma)))$$

$$((\neg\alpha \Rightarrow \neg\beta) \Rightarrow (\beta \Rightarrow \alpha))$$

.

The rule of inference is detachment: if $\vdash_\tau (\alpha \Rightarrow \beta)$ then $\alpha \vdash_\tau \beta$.
The axioms of a corresponding theory ζ are

$$\neg(\neg(\alpha \Rightarrow \beta) \Rightarrow \alpha)$$

$$\neg(\neg(\neg(\gamma \Rightarrow \alpha) \Rightarrow \neg(\beta \Rightarrow \alpha)) \Rightarrow \neg(\neg(\gamma \Rightarrow \beta) \Rightarrow \alpha))$$

$$\neg(\neg(\alpha \Rightarrow \beta) \Rightarrow \neg(\neg\beta \Rightarrow \neg\alpha))$$

.

The rule of inference is noncontradetachment: if $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$ then $\alpha \vdash_\zeta \beta$.

Chapter 7

Axiomatic Induction

7.1 Deductive Predicate Logic τ

Let us have a formal Hilbert-style sound and complete theory τ of first-order predicate logic whose language consists recursively of variable, constant, function and predicate symbols, negation $\neg$, implication $\Rightarrow$ and universal quantification $\forall x$ in which x is a variable symbol. In the context of predicate logic or induction, a *proposition* henceforth means a statement of this language. The rules of inference are *modus ponens*, that is, if $\vdash_\tau (\alpha \Rightarrow \beta)$ then $\alpha \vdash_\tau \beta$, and generalization, that is, $\alpha \vdash_\tau \forall(\alpha)$. Henceforth we shall call the *modus ponens* rule *detachment*. By soundness we mean that every proposition κ for which $\vdash_\tau \kappa$ is logically sound, that is, true in every model theoretic interpretation. By completeness we mean that if proposition κ is true in every model theoretic interpretation then $\vdash_\tau \kappa$. Completeness can usually be demonstrated conveniently by using Gödel's completeness theorem (1930). We shall use the traditional abbreviations $(\alpha \wedge \beta)$, $(\alpha \vee \beta)$, $(\alpha \Leftrightarrow \beta)$ and $\exists x(\alpha)$ of forms $\neg(\alpha \Rightarrow \neg\beta)$, $(\neg\alpha \Rightarrow \beta)$, $\neg((\alpha \Rightarrow \beta) \Rightarrow \neg(\beta \Rightarrow \alpha))$ and $\neg\forall x(\neg\alpha)$ We call the quantification form $\exists x(\alpha)$ the *dual* of quantification form $\forall x(\alpha)$ and vice versa.

7.2 Formulating Inductive Theory ζ

Let us form a new theory ζ of the same language by replacing every implication form $(\alpha \Rightarrow \beta)$ of every axiom and detachment rule by the *noncontraimplication* form $\neg(\beta \Rightarrow \alpha)$ and by replacing every quantification form by its dual in generalization rules. Let our new rules of inference – firstly, if $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$ then $\alpha \vdash_\zeta \beta$ and secondly, $\alpha \vdash_\zeta \exists x(\alpha)$ – be called *noncontradetachment* and *dual generalization*. When we substitute every implication form with a noncontraimplication form and every quantification form with its dual in proposition κ, thus obtaining proposition κ', we call κ' the ζ-equivalent of κ.

Noncontradetachment preserves falsehood, that is, if formulas α and $\neg(\beta \Rightarrow \alpha)$ are both false in a given interpretation then also β is false. This can be inferred from how the truth of $\neg\alpha$ and $\beta \Rightarrow \alpha$ implicates $\neg\beta$ according to *modus tollens*. Also dual generalization preserves falsehood because if $\neg\alpha$ is true then, according to the generalization rule, it holds that $\forall x(\neg\alpha)$ and therefore $\neg\exists x(\alpha)$.

7.2.1 σ-transformation

Let κ be a proposition. Let us replace every predicate $p(t_1, \ldots, t_n)$ in κ by its negation, every implication form $\alpha \Rightarrow \beta$ by noncontraimplication form $\neg(\beta \Rightarrow \alpha)$ and every quantification form by its dual. We shall denote the result of such a transformation by $\sigma(\kappa)$.

7.2.2 Metatheorem IMT1

For every proposition κ it holds that $\vdash_\tau (\kappa \Leftrightarrow \sigma(\kappa))$.

Proof:

We may assume that κ is in its non-abbreviated form. Let $p(n)$ mean for every $n \in \mathbb{N}$: "For every proposition λ whose length isn't greater than n it holds that $\vdash_\tau (\lambda \Leftrightarrow \neg\sigma(\lambda))$."

$p(0)$ is trivially true because there's no proposition λ whose length wouldn't be greater than zero.

Let us now assume that $p(n)$ holds for an arbitrary $n \in \mathbb{N}$. Let λ be a proposition whose length is $n+1$. If λ is predicate $p(t_1, \ldots, t_n)$ it's equivalent with the negation of its negation, therefore $\vdash_\tau (\lambda \Leftrightarrow \neg\sigma(\lambda))$. If the form of λ is $\neg\alpha$ then according to $p(n)$ it holds that $\vdash_\tau (\alpha \Leftrightarrow \neg\sigma(\alpha))$ which entails that $\vdash_\tau (\lambda \Leftrightarrow \neg\sigma(\lambda))$. If λ is of the form $(\alpha \Rightarrow \beta)$ and $\sigma(\lambda)$ then it holds that $\neg(\sigma(\beta) \Rightarrow \sigma(\alpha))$, according to $p(n)$ it holds that $\vdash_\tau (\alpha \Leftrightarrow \neg\sigma(\alpha))$ and it holds that $\vdash_\tau (\beta \Leftrightarrow \neg\sigma(\beta))$. Let us assume λ, that is, $(\alpha \Rightarrow \beta)$. Let us assume $\sigma(\beta)$. Therefore $\neg\beta$ which entails that $\neg\alpha$. This leads us to the conclusion $\sigma(\alpha)$. According to the deduction theorem, $\lambda \vdash_\tau (\sigma(\beta) \Rightarrow \sigma(\alpha))$, that is, $\lambda \vdash_\tau (\neg\sigma(\lambda))$, from which we infer $\vdash_\tau (\lambda \Rightarrow \neg\sigma(\lambda))$ according to the deduction theorem. Analogically we prove that $\vdash_\tau (\neg\sigma(\lambda) \Rightarrow \lambda)$ and this way obtain the desired result $\vdash_\tau (\lambda \Leftrightarrow \neg\sigma(\lambda))$. Otherwise λ is of the form $\forall x(\alpha)$ and it holds that $\vdash_\tau (\alpha \Leftrightarrow \neg\sigma(\alpha))$. Let us assume $\forall x(\alpha)$. Now it holds that α and therefore $\neg\sigma(\alpha)$. This gets us $\forall x(\neg\sigma(\alpha))$, that is, $\neg\exists x(\sigma(\alpha))$. According to the deduction theorem, $\vdash_\tau (\forall x(\alpha) \Rightarrow \neg\exists x(\sigma(\alpha)))$. The other direction of the implication is proved in an equally routine manner. Therefore $\vdash_\tau (\forall x(\alpha) \Leftrightarrow \neg\exists x(\sigma(\alpha)))$, that is, $\vdash_\tau (\lambda \Leftrightarrow \neg\sigma(\lambda))$. Hence we reach the result $\forall n \in \mathbb{N}(p(n) \Rightarrow p(n+1))$.

According to the principle of mathematical induction $p(n)$ holds for every $n \in \mathbb{N}$. The metatheorem follows as a consequence.

7.2.3 Metatheorem IMT2

Let κ be a proposition and κ' be its ζ-equivalent. Now κ is a tautology, that is, true in every interpretation, if and only if κ' is a contradiction, that is, false in every interpretation.

Proof:

According to IMT1 κ is equivalent with $\neg\sigma(\kappa)$. If κ is a tautology then by substituting every predicate $p(t_1, \ldots, t_n)$ in $\neg\sigma(\kappa)$ with its negation and by removing the resulting double negations we obtain the tautology $\neg\kappa'$. Therefore κ' is a contradiction. On the other hand, if κ' is a contradiction then $\neg\kappa'$ is a tautology by which we obtain the tautology $\neg\sigma(\kappa)$ by substituting every predicate $p(t_1, \ldots, t_n)$ with its negation, which is equivalent with κ. Therefore κ is a tautology.

7.2.4 Metatheorem IMT3: The *Contrasoundness* of Theory ζ

Theory ζ is contrasound, that is, if $\vdash_\zeta \kappa$ then κ is a contradiction.

Proof:

According to IMT2 the instances of the axioms of theory ζ are contradictions, and noncontradetachment and dual generalization preserve falsehood.

7.2.5 Metatheorem IMT4

Let κ be a proposition and κ' be its ζ-equivalent. $\vdash_\zeta \kappa'$ if and only if $\vdash_\tau \kappa$.

Proof:

Let $\vdash_\zeta \kappa'$. According to IMT3 κ' is a contradiction. Therefore $\neg\kappa'$ is a tautology and by substituting its every predicate $p(t_1, \ldots, t_n)$ with its negation we obtain the tautology $\neg\sigma(\kappa)$ which, according to the completeness of τ, is a theorem of τ. IMT1 states that $\vdash_\tau (\kappa \Leftrightarrow \neg\sigma(\kappa))$, therefore $\vdash_\tau \kappa$.

Let $p(n)$ mean for every $n \in \mathbb{N}$: "For each theorem λ of τ whose shortest proof isn't greater than n it holds that $\vdash_\zeta \lambda'$."

$p(0)$ is trivially true because there's no proposition λ whose length of shortest proof is zero.

Let us assume $p(n)$ holds for an arbitrary $n \in \mathbb{N}$. Let λ be a theorem of τ whose length of shortest proof is $n+1$. If λ is an instance of an axiom of τ (in this case $n = 0$) then λ' is an instance of an axiom of ζ. If λ is obtained by rule of detachment from the theorems α and $\alpha \Rightarrow \lambda$ of τ then according to the assumption it holds that $\vdash_\zeta \alpha'$ and $\vdash_\zeta \neg(\lambda' \Rightarrow \alpha')$. If λ is of form $\forall x(\alpha)$ and is obtained by using the generalization rule from theorem α of τ then according to the assumption it holds that $\vdash_\zeta \alpha'$ and thereby $\vdash_\zeta \exists x(\alpha')$, that is, $\vdash_\zeta \lambda'$. Thus we reach the result $\forall n \in \mathbb{N}(p(n) \Rightarrow p(n+1))$. According to the principle of mathematical induction $p(n)$ holds for every $n \in \mathbb{N}$. The metatheorem follows as a consequence.

7.2.6 Abbreviation Φ

Let the abbreviation $(\alpha\ \Phi\ \beta)$ henceforth mean the ζ-equivalent of abbreviation $(\alpha \Leftrightarrow \beta)$, that is, the form $\neg(\neg\neg(\alpha' \Rightarrow \beta') \Rightarrow \neg(\beta' \Rightarrow \alpha'))$.

7.2.7 Metatheorem IMT5

Let λ_1, λ_2, λ_3 and λ_4 be propositions. In theory ζ it is provable that

(a) $\vdash_\zeta \neg(\lambda_1 \Rightarrow \exists x_1, \ldots, x_k(\lambda_1))$,

(b) $\vdash_\zeta \neg(\neg((\neg\lambda_1\ \Phi\ \neg\lambda_2) \Rightarrow \lambda_3) \Rightarrow ((\lambda_1\ \Phi\ \lambda_2) \Rightarrow \lambda_3))$,

(c) $\vdash_\zeta \neg(\neg(((\lambda_1 \Rightarrow \lambda_3)\ \Phi\ (\lambda_2 \Rightarrow \lambda_3)) \Rightarrow \lambda_4) \Rightarrow \neg((\lambda_1\ \Phi\ \lambda_2) \Rightarrow \lambda_4))$,

(d) $\vdash_\zeta \neg(\neg(((\lambda_3 \Rightarrow \lambda_1)\ \Phi\ (\lambda_3 \Rightarrow \lambda_2)) \Rightarrow \lambda_4) \Rightarrow \neg((\lambda_1\ \Phi\ \lambda_2) \Rightarrow \lambda_4))$,

(e) $\vdash_\zeta \neg(\neg(\exists x(\lambda_1) \Rightarrow \lambda_2) \Rightarrow \exists x(\neg(\lambda_1 \Rightarrow \lambda_2)))$ in which x isn't free in proposition λ_2,

(f) $\vdash_\zeta \neg((\forall x(\lambda_1)\ \Phi\ \forall x(\lambda_2)) \Rightarrow \exists x(\lambda_1\ \Phi\ \lambda_2))$ and

(g) $\vdash_\zeta \neg(\neg(\neg(\lambda_3 \Rightarrow \lambda_1) \Rightarrow \neg(\lambda_3 \Rightarrow \lambda_2)) \Rightarrow \neg(\lambda_2 \Rightarrow \lambda_1))$.

Proof:

Propositions $(\forall x_1, \ldots, x_k(\alpha) \Rightarrow \alpha)$, $((\gamma \Rightarrow (\alpha \Leftrightarrow \beta)) \Rightarrow (\gamma \Rightarrow (\neg\alpha \Leftrightarrow \beta)))$, $((\delta \Rightarrow (\alpha \Leftrightarrow \beta)) \Rightarrow (\delta \Rightarrow ((\alpha \Rightarrow \gamma) \Leftrightarrow (\beta \Rightarrow \gamma))))$, $((\delta \Rightarrow (\alpha \Leftrightarrow \beta)) \Rightarrow (\delta \Rightarrow ((\gamma \Rightarrow \alpha) \Leftrightarrow (\gamma \Rightarrow \beta))))$, $(\forall x(\beta \Rightarrow \alpha) \Rightarrow (\beta \Rightarrow \forall x(\alpha)))$ in which x isn't free in β, $(\forall x(\alpha \Leftrightarrow \beta) \Rightarrow (\exists x(\alpha) \Leftrightarrow \exists x(\beta)))$ and $((\alpha \Rightarrow \beta) \Rightarrow ((\beta \Rightarrow \gamma) \Rightarrow (\alpha \Rightarrow \gamma)))$ are tautologies and hence theorems of τ for all propositions α, β, γ and δ. In the proofs of their ζ-equivalents in theory ζ, by substituting α with λ_1, β with λ_2, γ with λ_3 and δ with λ_4 we obtain the desired proofs because instances of axioms remain instances of axioms, uses of noncontradetachment remain uses of noncontradetachment and uses of dual generalization remain uses of dual generalization.

7.2.8 Metatheorem IMT6: Φ-theorem

If κ is a proposition in which proposition α appears, and κ' is a proposition in which one appearance has been substituted with α', and (at least) every free variable of α and α', which are bound variables of κ, are in the list $x_1, \ldots, x_k$ (henceforth $\overline{x}$), then $\vdash_\zeta \neg((\kappa\ \Phi\ \kappa') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. As a truncated special case we allow the empty list, in which case $\vdash_\zeta \neg((\kappa\ \Phi\ \kappa') \Rightarrow (\alpha\ \Phi\ \alpha'))$.

Proof:

We may assume κ to be in its unabbreviated form. Let $p(n)$ mean for every $n \in \mathbb{N}$: "For every proposition λ whose length isn't greater than n and in which proposition α appears it holds that if λ' is a proposition in which an appearance of proposition α has been substituted with proposition α' and (at least) all free variables of α and α', which are bound variables of λ, are in list $\overline{x}$ then $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$."

$p(0)$ is trivially true because there's no proposition λ whose length wouldn't be greater than zero.

Let us now assume that $p(n)$ holds for an arbitrary $n \in \mathbb{N}$. Let λ be a proposition whose length if $(n+1$ and in which proposition α appears. Let λ' be a proposition in which some appearance of proposition α has been substituted with proposition α', and $\overline{x}$ a list of variables which includes (at least) all free variables of α and α', which are bound variables of λ. If λ is α then according to IMT5(a) it holds that $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. Let's assume λ isn't α. In this case λ isn't the predicate $p(t_1, \ldots, t_n)$. If the form of λ is $\neg\beta$ then according to assumption $p(n)$ it holds that $\vdash_\zeta \neg((\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. According to IMT5(b) it holds that

$$\vdash_\zeta \neg(\neg((\neg\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha')) \Rightarrow \neg((\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha')))$$

from which, according to noncontradetachment, it holds that $\vdash_\zeta \neg((\neg\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$, therefore $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. If λ is of form $(\beta \Rightarrow \gamma)$ in which an instance of proposition α is in proposition β then according to assumption $p(n)$ it again holds that $\vdash_\zeta \neg((\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. According to IMT5(c)

$$\vdash_\zeta \neg(\neg(((\beta \Rightarrow \gamma)\ \Phi\ (\beta' \Rightarrow \gamma)) \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha')) \Rightarrow \neg((\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha')))$$

so according to noncontradetachment, $\vdash_\zeta \neg(((\beta \Rightarrow \gamma)\ \Phi\ (\beta' \Rightarrow \gamma)) \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$, therefore it again holds that $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. If λ is of form $(\beta \Rightarrow \gamma)$ in which an instance of proposition α is in proposition γ we analogically use IMT5(d) for proving

that it again holds that $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. Otherwise λ is of form $\forall y(\beta)$ and according to the assumption it holds that $\vdash_\zeta \neg((\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. Variable y isn't free in proposition $\exists\overline{x}(\alpha\ \Phi\ \alpha')$ because then it would be free in α or α', and because it is bound in λ it would be in list $\overline{x}$ and therefore bound in the proposition $\exists\overline{x}(\alpha\ \Phi\ \alpha')$. According to dual generalization, IMT5(e) and noncontradetachment it holds that $\vdash_\zeta \neg(\exists y(\beta\ \Phi\ \beta') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. Now according to IMT5(f) it holds that $\vdash_\zeta \neg((\forall y(\beta)\ \Phi\ \forall y(\beta')) \Rightarrow \exists y(\beta\ \Phi\ \beta'))$ and, according to the double noncontradetachment of IMT5(g), $\vdash_\zeta \neg((\forall y(\beta)\ \Phi\ \forall y(\beta')) \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$, therefore again $\vdash_\zeta \neg((\lambda\ \Phi\ \lambda') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. This is how we end up with the result $\forall n \in \mathbb{N} : p(n) \Rightarrow p(n+1))$.

According to the principle of mathematical induction $p(n)$ holds for every $n \in \mathbb{N}$. The metatheorem follows as a consequence.

7.2.9 Metatheorem IMT7: Induction Replacement Theorem

If κ is a proposition in which α appears and κ' is a proposition in which an appearance has been substituted with proposition α' then if $\vdash_\zeta (\alpha\ \Phi\ \alpha')$ it holds that $\vdash_\zeta (\kappa\ \Phi\ \kappa')$.

Proof:

Let all free variables of α and α' which are bound variables of κ be in list $\overline{x}$. According to IMT6, $\vdash_\zeta \neg((\kappa\ \Phi\ \kappa') \Rightarrow \exists\overline{x}(\alpha\ \Phi\ \alpha'))$. After a sufficient amount of dual generalizations and one use of noncontradetachment we obtain the desired result.

7.2.10 Metatheorem IMT8

If κ is a proposition then $\vdash_\zeta (\neg\neg\kappa\ \Phi\ \kappa)$.

Proof:

Let α be some proposition. Now it holds that $\vdash_\tau (\neg\neg\alpha \Leftrightarrow \alpha)$ so according to IMT4 it holds that $\vdash_\zeta (\neg\neg\alpha\ \Phi\ \alpha)$. We obtain the proof of the metatheorem by substituting α with κ in the latter proof.

7.2.11 Metatheorem IMT9: Removal of Double Negation in Induction

If κ is a proposition in which proposition $\neg\neg\alpha$ appears, and κ' is a proposition in which one instance has been replaced by proposition α then if $\vdash_\zeta \kappa$ then $\vdash \zeta\kappa'$.

Proof:

According to IMT8, $\vdash_\zeta (\neg\neg\alpha\ \Phi\ \alpha)$, so according to IMT7 it holds that $\vdash_\zeta (\kappa\ \Phi\ \kappa')$. Let α and β be propositions. Because $\vdash_\tau ((\alpha \Leftrightarrow \beta) \Rightarrow (\alpha \Rightarrow \beta))$ it holds that $\vdash_\zeta \neg(\neg(\beta \Rightarrow \alpha) \Rightarrow (\alpha\ \Phi\ \beta))$. By substituting α with κ and β with κ' in the latter proof and by using noncontraimplication twice we shall see that $\vdash_\zeta \kappa'$.

7.2.12 Metatheorem IMT10: The *Contracompleteness* of Theory ζ

Theory ζ is contracomplete, by which we mean that if κ is a contradiction then $\vdash_\zeta \kappa$.

Proof:

Let proposition κ be a contradiction. According to IMT2 its ζ-equivalent κ' is a tautology so it holds that $\vdash_\tau \kappa'$. For its ζ-equivalent κ'' it holds that $\vdash_\zeta \kappa''$. According to IMT9 the double negations of κ'', which were formed while substituting implication forms $(\alpha \Rightarrow \beta)$ with noncontraimplication forms of noncontraimplication forms $\neg\neg(\alpha \Rightarrow \beta)$, may be removed one by one. Therefore $\vdash_\zeta \kappa$.

7.2.13 Metatheorem IMT11: The Induction Theorem

Let α and β be propositions. If $\alpha \vdash_\zeta \beta$ holds so that its proof doesn't include any use of dual generalization on any free variable of α then $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$

Proof:

Let α' and β' be the ζ-equivalents of propositions α and β. Let us substitute every intermediary step of the proof of β from α in theory ζ with its ζ-equivalent. Every instance of an axiom of theory ζ is a ζ-equivalent of an axiom λ of theory τ, so we can infer λ's ζ-equivalent of ζ-equivalent in theory τ from λ by adding a double negation before every implication. When the original proof uses noncontraimplication for infering δ from γ and $\neg(\delta \Rightarrow \gamma)$ we can infer δ' from propositions γ' and $\neg\neg(\gamma' \Rightarrow \delta')$ by removal of double negation and detachment. The uses of dual generalization in the original proof are mapped as uses of generalization. In this case we obtain the proof of proposition β' from proposition α' in theory τ in which the generalization rule hasn't been used for any free variable of α'. According to the deduction theorem it holds that $\vdash_\tau (\alpha' \Rightarrow \beta')$. Therefore $\vdash_\zeta \neg(\beta'' \Rightarrow \alpha'')$ in which α'' and β'' are the ζ-equivalents of propositions α' and β'. According to IMT9 the double negations of proposition $\neg(\beta'' \Rightarrow \alpha'')$, which were formed upon replacing the implication forms $(\delta \Rightarrow \gamma)$ of proposition $\neg(\beta'' \Rightarrow \alpha'')$ by corresponding noncontraimplication forms of noncontraimplication forms $\neg\neg(\delta \Rightarrow \gamma)$, may be removed one by one. Thereby $\vdash_\zeta \neg(\beta \Rightarrow \alpha)$.

7.2.14 Metatheorem IMT12: The Fundamental Theorem of Induction

Let α and β be propositions. It holds that $\alpha \vdash_\tau \beta$ so that the proof includes no use of generalization rule for any free variable of α if and only if it holds that $\beta \vdash_\zeta \alpha$ so that the proof includes no use of dual generalization for any free variable of β.

Proof:

If it holds that $\beta \vdash_\zeta \alpha$ with the aforementioned precondition then according to IMT11 it holds that $\vdash_\zeta \neg(\alpha \Rightarrow \beta)$. Therefore $\neg(\alpha \Rightarrow \beta)$ is a contradiction and $(\alpha \Rightarrow \beta)$ is a tautology, so it holds that $\vdash_\tau (\alpha \Rightarrow \beta)$. According to detachment, $\alpha \vdash_\tau \beta$. If it holds that $\alpha \vdash_\tau \beta$ with the aforementioned precondition then, according to the deduction theorem, $\vdash_\tau (\alpha \Rightarrow \beta)$. Therefore $(\alpha \Rightarrow \beta)$ is a tautology and $\neg(\alpha \Rightarrow \beta)$ is a contradiction, so according to IMT10 it holds that $\vdash_\zeta \neg(\alpha \Rightarrow \beta)$. According to noncontradetachment, $\beta \vdash_\zeta \alpha$.

7.2.15 An Example of an Axiomatic Theory of Induction

Let α, β, γ and $\delta(x)$ be propositions and $\delta(t)$ be a proposition in which every free instance of x (if any) is substituted with t in proposition $\delta(x)$.

The example axioms of deduction are:

$$(\alpha \Rightarrow (\beta \Rightarrow \alpha))$$

$$((\alpha \Rightarrow (\beta \Rightarrow \gamma)) \Rightarrow ((\alpha \Rightarrow \beta) \Rightarrow (\alpha \Rightarrow \gamma)))$$

$$((\neg\alpha \Rightarrow \neg\beta) \Rightarrow (\alpha \Rightarrow \beta))$$

$(\forall x(\alpha \Rightarrow \beta) \Rightarrow (\alpha \Rightarrow \forall x(\beta)))$ in which x isn't free in proposition α

$(\forall x(\delta(x)) \Rightarrow \delta(t))$ in which t is free for x in proposition $\delta(x)$

The rules of inference are:

If $\vdash \alpha \Rightarrow \beta$ then $\alpha \vdash \beta$ (detachment).

It holds that $\alpha \vdash \forall x(\alpha)$ (generalization).

The corresponding example axioms of induction are:

$$\neg(\neg(\alpha \Rightarrow \beta) \Rightarrow \alpha)$$

$$\neg(\neg(\neg(\gamma \Rightarrow \alpha) \Rightarrow \neg(\beta \Rightarrow \alpha)) \Rightarrow \neg(\neg(\gamma \Rightarrow \beta) \Rightarrow \alpha))$$

$$\neg(\neg(\beta \Rightarrow \alpha) \Rightarrow \neg(\neg\beta \Rightarrow \neg\alpha))$$

$\neg(\neg(\exists x(\beta) \Rightarrow \alpha) \Rightarrow \exists x(\neg(\beta \Rightarrow \neg\alpha))$ in which x isn't free in proposition α

$\neg(\delta(t) \Rightarrow \exists x(\delta(x)))$ in which t is free for x in proposition $\delta(x)$

The corresponding rules of inference are:

If $\vdash \neg(\beta \Rightarrow \alpha)$ then $\alpha \vdash \beta$ (noncontradetachment).

It holds that $\alpha \vdash \exists x(\alpha)$ (dual generalization).

Chapter 8

Practical Significance of Logiduction

8.1 On Induction in Mathematical *Proving*

Upon studying the basics of number theory one might face the following assignment: "Prove that $1 + x^2 \geq 2x$."

The following would be accepted as an answer:

$1 + x^2 \geq 2x$

$1 - 2x + x^2 \geq 0$

$(1 - x)^2 \geq 0$

Here we have inferred the from the original theorem the theorem $(1 - x)^2 \geq 0$, which is true because the squares of all numbers are non-negative. This is deduction, but as a method it's wrong from a technical point of view. For the following would also be a corresponding deductive proof for the statement $0 = 1$.

$0 = 1$

$1 + 1 = 2$

As above, truth is preserved; $0 = 1 \Rightarrow 1 + 1 = 2$ is a completely valid deductive argument in number theory. But this obviously doesn't suffice for proof.

The validity of the first proof, on the other hand, is based on the fact that it's an *inductive* argument. Every row is the consequence of the following row. Induction preserves falsehood, so if we inductively infer a true statement $(1 - x)^2 \geq 0$ then the premise $1 + x^2 \geq 2x$ must also be true. QED.

This is why it's preferable to write the first proof the other way around in academic mathematics:

$(1 - x)^2 \geq 0$

$1 - 2x + x^2 \geq 0$

$1 + x^2 \geq 2x$

This is a deductive proof, but in the mind of the beginner student it raises the question: "Where is this premise $(1 - x)^2 \geq 0$ coming from?" One very common explanation is that the maker of the proof first made the inductive kind of proof we examined first and then reversed it in order to make a traditional deductive proof.

8.2 On Equiduction in *Solving* Mathematical Equations

Let us consider the task of solving the x-intercepts of polynomial $x^2 - 5x + 6$. Regardless of whether we use the quadratic formula or some other technique we obtain the result $x = 2$ or $x = 3$. Let's consider whether we performed this task deductively. We didn't, because we could have as well presented $x = x$ as the result while fulfilling the criteria of deductive reasoning. Did we obtain the result completely inductively, then? This would appear to be the case because the formula $x^2 - 5x + 6 = 0$ does facilitate the inductive inference of theorems $x = 2$ and $x = 3$. However, it's possible to infer both separately, so it's correct to say: "According to induction, we obtain the result $x = 2$ from the formula $x^2 - 5x + 6 = 0$." This is completely correct although the polynomial also has another root.

If we use equiduction, instead, the initial form $x^2 - 5x + 6 = 0$ and the result must be equivalent. This means we cannot write $x^2 - 5x + 6 = 0 \Leftrightarrow x = 2$ but, instead, must state that $x^2 - 5x + 6 = 0 \Leftrightarrow (x = 2 \vee x = 3)$. We may not present some trivial truth as the solution to the original equation like we may in deduction and we also may not present a partial solution like we may in induction. We must present the whole answer. Arguably, the typical method for solving numeric mathematical problems is *equiductive*, not deductive or inductive.

Chapter 9

Afterword

9.1 On the Future of this Project

The author doesn't have academic credentials aside from having completed high school. He is on disability pension on grounds of having a mental problem. The author is capable of working long hours – perhaps even longer hours than his academic peers do. Given this ability and his outstanding results it seems surprising that the author should be on disability pension. However, currently no agency in the world is interested of funding his research. Therefore the only way he can keep going is to stay on disability pension. If he didn't have the resources needed for conducting research his mental condition would severely deteriorate.

If the author were to get some job that has nothing to do with his research he wouldn't have time for conducting any research at all because he'd be too tired. If he were to study subjects such as philosophy, psychology, logic or computer science in the University this, too, would prevent him from conducting successful research. The curriculum is for people who need to be told what to do. The author isn't that kind of a person.

The author receives free one-on-one expert education on formal logic. As education this is obviously superior to what the University can provide even though it doesn't accumulate course credits. Besides this the author independently studies things he needs to know. He believes his theory could serve as a design pattern of artificial intelligence so he's mostly studying programming. The kind of education the University would have to offer would only be in the way even though obtaining academic credentials or recognition could be useful.

The financial foundation of this project is shaky because the pension is so small. The author spends perhaps the greatest part of his life at home, working. If he somehow lost his computer it would take a long time for him to save enough money to buy a new one. He needs to be asking around for money. Currently he lives in an apartment whose sound insulation is so bad he needs to wear ear plugs and ear muffs all day and even this doesn't block all the noise. Given the merit and importance of his project this isn't an adequate standard of living because the stress caused by poverty amounts to a health risk.

To prove that he's making progress studying programming independently, the author references some unfinished work. He updates the latest version of his programming project at `http://www.moq.fi`. Currently the application only verifies that certain data structures have been formed correctly. Once the application

can perform some function that's interesting on its own he plans to publish it on `http://www.floresta.fi`.

The author began programming in LISP in 2014, personally assisted by an anonymous expert. Now he's programming in JavaScript and no longer requires an assistant. The source code of his latest program should serve as evidence that insofar as we're considered of learning he has certainly spent his time at least as well as it would've been spent in the University. His learning process is partially documented on `https://github.com/TuukkaVirtaperko`.

It's the man's Islamic responsibility to be the provider of his household. In order to fulfill this responsibility the author needs a stable source of funding that's better than his pension or that can be used in conjunction with his pension. He'd need something like a benefactor, a lifetime grant or access to assets which, from a legal point of view, are not his own. Short-term grants are not an option unless there's a reliable and convenient way to keep getting them indefinitely.

The author is worried of the financial status of his project and displeased about needing to have a mental problem, which is exacerbated by his financial situation. He believes he might not have developed any serious mental problem had his research been adequately funded right from the start. He's displeased that disproportionately great funding is available to projects whose value is clearly inferior to that of his.

9.2 The Afterword

This work is not a gift and this work is not a loan. It's a document of where curiosity led two young men. At one point in his life the author would've felt accomplished if he'd gotten an opportunity to meet Robert Pirsig. But this famous author passed away the day our author sent his inconsistency proof of the Metaphysics of Quality to a peer-reviewed journal. The grandfatherly role Bob might have had was assumed by Norwegian Bodvar Skutvik, who was a most pleasant man but a fierce and monomaniacal debater. On the Lila Squad discussion group Bo was the tireless drill sergeant but he was also a self-made man who had to leave the official Metaphysics of Quality mailing list on grounds of insisting on his own ideas so much others couldn't keep up. A few essential people left with him.

So many deaths happen on dates which seem meaningful in a coincidental way. The inventor of modal logic, prestigious academic Jaakko Hintikka, passed away on a day the author crossed a place in Lapland called the Pistol Fell. The criminal and psychedelic cult leader Charles Manson passed away in prison the day the author wrote a Morphogenetic Circuit override to sometimes cause a person to drop an object he's holding in his hand. There's a saying "Don't drop the soap" whose setting is the shower of a vile jail of the United States.

Finally, the author's own grandfather whom he resembles, passed away on International Women's Day. He was an *ISTR* first lieutenant who was described as intelligent and "executive" in the sense of making things happen. Various details about him suggest he wanted to fight the war and may have specifically liked killing.

The war changed him for the worse. He died long before the author was born but he more than any other ghost visits the author and doesn't rest in peace. He makes funny faces and shouts things.

Ghosts can express themselves in ways which aren't feasible for the living. Their eyes may shine like stars and they may fly in the air. The ghost of a certain woman even takes the form of a pixelated decapitated head which is floating in the air, dripping blood and smiling. But this woman doesn't visit the author as often as his grandfather does. His advice once saved the author. The grandfather began visiting more frequently after a shaman had facilitated finding him somewhere in the spirit world. He was in his military uniform. Upon finding him the author stabbed him to death with a dagger. When he came back, the first thing he said was: "Already dead!" He said this in English, in a tone both impertinent and assertive. Perhaps he spoke English because this was the only language the author shared with the shaman. That particular message is more concise in English but usually he speaks Finnish.

Some of us are alive. The other man besides the author had met the author in a dream when both of them were still in high school or junior high. The building which contained both of these schools was infested by space aliens. The author was a space marine who was fighting them. The seer was stationed near the schoolyard next to a machine which was so large as to resemble a building. The author needed to intermittently visit the seer who maintained this machine, for the important resources it produced.

During the process of writing this book while living the life of a married man the author also saw a dream. It was his birthday. One of the guests was a young woman who seemed to want to make out with him but didn't get around to actually doing anything. She approached him several times until the author chose to get upset and drove all the guests away. This wasn't an impulsive decision but in retrospect it still didn't feel like the right decision. The woman had apparently genuinely wanted to approach him and didn't mean to tease him but some external circumstance had went wrong each time.

The author's mom wanted to console him after the guests had left. The birthday party had featured some spectacle in which guests had been racing cars in a sandpit. Also some videos about this had been filmed. After the guests were gone the author destroyed these videos in the kitchen with mom. Dad was also there. Mom had already broken something else for starters. The floor got covered in plastic shards, and the cassettes were destroyed. The author admitted he'd never become good at racing in a sandpit anyway. When the birthday was already ruined his brother mocked him by calling him a pensioner but it didn't scathe.

Contrary to his usual habits, the author had picked mushrooms. He'd left them on an island inside a tent. It occurred to him to put the mushrooms into the fridge so they wouldn't spoil, so he hopped on necks of land covered in moss wearing walking shoes until he reached the island once again. Someone else was also there. But sadness made the author so absent-minded he forgot the mushrooms on the porch of their cottage with the lid of the jar open.

Two pretty Russian women biked past him. They turned heads. They were followed by family friends, a mother and a father, mother first. The author had intended to talk to the Russian women after stopping by at a Russian restaurant but going to this restaurant

turned out to be so time-consuming the women would've been too far away.

People were singing in the restaurant. But they were also told about a boy who had hit his head against an ornamental window frame upon jumping out of an apartment window. He had tried to descend by a rope which was made of torn bed sheets that had been tied together. What had happened to him was so bad it couldn't have been any worse. The infographic showed him floating in the air utterly still and stiff, upside down, only his feet and belly showing from the window.

There was a magazine with a picture of a blonde. The article included a warning about the hip-to-waist ratio. It also instructed not to call these females girls or women but "lissu". This article was in Finnish.

The author went to the opera with his parents. Dad put his hand on the author's shoulder to express support for him on his birthday. But the author told him not to touch. Dad replied in Finnish: "My heart weeps blood. But I am not like papá." This was interesting – the author hadn't known "papá" had been "like that".

The author had been angry at his dad because he already knew such females as those in the magazine ought to be called "lissu" but suspected his dad doesn't know that.

In the Russian restaurant there was a lecture about the attributes of cenotaphs. This was a fun performance on the screen. When there were enough small cenotaphs they merged into one big cenotaph. The big cenotaphs grew in various directions – they became wide and high and light shone from the hyperbolic mirrors inside them.

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