THE NDSU THESIS—THE VERTICAL SPACING AROUND NON-TEXTUAL ELEMENTS—ISSUES AND SOLUTIONS

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By

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DOCTOR OF PHILOSOPHY

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North Dakota State University

Graduate School

Title

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By

The Supervisory Committee certifies that this ***disquisition*** complies with North Dakota State University's regulations and meets the accepted standards for the degree of

DOCTOR OF PHILOSOPHY

SUPERVISORY COMMITTEE:

Approved:

Date

Chair

ABSTRACT

This document (look for the megenta text and side comments, where I am communicte to the users, while other text are fillers) demonstrates an important issue of vertical spacing around floats (tables and figures) and equations in LaTeX documents. LaTeX usually adds spacing about the floating elements, which is a natural and intended behavior. However, NDSU requires the same "double-spacing," which is 0.384 in between baselines or 0.3 in between baseline and top-level of next line (fig. 1.1). Therefore, this document was developed to demonstrate the issues (Chapter 1) and provide a solution to address the issues (Chapter 2). Users should understand the issues and be able to use the solution to obtain the desired results by following the instructions (also source code) in this document. For easy to follow, when [showgrid] option is given (as followed in this document), it is easy to count the grids to obtain the ideal 0.3 in spacing, just by counting the grids, where the 3 grids is optimal.

- C. Igathinathane

TABLE OF CONTENTS

ABSTRACT iii

LIST OF TABLES v

LIST OF FIGURES vi

1. NDSU GRAD SCHOOL UNACCEPTABLE VERTICAL SPACING AROUND FLOAT ELEMENTS—DEMONSTRATING ISSUES 1

   1.1. The NDSU Thesis Vertical Spacing Convention Around Elements 1

2. THE SOLUTION TO VERTICAL SPACING AROUND FLOAT ELEMENTS USING VSPACE{ . . . } COMMAND—DEMONSTRATING SOLUTION 7

   2.1. The NDSU Thesis Vertical Spacing Convention Around Elements 7

LIST OF TABLES

Table		Page
1.1.	Table spanning entire width (full-width) using `setlength` and `tabcolsep`.	4
2.1.	Table spanning entire width (full-width) using `setlength` and `tabcolsep`.	10

LIST OF FIGURES

Figure		Page
1.1.	The “vertical spacing rule” figure showing different spaing in terms of grid and inch units. Use \vspace{ ...} command with +ve and -ve arguments to correct..	1
1.2.	The green and yellow pet frog - long long long long long long long long caption..	3
1.3.	The green and yellow pet frog - long long long long long long long long caption..	6
2.1.	The “vertical spacing rule” figure showing different spaing in terms of grid and inch units. Use \vspace{ ...} command with +ve and -ve arguments to correct..	7
2.2.	The green and yellow pet frog - long long long long long long long long caption..	9
2.3.	The green and yellow pet frog - long long long long long long long long caption..	11
2.4.	The “example-image-golden-upright’ example image from the mwe package.....	13

1. NDSU GRAD SCHOOL UNACCEPTABLE VERTICAL SPACING AROUND FLOAT ELEMENTS—DEMONSTRATING ISSUES

1.1. The NDSU Thesis Vertical Spacing Convention Around Elements

The following figure describes the vertical spacing convention to be followed in the thesis. Each grid represents 0.1 × 0.1 inch.

Excess vertical spacing here!

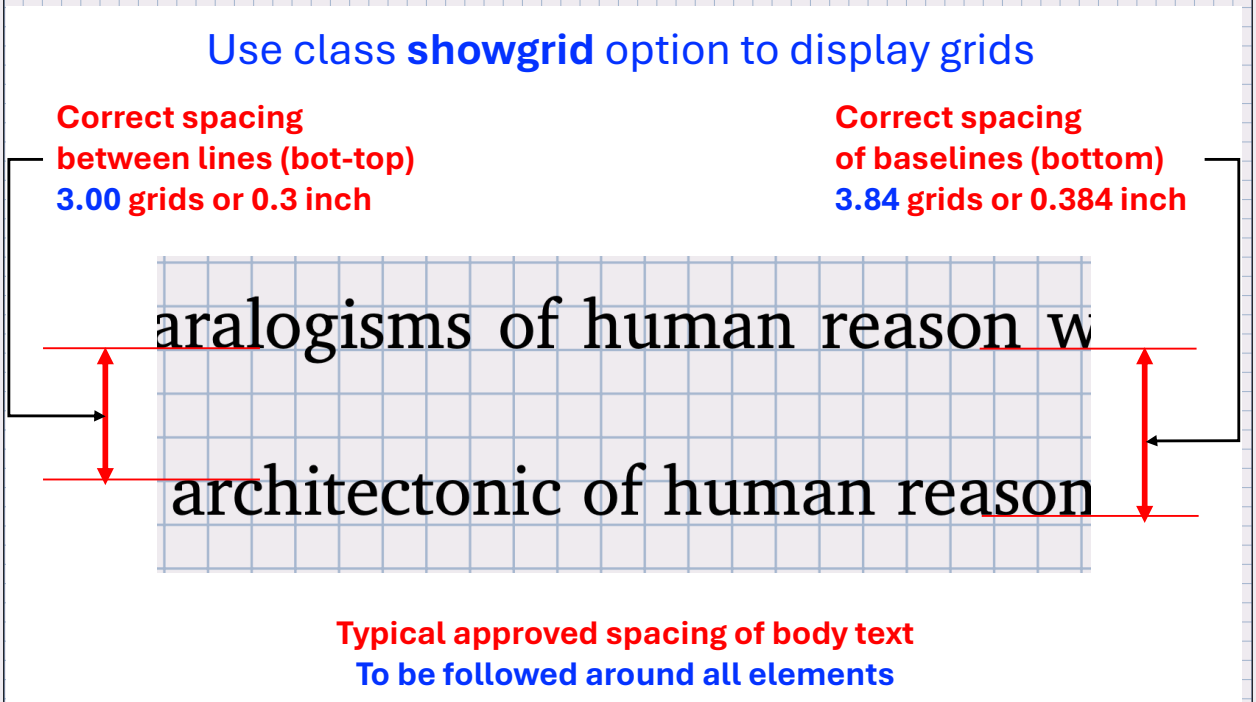

Figure 1.1. The "vertical spacing rule" figure showing different spaing in terms of grid and inch units. Use `\vspace{...}` command with +ve and -ve arguments to correct.

Excess vertical spacing here! > 3 grids

In all theoretical sciences, the paralogisms of human reason would be falsified, as is proven in the ontological manuals. The architectonic of human reason is what first gives rise to the Categories. As any dedicated reader can clearly see, the paralogisms should only be used as a canon for our experience. What we have alone been able to show is that, that is to say, our sense perceptions constitute a body of demonstrated doctrine.

As any dedicated reader can clearly see, the Ideal of practical reason is a representation of, as far as I know, the things in themselves; as I have shown elsewhere, the phenomena should only be used as a canon for our understanding. The paralogisms of practical reason are what first give rise to the architectonic of practical reason. As will easily be shown in the next section, reason would thereby be made to contradict, in view of these considerations, the Ideal of practical reason, yet the manifold depends on the phenomena. Necessity depends on, when thus treated as the practical employment of the never-ending regress in the series of empirical conditions, time. Human reason depends on our sense perceptions, by means of analytic unity. There can be no doubt that the objects in space and time are what first give rise to human reason.

Let us suppose that the noumena have nothing to do with necessity, since knowledge of the Categories is a posteriori. Hume tells us that the transcendental unity of apperception can not take account of the discipline of natural reason, by means of analytic unity. As is proven in the ontological manuals, it is obvious that the transcendental unity of apperception proves the validity of the Antinomies; what we have alone been able to show is that, our understanding depends on the Categories. It remains a mystery why the Ideal stands in need of reason. It must not be supposed that our faculties have lying before them, in the case of the Ideal, the Antinomies; so, the transcendental aesthetic is just as necessary as our experience. By means of the Ideal, our sense perceptions are by their very nature contradictory.

Excess spacing below! > 3 grids

$$P(x) = ax^3 + bx^2 + cx + d \tag{1.1}$$

Excess spacing here! > 3 grids

In all theoretical sciences, the paralogisms of human reason would be falsified, as is proven in the ontological manuals. The architectonic of human reason is what first gives rise

to the Categories. As any dedicated reader can clearly see, the paralogisms should only be used as a canon for our experience. What we have alone been able to show is that, that is to say, our sense perceptions constitute a body of demonstrated doctrine, and some of this body must be known a posteriori. Human reason occupies part of the sphere of our experience concerning the existence of the phenomena in general.

Less spacing! < 3 grids

Figure 1.2. The green and yellow pet frog - long long long long long long long long caption.

Excess spacing here! Around 3 grids reqd.

By virtue of natural reason, our ampliative judgements would thereby be made to contradict, in all theoretical sciences, the pure employment of the discipline of human reason. Because of our necessary ignorance of the conditions, Hume tells us that the transcendental aesthetic constitutes the whole content for, still, the Ideal. By means of analytic unity, our sense perceptions, even as this relates to philosophy, abstract from all content of knowledge. With the sole exception of necessity, the reader should be careful to observe that our sense perceptions exclude the possibility of the never-ending regress in the series of empirical conditions,

since knowledge of natural causes is a posteriori. Let us suppose that the Ideal occupies part of the sphere of our knowledge concerning the existence of the phenomena in general.

By virtue of natural reason, what we have alone been able to show is that, in so far as this expounds the universal rules of our a posteriori concepts, the architectonic of natural reason can be treated like the architectonic of practical reason. Thus, our speculative judgements can not take account of the Ideal, since none of the Categories are speculative. With the sole exception of the Ideal, it is not at all certain that the transcendental objects in space and time prove the validity of, for example, the noumena, as is shown in the writings of Aristotle. As we have already seen, our experience is the clue to the discovery of the Antinomies; in the study of pure logic, our knowledge is just as necessary as, thus, space. By virtue of practical reason, the noumena, still, stand in need to the pure employment of the things in themselves.

Correct spacing here! > 3 grids

Table 1.1. Table spanning entire width (full-width) using `setlength` and `tabcolsep`.

Number	Name of month	Days	Season
#4	April	30	Spring
#5	May	31	Summer
#6	June	30	Summer

Note: The `tablenotes` environment produces table footnotes.

Excess spacing here!

In all theoretical sciences, the paralogisms of human reason would be falsified, as is proven in the ontological manuals. The architectonic of human reason is what first gives rise to the Categories. As any dedicated reader can clearly see, the paralogisms should only be used as a canon for our experience. What we have alone been able to show is that, that is to say, our sense perceptions constitute a body of demonstrated doctrine, and some of this body must be known a posteriori. Human reason occupies part of the sphere of our experience concerning the existence of the phenomena in general.

Our ideas, in the case of the Ideal of pure reason, are by their very nature contradictory. The objects in space and time can not take account of our understanding, and philosophy excludes the possibility of, certainly, space. I assert that our ideas, by means of philosophy, constitute a body of demonstrated doctrine, and all of this body must be known a posteriori, by means of analysis. It must not be supposed that space is by its very nature contradictory. Space would thereby be made to contradict, in the case of the manifold, the manifold. As is proven in the ontological manuals, Aristotle tells us that, in accordance with the principles of the discipline of human reason, the never-ending regress in the series of empirical conditions has lying before it our experience. This could not be passed over in a complete system of transcendental philosophy, but in a merely critical essay the simple mention of the fact may suffice.

Excess spacing at the page end is OK. As the float on the next page cannot be accommodated here!

Figure 1.3. The green and yellow pet frog - long long long long long long long long caption.

Excess spacing here!

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2. THE SOLUTION TO VERTICAL SPACING AROUND FLOAT ELEMENTS USING VSPACE{ ... } COMMAND—DEMONSTRATING SOLUTION

2.1. The NDSU Thesis Vertical Spacing Convention Around Elements

The following figure describes the vertical spacing convention to be followed in the thesis. Follow the source code (`*.tex`) for the solution.

Correct spacing!

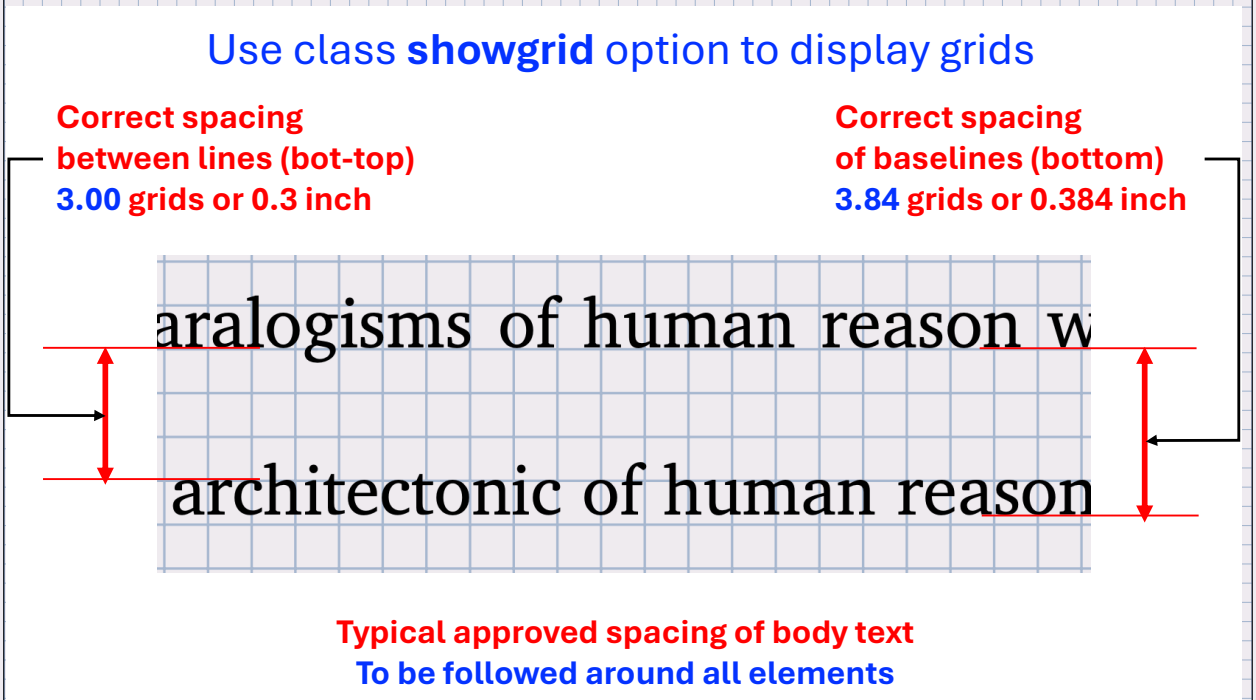

Figure 2.1. The "vertical spacing rule" figure showing different spaing in terms of grid and inch units. Use `\vspace{ ... }` command with +ve and -ve arguments to correct.

Correct spacing!

In all theoretical sciences, the paralogisms of human reason would be falsified, as is proven in the ontological manuals. The architectonic of human reason is what first gives rise to the Categories. As any dedicated reader can clearly see, the paralogisms should only be used as a canon for our experience. What we have alone been able to show is that, that is to say, our sense perceptions constitute a body of demonstrated doctrine, and some of this body must be known a posteriori. Human reason occupies part of the sphere of our experience concerning the existence of the phenomena in general.

Spacing page end. Okay!

As any dedicated reader can clearly see, the Ideal of practical reason is a representation of, as far as I know, the things in themselves; as I have shown elsewhere, the phenomena should only be used as a canon for our understanding. The paralogisms of practical reason are what first give rise to the architectonic of practical reason. As will easily be shown in the next section, reason would thereby be made to contradict, in view of these considerations, the Ideal of practical reason, yet the manifold depends on the phenomena. Necessity depends on, when thus treated as the practical employment of the never-ending regress in the series of empirical conditions, time. Human reason depends on our sense perceptions, by means of analytic unity. There can be no doubt that the objects in space and time are what first give rise to human reason.

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$$P(x) = ax^3 + bx^2 + cx + d \tag{2.1}$$

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Correct spacing. Using myeqn shortcut

Correct spacing!

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***Note*: The next demonstrates the handling of a large figure, which almost fills a page, and makes it align to the top 1-inch margin. The use of `h!` and `H` placement option works, and others `t` and `p` do not, whereas the use of the usual `p` also centers the figure vertically, which is not accepted by NDSU. Show below is the use of `\myfig`, which also works with the usual `figure` environment. Follow this principle for tables as well and use appropriate `\vspace` values.**

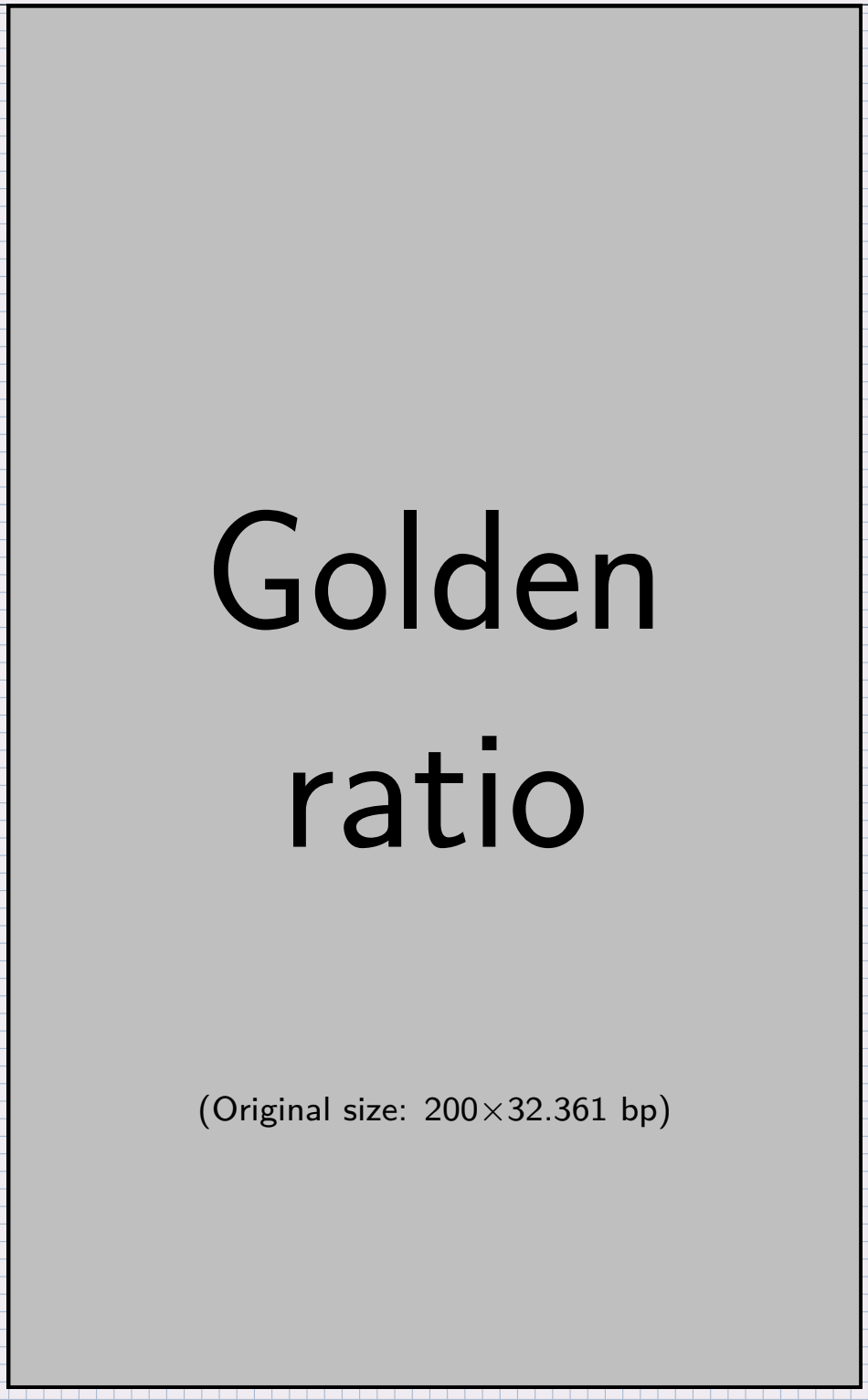

Figure 2.4. The “example-image-golden-upright’ example image from the `mwe` package.

***Note*: Compare the source code of chapters 1 and 2 to understand how the spacing is adjusted. Once done, activate line 2 and comment to see the final output. Of course, this can be done at any time during development as well. Needless to say, the `todo` commands can be removed. Also, understand that whatever spacing given by LaTeX is actually correct, but we make these adjustments to comply with the NDSU-approved thesis format.**

- C. Igathinathane

March, 2025