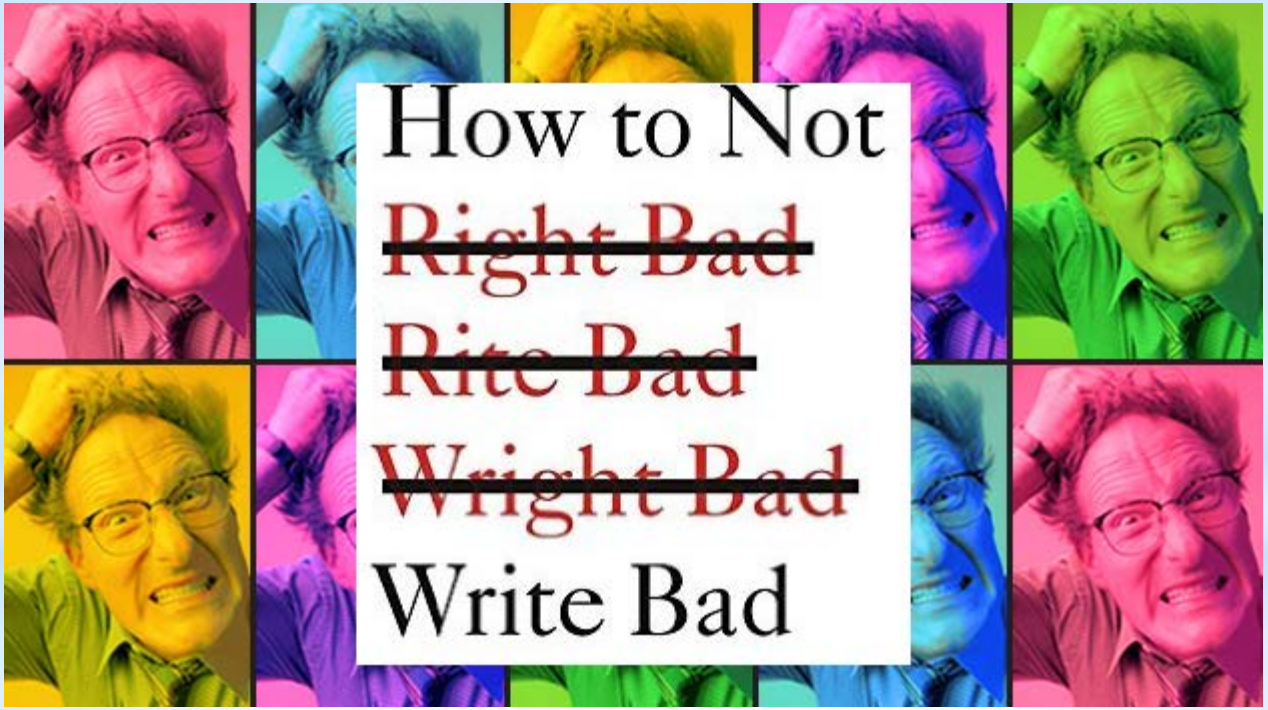
قلط و بد ننویسم!



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Content

Now let $\Psi = \phi_2 \circ \phi_1$ be the decomposition of Ψ as in Lemma 2.3. Using Proposition 2.2 for ϕ_1 we have

$$[\phi_1(\rho A^2) - \phi_1(\rho A)^2][\phi_1(\rho B^2) - \phi_1(\rho B)^2] \geq \frac{1}{4}|\phi_1(\rho[A, B])|^2.$$

Using the commutativety of range of ϕ_1, we therefore have

$$[\phi_1(\rho A^2) - \phi_1(\rho A)^2] \sharp [\phi_1(\rho B^2) - \phi_1(\rho B)^2] \geq \frac{1}{2}|\phi_1(\rho[A, B])|. \tag{2.3}$$

Using the latter inequalities and the positivity of ϕ_2 and ϕ_1 we have

$$\begin{aligned}
V_\rho(A) \sharp V_\rho(B) &= [(\Psi\rho A^2) - \Psi(\rho A)^2] \sharp [\Psi(\rho B^2) - \Psi(\rho B)^2] \\
&= [\phi_2 \circ \phi_1(\rho A^2) - \phi_2 \circ \phi_1(\rho A)^2] \sharp [\phi_2 \circ \phi_1(\rho B^2) - \phi_2 \circ \phi_1(\rho B)^2] \\
&\geq \phi_2(\phi_1(\rho A^2) - \phi_1(\rho A)^2) \sharp \phi_2\left(\phi_1(\rho H^2) - \phi_1(\rho H)^2\right) \\
&\qquad \text{(by Lemma 2.4)} \\
&\geq \phi_2\Big(\phi_1(\rho A^2) - \phi_1(\rho A)^2 \sharp [\phi_1(\rho B^2) - \phi_1(\rho B)^2\Big) \\
&\qquad \text{(by inequality 1.4)} \\
&\geq \frac{1}{2}\phi_2(|\phi_1(\rho[A, B])|) \\
&\qquad \text{(by inequality (2.3))} \\
&\geq \frac{1}{2\sqrt{K_{m,M}([A, B])}}|\phi_2 \circ \phi_1(\rho[A, B])| \\
&\qquad \text{(by inequality (2.2))} \\
&= \frac{1}{2\sqrt{K_{[m,M]}([A, B])}}|\Psi(\rho[A, B])|.
\end{aligned}$$

□

Next we want to give two generalization for inequality (1.3). To get these generlization we need many definitions and lemmas. For a tracial positive linear map Ψ and observable operator A we define $J_\rho(A) := 2V_\rho(A) - I_\rho(A)$. It is known that $V_\rho(A) = \frac{J_\rho(A) + I_\rho(A)}{2}$ and $U_\rho(A) := I_\rho(A) \sharp J_\rho(A)$.

Lemma 2.7. *Let $\mathcal{A}$ be a C^*-algebra and $\mathcal{B}$ be a C^*-subalgebra of $\mathcal{A}$. If $\mathcal{E} : \mathcal{A} \longrightarrow \mathcal{B}$ is a tracial conditional expectation, then*

$$U_\rho(A)U_\rho(B) \geq \frac{1}{4}|\mathcal{E}(\rho[A, B])|^2 \tag{2.4}$$

for all observable operators $A, B \in \mathcal{A}$ and $\mathcal{E}$-density operator $\rho \in \mathcal{A}$.

Proof. Let $A_0 = A - \mathcal{E}(\rho A)$ and $B_0 = B - \mathcal{E}(\rho B)$. A simple calculation shows that

$$I_\rho(A) = \frac{1}{2}\mathcal{E}(i[\rho^{\frac{1}{2}}, A]), J_\rho(B) = \frac{1}{2}\mathcal{E}(\{\rho^{\frac{1}{2}}, B\})$$

Remark

We and I

Use **we** instead of **I**. If necessary, write “**the author**”.

Formulas

Writing clearly (I)

The set of real numbers is considered. **X**

The reader may ask, ‘considered by who?’

We consider the set of real numbers.✓
Consider the set of real numbers.✓

Bad: “*f(x)=5.*”
Good*: “f(x)=5* for some real number *x.*”

Writing clearly (II)

Bad:
Inserting this expression in (1):

$$n^2 - 1 = 8j$$

which is what we were required to prove.

Good:
Inserting this expression in (1), we find

$$n^2 - 1 = 8j$$

as desired.

Bad: *sin x>0*
Good*: sin x>0*, because *x* is positive

Separate formulae

Separate symbolic expressions with words

Bad: Now consider $f(x)$, $x < 0$.

Good: Now consider $f(x)$, where $x < 0$.

Start a sentence

Do not begin a sentence with a formula or notation.

x is positive, so it has a square root. ☹

☺ Since x is positive, it has a square root.

One solution is $f(x) = \sin x$. f is periodic.☹

☺One solution is $f(x) = \sin x$. In this case, f is periodic.

Unused notation

Do not write any unnecessary notation

Every differentiable function f is continuous. ☹

☺ Every differentiable function is continuous.

Use of Compatible Notation

Let X be a set, and pick an element of X, say t. ☹

Let X be a set, and pick an element of X, say x. ☺

Format of Formulas

Writing formulas in nice format

☹

$$(x + 1)^3 = (x + 1)^2(x + 1) = (x^2 + 2x + 1)(x + 1) = x^3 + 3x^2 + 3x + 1.$$

or

$$(x + 1)^3 = (x + 1)^2(x + 1)$$
$$(x + 1)^3 = (x^2 + 2x + 1)(x + 1)$$
$$(x + 1)^3 = x^3 + 3x^2 + 3x + 1.$$

☺

$$(x + 1)^3 = (x + 1)^2(x + 1)$$
$$= (x^2 + 2x + 1)(x + 1)$$
$$= x^3 + 3x^2 + 3x + 1$$

Writing numbers

When using numbers as an adjective, write them out in full; when referring to specific numbers as nouns, use numerals.

Examples

In this paper, we consider two distinct cases.

There is the only one even prime: the number 2.

Important Formulas

When you want to use a formula, write it in the center of a line and assign a tag (formula number) to it.

For all $A, B \in \mathbb{B}(\mathscr{H})$ and $X \in \mathcal{J}$,

$$|||AXB||| \leq ||A||\ |||X|||\ ||B|| \ . \tag{1.1}$$

No problem to write small formulas inside the text.

Paragraphs

- Start paragraphs and sections with a good sentence (perhaps emphasising a key point in your argument);

- Each paragraph should correspond to one particular idea

Grammar

Verb tense errors

Use present tense, usually, unless reporting results achieved in earlier papers.

In this paper, we used a new method and present some generalizations of the Banach theorem. In addition, we applied some known results which are given by Hahn.

WRONG: *In 2008 Fox ~~has shown~~ that...*

RIGHT: *In 2008 Fox showed that...*

Syntax of verbs (I)

Bad: Let *y=f(x)* is a function.
Good: Let *y=f(x)* be a function.

WRONG: *This lemma allows to prove the theorem.*

RIGHT: *This lemma allows us to prove the theorem.*

This lemma allows proving the theorem without the use of (2)

WRONG: *Section 3 is devoted to prove this theorem.*

RIGHT: *Section 3 is devoted to proving this theorem.*

Syntax of verbs (II)

WRONG: *The possibility ~~to obtain~~ a better bound.*

RIGHT: *The possibility of obtaining a better bound.*

WRONG: *We should ~~avoid to use~~ (2) here, because...*

RIGHT: *We should avoid using (2) here, because...*

Noun/Pronoun Errors

Bad: "Anna or Mike are going skiing."
Good: "Anna or Mike is going skiing."

Bad: "Everyone are studious."
Good: "Everyone is studious."

Bad: "X, Y is operators."
Good: "X, Y are operators."

Bad: "One of roots are 3."
Good: "One of roots is 3."

Use of synonyms

The use of synonyms helps to make the material more interesting.

Some synonyms for deduction are:

'hence, so, it follows, it follows that, as a result, consequently, therefore, thus, accordingly, then.'

Synonyms for explanations are:

'as, because, since, due to, in view of, owing to.'

Double Negatives

Bad: “I *don't* want *no* pudding.”

Good: “I don’t want any pudding.” or

“I want no pudding.”

WRONG: *Every subspace of V is not of the form (3).*

RIGHT: *No subspace of V is of the form (3).*

Articles (I)
("the" and "a" or "an")

Use "The" for a spicific thing mentioned earlier, other wise use "a" or "an" depending on pronunciation and not spelling.

Examples:

- "by a proposition of Banach" (when we don't know which proposition is meant)
- "by the Banach-Tarski proposition" (as there is only one of these).
- An *x*
- *A* university

Bad: Suppose that *A* is the system.

Good: Suppose that *A* is a system.

Bad: Let X be a set. A set X is called …

Good: Let X be a set. The set X is called …

Articles (II)
("the" and "a" or "an")

WRONG: *The function $-e^{-x}$ ~~is derivative~~ of e^{-x}.*

RIGHT: *The function $-e^{-x}$ is the derivative of e^{-x}.*

WRONG: *~~Such operator~~ is defined by...*

RIGHT: *Such an operator is defined by...*

WRONG: *In ~~the Section~~ 2*

RIGHT: *In Section 2*

Articles (III)
("the" and "a" or "an")

WRONG: *There is a ~~finite number~~ of elements such that...*

RIGHT: *There are a finite number of elements such that...*

WRONG: *The ~~number of the solutions~~ of* (1)*; the ~~set of the solutions~~ of* (1)

RIGHT: *The number of solutions of* (1)*; the set of solutions of* (1)

Prepositions (I)

حروف اضافه

WRONG: *We can ~~join a with~~ b by a path π.*

RIGHT: *We can join a to b by a path π.*

WRONG: *..., which ~~contradicts~~ to Theorem 2.*

RIGHT: *..., which contradicts Theorem 2.*

WRONG: *Then F ~~is equal~~ B.*

RIGHT: *Then F is equal to B.*

or

Then F equals B.

Prepositions (II)

WRONG: *We shall prove this in the ~~end of~~ Section 3.*

RIGHT: *We shall prove this at the end of Section 3.*

WRONG: *Then F is ~~greater or~~ equal to* 3.

RIGHT: *Then F is greater than or equal to* 3.

WRONG: *~~Independent~~ on x*

RIGHT: *Independent of x*

Word Order

WRONG: *We will prove in Section 4 Theorem 3.*

RIGHT: *We shall prove Theorem 3 in Section 4.*

WRONG: *We can prove easily Theorem 3 by applying* (2).

RIGHT: *We can easily prove Theorem 3 by applying* (2).

WRONG: *The two following sets*

RIGHT: *The following two sets*

WRONG: *We now list all the involved functions.*

RIGHT: *We now list all the functions involved.*

Who and Whom

Who

for "he", "she" and "they"

Whom

for "him", "her", them" or an object

For example,

"To _____ it may concern" or

"_____ went to the store?"

For example,

"To whom it may concern" or

" Who went to the store?"

Which and That

Use “that” (or “which”) when we deal with a restrictive clause. In the case of non- restrictive clause use “which”.

Example:

- *The house that I grew up in was blue.*
- Leap years, which have 366 days, contain an extra day in February.

Every or Any

Use any in negative sentences.
Example: You cannot eat any thing!

Every has to be followed by a singular noun.

WRONG: *For ~~every two maps~~ f and g.*

RIGHT: *For any two maps f and g.*

WRONG: Every cows is black.

RIGHT: Every cow is black.

First or At first

WRONG: ~~*At first, we prove* (2).~~

RIGHT: *First, we prove* (2).

At first is used when you are talking about what happens in the early stages of an event, in contrast to what happens later.

Example: It might seem at first that the non-compactness is not an obstacle.

Above and Below

“Above” and “below” are not adjectives.

Bad: “We have the below property.”

Good: “We have the property below.”

Do not start a sentence with

“and“

Punctuation

Blank

Parentheses or brackets are always surrounded by a space:

Bad: "The experiment(Fig. 7)shows"

Good: "The experiment (Fig. 7) shows"

There is always space after punctuation, but not before.

Bad: In this paper ,we have

Good: In this paper, we have

Apostrophe

In formal writing, contractions like *don't*, *doesn't*, *won't* or it's are generally avoided.

Be careful not to confuse its with it's (it is).

Bad: “The Einstein’s method states that …”
Good: “Einstein’s method states that …”
or
“The Einstein method states that …”

Use of comma (I)

- Use a comma to separate the elements in a series (three or more things).

Example: "He hit the ball, dropped the bat, and ran to first base."

- Use a comma and a little conjunction (and, but, for, nor, yet, or, so).

Example: "He hit the ball well, but he ran toward third base.“

- Use a comma to set off parenthetical elements followed by which, where, etc.

Example: “This function, which is even, is derivative.”

Use of comma (II)

Therefore, *however*, *hence* and *thus* are usually followed by a comma,
Example: "Therefore, our idea should not be implemented."

"i.e." and "e.g." are always followed by a comma.

Example: Smith proved this theorem, see e.g., [1].

"respectively" should be preceded by a comma
Example: "The X and Y are positive and negative, respectively."

If you use “if”, then use “then”.

Bad: “*If x is odd, x+4 is also odd*”
Good*: “If x is odd, then x+4 is also odd*”

Use of Full stop

Use full stop at the end of any complete sentence and formula.
Start the next word with an upper case letter

Bad: Let x = 2y+3, then x is positive.

Good: Let x = 2y+3. Then x is positive.

Bad: If a>0 and b>0, then
a+b>0

Good: If a>0 and b>0, then
a+b>0.

“etc.” and “et al.”

While both these Latin abbreviations can be read as ‘and others’ in English, the first refers to objects and the second to people.

Examples

We consider countable subsets of the real numbers, such as $\mathbb{Z}$, $\mathbb{Q}$, etc.

This result was proved by Smith et al.

Abbreviation

“i.e.” and “e.g.”

Don’t confuse these abbreviations. ‘i.e.’ means ‘that is’ and ‘e.g.’ means ‘for example’.

Examples

This is the set of real numbers strictly between 0 and 1 (i.e. the open unit interval).

We consider an open subset of the real numbers (e.g. the open unit interval).

Abbreviation (I)

تلخيص

- Check that your abbreviations are always explained before use.
- Section, Figure and Table are capitalized, as in "As discussed in Section 3".
- Do not use the abbreviation “resp.” for “respectively”.

Abbreviation (II)

- Avoid silly abbreviations, or the misuse of standard notations.

Bad: When n is $\int$, $2n$ is an even number.

Good: When n is integral, $2n$ is an even number.

Bad: Let z be a $\mathbf{C}$.

Good: Let z be a complex number.

- Expand out all abbreviations such as iff (if and only if), iid (independent, identically distributed).

Abbreviation (III)

Abbreviation	Latin term	English translation
i.e.	id est	that is
e.g.	exempli gratia	for example
cf.	confer	compare
n.b.	nota bene	note well (or just note)
q.v.	quod vide	which see
viz.	videlicet	namely
et al.	et alii	and others

Abbreviation (IV)

Use of verbs instead of lots of terms

verbose, weak verbs, bad	short, strong, good
make assumption	assume
is a function of	depends on
is an illustration	illustrates, shows
is a requirement	requires, need to
has difference	differes

Citations

References (I)

مراجع

Bad: "Reference [1] shows" or "[1] shows“

Good: "Smith [1] showed“

"Smith and Jones [1] showed"

"Smith *et al.* [1] showed"

Bad: "I.G. Gelfand [5] studied"

Good: "Gelfand [5] studied"

Bad: “It is known that X is a Banach space [1]

Good: “It is known that X is a banach space; see [1, p. 76]

“It is known that X is a banach space; cf. [1, p. 76]

References (II)

- References should be consistent: all authors should either be given with their full name (John Doe) or abbreviated (J. Doe), but not combinations.
- Check your references to make sure they are up to date.
- All references must use consistent capitalization for the paper titles.
- Conference references should contain the location of the conference, the month.
- Journal references always contain the volume, issue number and pages.

Address

Affiliation

آدرس

Bad: Moslehian, Ferdowsi Univ., Mashhad, IRAN

Good: M.S. Moslehian, Department of Pure Mathematics, Center Of Excellence in Analysis on Algebraic Structures (CEAAS), Ferdowsi University of Mashhad, P. O. Box 1159, Mashhad 91775, Iran

Note

Proofreading

بازخوانی

Read your papre several times

ON GROUP THEORY

JAVADE MASHHADI

Abstract. In thise paper, we establish necessary and sufficent conditions for the existence of solutions to the operator equation $BXA = B = AXB$ for linear bounded operators on Hilbert space, where the unknown operator X is called the invers of A along B. Afther that we determin the solution of the equation $BXA = B = AXB$ by the solution of the equation $AXA = A$ subject to $A_{\mathcal{H}}B$.

منطقی

با تشکر از توجه شما

مراجع و ماخذ

We extensively use some parts and examples of the following sources in this talk. I would like to thank their authors for putting them on the internet.

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