

Getting picky about how to mention expressions

If we want to talk about some particular sentences:

i. If Snow falls and Wind blows are sentences, then Snow falls and wind blows is a sentence.

The base color for our metalanguage sentence is red. The non-red, underlined expressions here are ones we'll be thinking about. Should they be quoted or something?

In this case the answer is clear, no subtlety is needed. Yes, the underlined bits should be quoted:

i. If "Snow falls" and "Wind blows" are sentences, then "Snow falls and wind blows" is a sentence.

The expression:

"Snow falls"

is a singular term in the red metalanguage, that refers to a sentence in the object language.

Instead of quoting, a different convention we could employ is using a different typeface. This is how I will sometimes write it on the whiteboard in seminar:

i. If Snow falls and Wind blows are sentences, then Snow falls and wind blows is a sentence.

And this is how I will usually write it in the web notes:

i. If *Snow falls* and *Wind blows* are sentences, then *Snow falls and wind blows* is a sentence.

Now consider:

ii. If S1 and S2 are sentences, then S1 and S2 is a sentence.

How should the underlined parts here get marked up, for the sentence to be well-formed and correct?

If *S1* and *S2* (or, if you like, **S1** and **S2**) are *particular* sentence letters in your language, then this should be treated just as the preceding. Any of these would be fine:

ii. If "S1" and "S2" are sentences, then "S1 and S2" is a sentence.

ii. If **S1** and **S2** are sentences, then **S1 and S2** is a sentence.

ii. If *S1* and *S2* are sentences, then *S1 and S2* is a sentence.

But now what if *S1* and *S2* are meant to *generalize* in some way over particular sentences (the more likely intended meaning)? To keep things simple, let's suppose that *S1* and *S2* are not themselves *also* part of the concrete syntax of the object language.

First, we might think of *S1* and *S2* as metalanguage terms or variables that *designate* sentences. Like pronouns:

iii. If S1 and S2 are sentences, then ...

Then those underlined should be red (along with rest of sentence): no italics or quotes. It's just like using a pronoun or demonstrative:

iii. If those expressions [pointing] are sentences, then ...

But now how should the sentence continue?

iii. ... then S1 and S2 is a sentence.

If we mark up the underlined bit in red: that's no good. It'd be like saying "John and Mary is a person."

If we mark it up in blue/italics/quoted: that's no good, then it'd be about some particular sentences *S1* and *S2* which as we said *aren't* part of the object language.

The solution:

iii. ... then S1 ^^ ' and ' ^^ S2 is a sentence.

or:

iii. ... then S1 ^^ _and_ ^^ S2 is a sentence.

The underlined parts here still in red. We concat the designated sentences with a literal string, here indicated using quotes or blue typeface. (I made the blue spaces look like this:)

Alternatively, what if we instead think of *S1* and *S2* not as metalanguage terms but as *schema variables*, like my Greek letters or green typeface?

* One strategy: Using (corner) quotes:

iv. If "*S1*" and "*S2*" are sentences, then "*S1* and *S2*" is a sentence.

Here what gets substituted in for the schema variables are uncolored strings in the metalanguage alphabet--which may need to be extended, if it's to be able to form quotation names for the object language in question. Consider for example forming English quotation names for Greek words. Anyway, it's nothing in the string that gets substituted in for the schema letter that makes the result refer to an object-language expression. Rather, that is accomplished by the surrounding (corner) quotes in iv.

* Second strategy: Using color/italics:

We'd like to be able to say something like this instead:

v. If *S1* and *S2* are sentences, then *S1* and *S2* is a sentence.

And here understand differently what gets substituted in. Now the role of generating a metalanguage designator for the object-language expression is the responsibility of the schema letters and what gets substituted in for them.

There is a challenge to this: when we take a particular instance of this schema, what should replace the green *S1* and *S2*? Presumably it can't be a red sentence, like the rest of the metalanguage claim, because then we'd get some nonsense like:

If snow falls and wind blows are sentences ...

So I guess it'd be a blue/quoted sentence. But thinking of it as blue may obscure an issue from us, which becomes clearer if we think of it as quoted. So let's think of it as the substituting sentences as being quoted-expressions. Then the start of the sentence will look OK:

v. If "Snow falls" and "Wind blows" are sentences, then ...

But now the end of the sentence will look like this:

v. ... then "Snow falls" and "Wind blows" is a sentence.

Where the underlined part is in blue or (another) pair of quotes. And that's not what we want. That's not a conjunctive sentence (like *Snow falls and wind blows*), it's a noun-phrase (like *Snow and wind*).

Or you might say, it shouldn't be sentences that are both quoted and blue, but simply sentences are just quoted (and red). But then we'd get:

v. ... then "Snow falls" and "Wind blows" is a sentence.

Which is harder to interpret than it might look. Really what's going on here would be clearer if we used quotes consistently, thus:

v. ... then "Snow falls" " and " "Wind blows" is a sentence.

And that isn't of the form *then* <expression designating a sentence> *is a sentence*. It's of the form *then* <sequence of three expressions> *is a sentence*. (It'd be like *then John Bill Ted is a person*.)

(You might say: you intend that when terms designating expressions get concatenated in the metalanguage, that's to be interpreted as applying the *concatenation operation* on those terms, yielding a term that designates the single expression which is their concatenation. Alright, but now it sounds like you're just using strategy iii above, and it'd be clearer and simpler if you just went that way explicitly, rather than adding the extra complication of schemas.)

Is there a solution here (distinct from falling back to strategy iii)?

There is. Writing things like this:

v. If S1 and S2 are sentences, then S1 and S2 is a sentence.

is OK, but *the way we need to understand it* to avoid this difficulty is a bit subtle. We should think that there are parts of the metalanguage sentence that count as "bluish"---this may be indicated by the use of italics, or by the use of blue ink. *It may also be indicated by the use of green/Greek letters*. When we substitute in some particular sentence for the green/Greek schema letter, then *the substituting sentence comes without any color/quotation information*. It "absorbs" color/italics from the region of the sentence it gets plugged into. In v, all of the underlined regions are "bluish", so the color-neutral sentence being plugged in ends up itself being bluish, which we represent with blue ink or italics. (Or quotes, if you like.) Hence one substitution instance of v would be:

i. If Snow falls and Wind blows are sentences, then Snow falls and wind blows is a sentence.

The underlined bits could be italicized or quoted instead of set in blue.

Let me try to say the same thing, using different words. There are some regions or "boxes" in the metalanguage sentence we're trying to produce that have an assigned blue color. You can put colored or uncolored strings into the box; if you put uncolored strings there the color of the box shines through them. If you put colored strings there they show up with their own color, covering up the color of the box. When we write:

v. If S1 and S2 are sentences, then S1 and S2 is a sentence.

Then the three underlined regions are three blue boxes. Each blue box has some green-colored schema variables in it: in the first two cases obscuring all the blue. What substitutes in for those schema variables are uncolored strings. Thus we get, for example:

i. If Snow falls and Wind blows are sentences, then Snow falls and wind blows is a sentence.

The uncolored strings we substituted in are showing the blue of the box they occupy. And now the text that shows blue is interpreted as being a metalanguage designator of the object-language sentence that would be written with that text.

Told you it was tricky. But once it's properly understood, v is a perfectly legitimate and elegant convention. You just have to be able to explain it.

Question: if instead of this "blue box" business, we used quotes, what would this last strategy end up looking like then? Well then, what used to be "blue boxes" would be surrounded in quotes, so we'd have:

iv. If " $S1$ " and " $S2$ " are sentences, then " $S1$ and $S2$ " is a sentence.

Which was exactly the first of our strategies for using corner quotes. These are really just the same strategy, differing only in what our notation for mentioning is: via explicit quotation? Or via these "blue boxes"?

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I notice that in Appendix A, pp. 266--67, Sider explains Quine's corner quotes differently than I have. I was explaining a device that interacted with schematic letters; Ted is explaining a device that interacts with singular terms in the metalanguage. Both of these are coherent; and in fact, now that I've gone and checked, I see that Ted is accurately reporting Quine's own proposal.

Here are some links. The second also gives a nice overview of different theories of quotation.

<https://en.wikipedia.org/wiki/Quasi-quotation>

<http://plato.stanford.edu/entries/quotation/>

I wanted to comment on some comparative pluses and minuses of the convention Sider describes.

The plus: that convention matches what many of you seem disposed to write anyway. The way I was explaining things, the $S1$ and $S2$ at the start and end of the sentence:

ii. If $S1$ and $S2$ are sentences, then $S1$ and $S2$ is a sentence.

should always get the same number of surrounding quotes. You should never write something like this:

vi. If $S1$ and $S2$ are sentences, then " $S1$ and $S2$ " is a sentence.

Because there are no quotes around the $S1$ and $S2$ at the beginning, but quotes around them at the end. On any of the conventions I described, this is going to be a mistake. Whereas Sider's convention permits you to write that. You can also on his convention write:

vii. If " $S1$ " and " $S2$ " are sentences, then " $S1$ and $S2$ " is a sentence.

And that will mean the same thing.

Well, that's pretty cool, makes things easy for you, you don't have to remember whether to include the corner-quotes around a bare $S1$ or not; either way you'll get the same result. Yes, but this is an ugly convention. I'll explain why.

First, note that on Sider's convention, this:

" $S1$ and $S2$ " is a conjunction.

means the same as:

$S1 \wedge \text{" and " } \wedge S2 \text{ is a conjunction.}$

Thus we can understand:

$\ulcorner S1 \urcorner$

as meaning something like:

$\epsilon \wedge S1 \wedge \epsilon$

or just:

$S1$

But now what shall iterated quotes mean? Well, presumably:

$\ulcorner \ulcorner S1 \text{ and } S2 \urcorner \text{ is a conjunction} \urcorner \text{ is a sentence}$

should mean either:

$\text{opening_quote} \wedge \text{"S1 and S2"} \wedge \text{closing_quote} \wedge \text{" is a conjunction"} \text{ is a sentence}$

or:

$\text{opening_quote} \wedge S1 \wedge \text{" and " } \wedge S2 \wedge \text{closing_quote} \wedge \text{" is a conjunction"} \text{ is a sentence}$

These differ in that in the first we get a quotation-name of the literal symbol $S1$ itself, whereas in the second, we get a quotation-name of whichever object-level sentence $S1$ refers to. I'm not so concerned with the difference between these; either choice for how to interact with iterated quotes could be defended. What I do want to call attention to is that the result is a sentence that talks about a string containing quotation marks. The string being talked about will be of the form:

$\text{"..."} \text{ is a conjunction}$

This is the string being talked about in the sentence we're constructing. The whole sentence will say, of that string, that it is a sentence.

Ok, now what I find ugly about this is that corner quotes around metalinguistic variables are inert and have no effect, *so long as there's only one of them*. If there are two of them, the result will be that you end up with one corner quote; and if three, presumably two and so on. Boiling it down to the simplest terms:

$S1$
 $\ulcorner S1 \urcorner$
 $\ulcorner \ulcorner S1 \urcorner \urcorner$
 $\ulcorner \ulcorner \ulcorner S1 \urcorner \urcorner \urcorner$

The first two lines above will turn out to be equivalent, but different from the next line, which will in turn be different from the next line, and so on.

Now, my green-and-blue or italics convention isn't going to be of much use for talking about iterated

quotation, all on its own, so it will have to be expanded with some device like quotation or explicit concatenation terms to say the same things. I would write the sentence we were discussing a moment ago like this:

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"S1 and S2" is a conjunction is a sentence.
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Since my green *S1* and *S2* are schema letters, they get replaced with particular object-level strings no matter how deeply embedded they are. Hence, an instance of that schema might be:

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"Snow falls and wind blows" is a conjunction is a sentence.
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On my green-and-blue conventions, instances of *each* of these lines will mean something different:

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S1  
"S1"  
""S1""  
""S1""
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Instances of the first will be an unquoted object level string; instances of the second a singly-quoted object level string; and so on.