

The role of focus in the factive projection of *know**

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January 8, 2024

1 Introduction

In this squib I will present linguistic evidence from Italian and English suggesting that the factivity presupposition of *know* is not always present and is linked to focus marking on the embedding verb. A first set of data, proposed in section §2, will display cases of knowledge ascriptions in which the ‘known’ propositions are false. I will claim that the determining factors that allows knowledge attribution in these cases are the facts that (i) the attitude holder is well justified in believing a proposition p according to the evidence available to her at a time t and (ii) discourse participants agree on the proposition q that has to be believed over p . In section §3, I will then advance two motivations to advocate for a unified treatment of *know* that can account for both factive and non-factive uses. A second set of data will be introduced, showing that factivity may or may not arise depending on different syntactic and phonetic properties of utterances. This implies that factivity is indeed a property of *know*, but only in specific focus-marking contexts. Thus, in section §4, I will briefly sketch an analysis of *know* that claims that factivity arises whenever *know* is linguistically focus-marked. This analysis is in line with existing work showing that certain presuppositions can be triggered by the interaction of focus and background (Simons et al., 2010, 2017). To conclude the squib, in section §5, I will sum up the discussion, highlighting possible directions for future inquiry.

2 Non-factive *know*: Italian and English data

2.1 Non-factive third-person *know*

I will now start introducing the first set of data for non-factive cases of *know*. Consider the following example from Italian:

*This squib is part of a joint work with Janek Guerrini. We are grateful to Omri Doron, Danny Fox, Martin Hackl, Keely New, Niccolò Rossi, Robert Stalnaker, and Jad Wehbe for helpful feedback and discussions on this topic.

- (1) SCENARIO: John is coming home today after a long period abroad, but in order to surprise his parents he actually told them he would come home tomorrow. In asking her sister to come pick him up at the airport he says:
- a. Non dire a mamma e papà che torno oggi, perché *loro sanno che torno domani*.
Don't tell mum and dad I'm coming home today, because *they know I'm coming home tomorrow*.

From the example above, it seems that Italian *sapere* ('to know') can be used in non-factive scenarios, at least whenever it is clear to the discourse participants that the attitude holder has been deceived into thinking some falsity. On the one hand, the parents hold a false belief that *p* (their son coming home tomorrow), but on the other hand, the parents' belief that *p* in (1) was directly and purposely induced by the most reliable authority on *p* (their son himself). It thus seems that Italian *sapere* ('to know') and *credere* ('to believe') may have very similar truth conditions, where *know* is some sort of *justified ~~true~~ belief*. To further inquire into the essential conditions for *sapere/known* to hold, consider the following scenario (Janek Guerrini, p.c.):

- (2) SCENARIO: Imagine somebody from 3000 years ago being teleported here now and imagine we are going on a plane trip around the world together with him. We will take off from Boston and land again in Boston after 30 hours. Talking about the ancient man I tell you:
- a. Se gli dicessi che atterreremo a Boston dopo essere andati nella stessa direzione per 30 ore non ti crederebbe, lui sa che la Terra è piatta.
If you told him that we will land in Boston after going in the same direction for 30 hours he wouldn't believe you, he knows that the Earth is flat.

In this case, knowledge of a false proposition *p* ('the earth is flat') is attributed to a man from the ancient times. However, this time, in contrast with the previous scenario, the information on *p* has not been given to the man by the greatest authority on the matter, but 'knowledge' ascription nonetheless goes through. Both examples however do share a crucial aspect concerning what the attitude holders' beliefs rely on: both the parents in example (1) and the ancient man in example (2) hold a belief built on the best evidence available *to them*. In other words, given the information they are able to access, it is hard to imagine how they could possibly reach different conclusions from those they drew. To see the importance of this condition, compare the previous example with the following minimally-different one:

- (3) SCENARIO: Imagine we are going on a plane trip around the world with Paul, our flat-earth friend. We will take off from Boston and land again in Boston after 30 hours. Talking about Paul, I say to you:
- a. #Se gli dicessi che atterreremo in Boston dopo essere andati nella stessa direzione per

30 ore non ti crederebbe, lui sa che la Terra è piatta.

#If you told him that we will land in Boston after going in the same direction for 30 hours he wouldn't believe you, he knows that the Earth is flat.¹

This time, we cannot attribute *know* to our flat-earther friend even though the situation is very similar to that of the previous example. In fact, both the ancient man and the flat-earther hold the same false belief that the earth is flat. The set up situation is also the same, but while in the first case we could use *sapere*, in the second case we could not. Before, we hypothesised that, even though the ancient man has not been explicitly deceived by the biggest authority in the field, we could still attribute him non-factive *know* because he was still relying on the best evidence accessible to him. Consistently then, we would expect non-factive *know* to not be attributable to the flat-earther in the same scenario. The intuition is that the discourse participants - me and you - can 'empathize' with the attitude holder belief state in the case of the ancient man, understanding that the proposition he believes to be true is the most natural conclusion for someone in his conditions. On the contrary, this grace cannot be granted to the flatter-earther, provided that he could access the very same information we can. It almost seems like *x knows that p* can be used when *the speaker* acknowledges that '*If we were in the same conditions as x, we would also believe that p*'. We might want therefore to model the notion of knowledge on the justifiable epistemic states of attitude holders and on the shared epistemic states of discourse participants. Note in fact that another crucial factor in all the cases we presented is that non-factive *x knows that p* can be attributed to a third person when all discourse participants agree on the actual fact that has to be believed over the false proposition *p*. This can be thought of as a constraint requiring the answer to the Question Under Discussion (QUD) to be part of the Common Ground (CG), where the QUD is the relevant question answered by the embedded proposition under *know*. These will be the crucial elements at play in the analysis sketched in section 4, while the second part of this section will show the role of time in establishing the CG, since - crucially - third person is not the only person non-factive *know* can be ascribed to.

2.2 Non-factive temporal *know*

There are cases in which *know* can be non-factively self attributed, even in English, whenever some unexpected event intervened and changed the course of history. While these examples have been traditionally regarded as non-literal uses of *know* (Robert Stalnaker, p.c.), it is important to mention them here, since they could be seen as part of a larger non-factive paradigm, in the light of the above. Consider the following example:

- (4) SCENARIO: Sarah is expecting a package that has not arrived yet, even though it

¹Interestingly, you could even say 'lui sa **ancora** che la Terra è piatta' ('he **still** knows that the earth is flat'), suggesting that knowledge about a constant fact of the world can change over time.

was supposed to arrive yesterday. Talking to the gatekeeper, she says:

- a. Have you seen my package? I knew it was arriving yesterday, but then something must have delayed it.

In example (4), Sarah is self-attributing knowledge of p in the past even though p didn't occur. According to the hypothesis from the previous subsection, we could say that at a time t in the past she had all the evidence to believe the package was arriving yesterday, and there seems to be no possible way for her to doubt that proposition. This time, the *best guess according to the best available evidence* is relative to a time, rather than relative to other individuals, and non-factive *know* can be attributed *ex-post*, once the *known* proposition has proven to be wrong. On the other hand, the Common Ground requirement has to be evaluated at the time of the utterance, since it involves participants in a language exchange. In fact, both Sarah and the gatekeeper agree now that the package did not arrive yesterday.² We can refine the constraints proposed in the previous subsection by saying that:

- i. **Belief-justification is relevant to a time t :** x *knows-at- t that p* can be uttered if p is a justified conclusion from the evidence available to x at the time t ;
- ii. **The CQ requirement is dependent on the time of the utterance:** the answer to the QUD has to be in the CG at the time in which the language exchange takes place.

I am now going to move to the next session, where I will provide motivation on why we want to provide a unified semantic analysis for *know* both factive and non-factive uses (§3.1) and for both English and Italian (§3.2).

3 Argument for a unified treatment

In this section I will provide two motivations in favor of understanding the meaning of *know* in such a way to allow for both non-factive verb and factive interpretations, derived in the same way in English and Italian. The first part is aimed at showing that the very same occurrence of *know* is compatible with true and false complements at the same time, eliminating the possibility of treating x *knows that p* in non-factive contexts as a 'deviant' use of *know* that just means x *falsely, but justifiably, believes that p* in certain contexts. The second part will show that although English does not have the non-factive present time data presented for Italian above, it does have non-factive present time uses of *know* in specific syntactic constructions. While English does need a different treatment than Italian, we will claim that the difference unlikely arises from different meanings for 'know' but rather from the mechanism that triggers the presupposition.

²This shows also that there is some freedom in what can be taken to be the QUD for the embedded proposition as Sarah does not know the answer to 'When is the package arriving?' but knows the answer to 'Did the package arrive yesterday?'.

3.1 An underspecification argument

For non-factive *know* to be a non-literal or ‘deviant’ use of factive *know*, it would mean that, when it is used, something technically false is being said in order to pragmatically convey something true. My intuition is that, if this was the case, then the same occurrence of *know* would never be able to have a factive and non-factive use at once, since there is only one possible interpretation for the verb at a time. On the other hand, if *know* was genuinely non-factive in certain environments, it would be able to combine with both factive and non-factive complements depending on the epistemic states of the attitude holders. In constructing such an example, syntactically conjoining two different propositions might not be that useful, since it could always be argued that the conjunction also introduces a second elided *know* that can possibly receive a different interpretation than the previous one (depending on ellipsis theories). We therefore need to construct an example in which there is only one proposition, which is true for somebody and false for somebody else, in order to check whether *know* can be at the same time factive and non-factive. The only way to do so is creating a proposition the truth of which is dependent on the holders. One possible such proposition is a proposition containing a variable that co-varies with the attitude holders. Consider the following example, modeled on the initial example (1):

- (5) SCENARIO: John is coming home today after a long period abroad, but in order to surprise his parents he actually told them he would come home tomorrow. Similarly, Paul is coming home tomorrow and he told his parents the truth, because he would like them to pick him up from the airport. After Paul tells John about his plans, he replies:
- a. Sia i tuoi che i miei genitori sanno che i loro figli torneranno a casa domani, ma mentre i tuoi genitori saranno ad aspettarti all’aeroporto, i miei saranno molto sorpresi di vedermi arrivare a casa tra poche ore oggi stesso.
Both your parents and my parents know their sons will come home tomorrow, but while your parents will be expecting you at the airport, mine will be very surprised to see me arrive home in few hours today.

In the example above, both Paul’s and John’s parents hold the belief *our son will come home tomorrow*. However, while in Paul’s case that is a true belief, in John’s case that is a false belief. Nonetheless, Italian *sapere* can be felicitously attributed equally to Paul’s and to John’s parents. Example (5) shows therefore that the very same occurrence of *sapere* can combine with both factive and non-factive complements. This suggests that the meaning of *sapere* has to be weak enough to allow for both types of complement.

3.2 Non-factive *know* in English clefts

If non-factive *know* were a non-literal ‘deviant’ use of factive *know*, it would not be completely clear where the possible cross-linguistic ranges of its meaning are coming from. In

examples (1) and (2) from section §2, I have shown how Italian *sapere* can be used non-factively when somebody holds a false belief that is the best conclusion that can be reached from the evidence available to her. Many native English speakers have reported that in the same context English *know* cannot be used. The delayed package example (4), however, shows that there are contexts in which even English *know* can be used non-factively. If we assume that non-factive *know* is a non-literal use of the verb, we run into trouble since there is no clear explanation on why such use would be available in some languages and not in others, and on why - if available - it should present more limitations in some languages compared to others. These limitations can also be problematic language-internally, provided that if we were dealing with a non-literal use, there would be in principle no reason for it to be applicable to the ancient man of example (2) but not to the flat-earther friend of example (3). Even more crucially, there are certain environments in which even English *know* can be used non-factively, possibly shedding light on the proper treatment for the factive presupposition across languages. Recollect once again the initial example of John surprising his parents by coming home one day earlier than they expect. While Italian *sapere* can be non-factively attributed to the parents, its English counterpart cannot, as I discussed few lines above, after consulting with several native English speakers:

- (6) #Don't tell mum and dad I'm coming home today, because they know I'm coming home tomorrow.

Crucially, non-factive English *know* can be ascribed in the very same context, if the attribution comes in the form of a clefted construction:

- (7) Don't tell mum and dad I'm coming home today, because what they know is that I'm coming home tomorrow.

It is utterly striking that a specific syntactic construction makes available a verb meaning that would not be possible in another construction. From a non-literal use perspective this is completely unjustified, if not impossible. In fact, there is no reason why (7) should make possible or even trigger a non-literal meaning for *know* completely inaccessible from (6). It is therefore clear that the difference must lie in the semantics of the verb and how syntactic and phonetic properties interact with its presupposition projection. Interestingly, this behaviour can be observed for other factive verbs:³

- (8) a. #John understood that even numbers and odd numbers are the same.
b. What John understood is that even numbers and odd numbers are the same.
- (9) a. #Mary learnt that the earth is flat.
b. What Mary learnt is that the earth is flat.

In the next section I will briefly sketch an analysis of what elements might be at play in

³All these examples do not require the clefted construction in Italian to be interpreted non-factively.

defining the meaning of *know* in these contexts.

4 A focus-based analysis

In order to develop an analysis for the different factivity behaviours of *know*, it might be useful to ask what is the real difference between constructions like (6) and (7) in English. We know that English makes use of cleft constructions to focus-mark certain materials (Simons et al., 2017). Focus marking is most commonly achieved through phonetic prominence (Simons et al., 2017) and a contrast in Italian seems to confirm that syntactic and phonetic properties related to focus can affect the factivity presupposition of *sapere/know*. Consider our initial example (1) repeated here as (10), contrasted with (11), in which stress has been put on *sapere*:

- (10) Non dire a mamma e papà che torno oggi, perché *loro sanno che torno domani*.
Don't tell mum and dad I'm coming home today, because *they know I'm coming home tomorrow*.
- (11) #Non dire a mamma e papà che torno oggi, perché *loro SANNO_F che torno domani*.
#Don't tell mum and dad I'm coming home today, because *they KNOW_F I'm coming home tomorrow*.

Suddenly, the sentence becomes incompatible with the false-belief scenario. For some reason, focus-marking *sapere* does trigger the factivity presupposition in Italian too. On the contrary, in (10) *sapere* is unstressed, as it is also confirmed by the native speakers' intuition that the verb is less phonetically prominent, and the space between the verb and the complementizer *che* is shorter. This hypothesis perfectly matches the English contrast too. As traditionally assumed, in the clefted construction in (7), the focused material is the prejacent (embedded clause), and the unfocused material is the question-embedding verb *know*. Consider for example that for 'Mary read the BLUE_F book' to be felicitous we need to already know that she read something. On a similar reasoning, if *know* is focused, then we need to assume that it is already in the background that the prejacent is true.⁴ It has already been noticed that the interaction of focus might interfere with the 'standard' projections of *know*, at least under negation (Simons et al., 2017), and that focus is on its turn connected to the QUD. The role of focus and QUDs in the factivity presupposition

⁴Note that this constitutes a possible reply to the issue raised in Stalnaker (1999), quoted also in Hazlett (2012): 'It is clear that "x knows that P" entails that P. It is also clear that in most cases when anyone asserts or denies that x knows that P, he presupposes that P. Can this latter fact be explained without building it into the semantics of the word? I think it can. Suppose a speaker were to assert that x knows that P in a context where the truth of P is in doubt or dispute. [...] He would be leaving it unclear whether his main point was to make the claim about the truth of P, or to make a claim about the epistemic situation of x (the knower), and thus leaving unclear what direction he intended or expected the conversation to take. Thus, given what "x knows that P" means ... it would be unreasonable to assert that x knows that P in such a context'.

that p?’ can be felicitous under the factive meaning of *know*. For this reason, when the new information that is requested or provided is on the embedded clause, if the answer to the (embedded) QUD is already in the CG, then discourse participants suspend the factivity of *know*, reducing it to its ‘justified true belief’ component. In line with this analysis, we can give a uniform semantics for both *know* and *sapere*, and analyze them in a traditional way as follows:

- **asserted content:** *x believes that p and x is justified in doing so*;⁵
- **presupposed content:** *p is true*.

Adding, however, that the presupposed content is only triggered when the verb is focus-marked (and the embedded clause part of the background, (Simons et al., 2017)) and assuming that in English standard declaratives the embedding verb always bears focus. This focus analysis is in line with existing work that claims that focus-background interaction might be responsible for the projection of presuppositions (Simons et al., 2010, 2017). It is important to stress that this presupposition has to be understood as being inherently a part of *know*, maybe connected to the ‘justification’ part of the verb, provided that differences in focus don’t trigger the factive presupposition for other verbs like *believe*. Whereas the exact mechanism through which focus triggers presupposition and the precise content of this presupposition might be revised in the future, I believe this direction of analysis to be promising in providing a uniform semantics for *know* that can account for both cross-linguistic and intra-linguistic variations.

5 Conclusions and Considerations

In this squib I have discussed the role of focus in the projection behaviour of the factive presupposition of *know*, in order to account for several cases in which *know* seems to be non-factive. In section §2 I presented novel data from Italian, showing how non-factive *sapere* (‘know’) can be ascribed whenever the discourse participants agree (i) that the person holding a false belief is justified in doing so and (ii) on the true belief that has to be held. I have also presented known data from English in which non-factive *know* is self-attributed in the past. In section §3 I have proposed two motivations to have a unified semantics for factive and non-factive *know*: underspecification and English clefted constructions. Finally, in section §4, I have sketched a focus-based solution that would be able to account for the presented data, including the cross-linguistic and intra-linguistic English variations. This analysis still requires a more thorough comparison with (Simons et al., 2017) and a clearer understanding on how and when the focus mechanism triggers presupposition. For example, we assumed that embedding verbs always attract focus, but at the same time we have to

⁵Where this justification might be encoded including in the context times $t_1 > \dots > t_n$ and a chain of evidences $e_1 > \dots > e_n$ that lead to p .

assume that this does not happen if the past morpheme is attached to the verb, in order to explain non-factive English examples in the past like the delayed package case of example (4). In the future, I would also like to perform phonetic analysis to confirm the native speakers' intuition about *sapere* being non focus-marked in non-factive scenarios. On a broader level, I would like to (i) understand on a deeper level how agreeing on a certain fact, allows discourse participants to remove factivity and extend *know* to propositions that they know to be false .

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