What room for viewpoints?

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1. Viewpoints Certain prepositional phrases, such as *under this view* convey the idea that a judgment is relativized to particular facets of information and seem to behave like frame adverbs. E.g. in (1a) the proposition that God is not free is presented as a consequence of Spinoza's view that God and Nature are identical. (1b) means that mastering the bulk of knowledge called 'philosophy' leads one to accept the idea that God might not be free.

(1) a. *For Spinoza, God is Nature. Under this view God is not free*
b. *Philosophically, God is not necessarily free*

In English and in French, there are similar constructs which (i) function as discourse markers, that is, connect propositions, and (ii) raise the additional following problem: whereas they can refer back to a fact (unlike *under this view*), they cannot introduce a fact (2a,b vs. 2c,d). The oddness of (2c,d) might be attributed to the lack of viewpoint. If *de ce point de vue* (DCPV) and *in this respect* (ITR) require that a certain perspective be adopted, they ban discourses like (2c,d) where the second sentence mentions an event which is true or false regardless of the angle under which it is considered. However, this vague intuition is potentially misleading: it is generally assumed, following Kratzer (1981), that overt or covert modal judgments are grounded in a combination of *modal base* (a set of worlds) and *ordering source* (a preference relation over the modal base), that is, a set of particular beliefs that expresses an epistemic/deontic point of view. This idea accounts for the difference between modal and non-modal judgments. Yet, adding an epistemic modality to (2c,d) does not improve the result substantially (2e,f). Since Kratzer's idea cannot be dismissed, another option is to distinguish different *kinds* of viewpoints.

(2) a. *L'avion de Marie a été retardé. De ce point de vue (*DCPV*) ses vacances ont mal commencé*
b. *Mary's plane was delayed. In this respect (*ITR*) her vacations started poorly*
c. *L'avion de Marie a été retardé.* DCPV *?? elle a été en retard*
d. *Mary's plane was delayed.* ITR *?? she was late*
e. *L'avion de Marie a été retardé.* DCPV *?? elle (doit être / est probablement) en retard*
f. *Mary's plane was delayed.* ITR *?? she (must be / is probably) late*

2. Qua objects and viewpoints The case of DCPV calls to mind Fine's (1982) *qua objects*. A qua object is a pair $<d, F>$, 'd qua F', where d is an individual (called the 'base') and F a (possibly complex) property of d (called the 'gloss'). E.g. a statue of Goliath is a certain amount of matter (its basis) 'under the description of having the Goliath shape' (Fine 1982:101). Similarly, in (2a), Mary's vacations (the basis) started poorly under the description 'Mary's plane was delayed'. There is obviously a notion of dependency behind qua objects. For instance, it is qua being having a certain shape that the statue of Goliath can be said beautiful, not qua weighing 880 kg, but it is qua being a statue of 880 kg that the statue of Goliath is heavy.

But qua objects, however they are construed (e.g. as sets of properties in (Moore 1999) or objectual dependencies in (Fine 1995, 2000)), do not allow one to filter out entailments. For instance if d is an isosceles triangle, it has two equal angles under the gloss 'being isosceles', but (3) is odd all the same.

(3) a. *Le triangle ABC est isocèle,* DCPV *?? il a deux angles égaux*
b. *The ABC triangle is isosceles,* ITR *?? it has two equal angles*

Moreover, a definitional analysis in terms of partial subsets of properties is not sufficient because one cannot freely omit properties that falsify the conclusion under consideration. For instance, a regular polyhedron has equal edges and is a polyhedron. Being planar, a polygon is not a polyhedron. If x is a regular polyhedron we cannot say that 'in this respect', i.e. *qua* having equal edges, x is a regular polygon, although all its edges are equal.[1] The reason is the absence of any inference rule that would allow one to conclude from 'x is a polyhedron' to 'x is a polygon'. In contrast, for (2a,b), one may easily imagine a non-monotonic rule of the form 'x experiences some disagreement at t' $\rightsquigarrow$ 't is an unpleasant period for x'. The rule is NM (non-monotonic) in that, if x has also a pleasant experience at t, it is not always possible to conclude that t is a pleasant or

[1] For similar reasons, an analysis in terms of Kaplanian characters would not be sufficient. See Zimmerman, 2005 for an application to the 'x qua Superman vs. x qua Kent Clark' problem, and related ones.

unpleasant period for x. The main intuition here is that information pieces that are matters of points of view might not stabilize and become factual, that is, true or false beyond any reasonable doubt. What we need, then, is an approach that (i) is inferential (rather than purely definitional), i.e. takes into account relations between propositions, and (ii) can discriminate factual and non-factual judgments in terms of information growth.

NM and conditional logics[2] are possible candidates. In the limits of this abstract, we assume that a NM formula $A \mathrel{|\!\sim} B$ is true at an information state σ, considered as a set of points (typically, worlds, situations or sets thereof) whenever B is true at every point $s \in \sigma$ such that (i) A is true at s and (ii) s is a preferred ($\approx$ rated as significantly plausible) point in σ. Suppose that we have a set $\mathcal{T}$ of standard (= non-NM) and NM formulas which represents what an agent a believes about the current world. A proposition A is factual iff the agent believes that a sufficient increase of information might in theory establish beyond doubt whether A or $\neg A$. So, no subsequent information update would modify the status of A. In contrast, non-factual propositions, such as moral, esthetic, intellectual or emotion-based judgments, are essentially *qualifications*. It is impossible to assume that an appropriate increase of information would settle the matter. Note that this distinction does *not* entail that qualifications are inferentially more 'fragile' than factual propositions, because the latter (i) can in fact remain undecided for ever and (ii) are not necessarily better grounded (concluding 'it is going to rain' –a factual proposition– from the existence of clouds is no more watertight than uttering (2a,b)).

(4) A is factual w.r.t. $\mathcal{T}$ iff there is at least one sequence $\langle B_1 \dots B_\alpha \rangle$ of formulas such that (i) for every model σ of $\mathcal{T}' = (\dots(\mathcal{T} \cup B_1) \cup B_2) \dots) \cup B_\alpha$, A is true (false) in σ and (ii) there is no $\mathcal{T}'' \supset \mathcal{T}'$ such that A is false (true) in a model of $\mathcal{T}''$.
A speaker who uses A DCPV/ITR B implicates that she does not believe that the propositional content of B is factual w.r.t. the theory that describes her belief state about the current world.

(4) simply says that the speaker is committed to an (at least) agnostic view about the factuality of B's propositional content. For contents that describe events (that, in principle, could be perceived) or mathematical statements (that, in principle, could be (dis)proved), factuality is the natural option, hence the oddness of (2c-f) and (3). The formulation of (4) leaves room for pseudo-modal statements where the propositional content is not factual. For instance (2e,f) are out because the relevant propositional contents are factual, whereas the alternative conclusion ITR *it is not unreasonable to suppose that she is late* is more natural, because the propositional content is not the factual proposition 'Mary is late', but an intellectual qualification 'it is not unreasonable that ϕ'.

3. Extensions In the full paper, we will explore in detail three aspects which we can only mention briefly here. (1) We show that the constraints on DCPV and ITR are different from those on frame adverbs. For instance, (3) is much better with *mathématiquement* and *mathematically* instead of the viewpoint markers. Roughly speaking, this is due to the fact that, as proposed in (Bartsch 1987), and (Charolles 1997) the perspectives introduced by frame adverbs are 'viewpoints' in the sense of information states (Attardi & Simi 1995), not in the sense of qualifications as defined here. (2) Turning to French we study (i) the similarities and differences between viewpoint prepositions such as *côté*, *question*, etc., and qualification markers such as DCPV, (ii) the similarities and differences between the various qualification markers (DCPV, *à cet égard*, *sous cet angle*, *dans cette mesure*, *sur ce coup-là*, etc.). (3) We discuss in detail the status of factuality in the more general context of the formalization of viewpoints and modalities.

Main references

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[2]The main difference is that conditional logics involve a notion of preference between information states or worlds, whereas NM logics do not necessarily use preferences. (Kraus et al. 1990) and (Friedman & Halpern 2001) show how to combine the two perspectives.