The 'Unexpectedness' of *du coup*[1]

Jacques Jayez

EHESS

jjayez@dial.oleane.com

1. Introduction

• *Du coup* is a consequence discourse marker (DM), analogous to *donc, alors, de ce fait, par conséquent, dès lors, dans ces conditions,* etc.

• It seems to convey in certain uses a weak notion of 'unexpectedness', as argued in (Rossari and Jayez 2000) (RJ).

• Topic of the talk: (i) the notion of 'unexpectedness' is unclear (ii) one can describe *du coup* in a more neutral way, by resorting to standard notions about eventualities.

• Plan of the talk: section 2: presentation of the problem, section 3: 'unexpectedness' and causal transition, section 4: a new proposal for *du coup*

2. The puzzle of *du coup*

2.1 Contrasted observations

1. Some observations suggest that *du coup* is odd when the right segment denotes a stable property (i-level property in Carlson's (1977) terms). Cf. 1.

(1) a. C'est le fils d' Alain Delon, ??du coup il est beau
    It's the son of Alain Delon, DM he is handsome
    'His father is Alain Delon, DM he is handsome'

   b. Jean fait un mètre quatre-vingt, ??du coup il est grand
    John is six feet tall, DM he is tall
    John is six feet tall,

2. However, other observations don't support this view.

---

[1]This talk was made possible by the joint work we have been carrying for several years with Corinne Rossari (University of Geneva) on French consequence discourse markers. Her intellectual influence is gratefully acknowledged.

(2) Jean est grand, du coup il est avantagé au basket
    John is tall, DM he has an advantage in basketball
    'John is tall, DM he takes advantage of that in basketball'

Try the usual tests: *John was handsome ??yesterday, Jean a été avantagé hier au basket* (lit. 'John took advantage of x yesterday in basketball') can only mean that John got some particular advantage in a particular game of basketball.

3. Other examples suggest that *du coup* is appropriate when the left segment denotes a change in state.

(3) Jean fait un mètre quatre-vingt, du coup il est plus grand que son
    John is six feet tall, DM he is taller than his
    frère
    brother

The natural interpretation of 3 is: when John reached the height of 6 feet, he became taller than his brother. Note than being taller than one's brother is i-level.

4. However, other observations don't support this view.

(4) Jean est daltonien, du coup il confond le rouge et le marron
    John is colour-blind, DM he confuses red and brown

So, *du coup* does not require an s–level property on its right nor a transitional eventuality on its left. Then, is there really any constraint?

2.2 RJ's proposal

1. RJ propose that *du coup* is sensitive to the fact that the proposition on the right is normally 'omitted' when the proposition on the left is not true, where a proposition is *omitted* when it is false or not known to be true (= possibly false).

2. Predictions

– Examples of type 1 are explained by the fact that there is no special reason why the right proposition (being handsome or tall) should be omitted

– transitional examples of type 3 are explained by the fact that the right proposition is understood to be false before the left one obtains.

2.3 Problems with this proposal

1. Technical problems: the notion of being 'normally' omitted is fundamentally unclear (see next section). The formulation of the transitional script for *du coup* remains vague.

2. Empirical problem: the possibility of 2 remains unexplained. If it is not expected that John is handsome or tall, why should it be expected that he is at ease in basketball? His being good at basketball is no more/less predictable than his being handsome or tall.
In addition, *du coup* does not signal that a conclusion is *blocked* in the context. In a schema φ *du coup* ψ, ψ can be already expected given other information.

(5) Jean n'avait pas envie d'aller à la   réunion, en plus   il   pleut,
     John did not feel like going   to the meeting, moreover it's raining,
     du coup il   a   renoncé
     DM   he abandoned the idea

Certainly, given that John does not feel like going to the meeting, it is more plausible, expected, probable, etc. that he won't go to the meeting than the contrary.

3. Expectation and transitionality

1. It is well–known that many DM are sensitive to conditional expectation: other things being equal, a certain information φ can increase or lower the expectation w.r.t. ψ. See Lakoff's (1971) treatment of *but* and similar proposals in (Jayez & Rossari 1999) and (Merin 1999).

2. RJ use a notion of omission formulated in the language of info. states (Stnaker 1978, Veltman 1996).

(6) An information state s is a set of possible points (worlds). When a proposition φ holds at every point of s, it is said to be *accepted* in s (in symbols $s \Vdash \phi$). When a proposition is not accepted in s, we say that it is *omitted* in s (so, $s \nVdash \phi$).

By using the *Might* operator (Veltman 1996), we can internalize omission in the language.

(7) $s \Vdash Might\ \phi$ iff there is at least one $w \in s$ where φ holds. $s \Vdash Omit\ \phi$
     iff $s \nVdash Might\ \neg\phi$.

3. The problem with RJ's approach is that they connect omission and expectation by requiring that the omission of some proposition be expected or normal.
Technically, normality or expectation can be defined with the help of probabilities or default logic.
Maybe there is a sense in which John being handsome is less probable/normal than John being not specially attractive or unattractive. But, this should also apply to being good at basketball.
The contrast like 1 vs 2 shows also that moving to *conditional* expectation is of no avail.

(8) If E measures the expectation of ψ in isolation, and E' the expectation of ψ given φ, the measure of the difference between E and E' represents the effect of φ.

How can there be a different 'effect' of φ in 1 and 2?
4. What is the difference between 1 and 2? One is handsome 'at every time' while one takes advantage of his height for basketball only when playing basketball. The right proposition is circumstantial in 2 but not in 1. So, the fact of being tall causes having an advantage in basketball only at certain spatio–temporal locations.

5. The analogy with the 'transition' case. In 3, John reaching a certain height causes his becoming taller than his brother. Again, the causal relation obtains at some particular location and creates a resulting state . This suggests the following intuitive description for *du coup*.

(9) φ *du coup* ψ is appropriate only when φ is the cause of some local eventuality associated with ψ.

4. The representation

1. Localization: eventualities and relations exist or hold at given locations (not just anywhere). What is known to be true at some location can be represented in *hybrid logic* (see (Blackburn 2000) for an overview).

2. Standard update logic = propositional logic + operators ($Might$, etc.) ⇒ impossible to *name* an info. state.

Hybrid logic = names for worlds or states and new binders. E.g., instead of writing $s \Vdash \phi$ in the metalanguage, we write directly $@_s\phi$ in the language: ϕ is accepted at s. The acceptation formulas become expressions of the language.

3. Minimal ontology
a. A first–order language of eventualities e, e' with predicates (*holds*) and relations (*cause*),
b a temporally ordered set of info. states $(S, <)$ based on this language,
c. a goto operator $@$, with $@_s\phi$ iff $s \Vdash \phi$.
Examples: $@_s holds(e) = e$ obtains at s, $@_s cause(e,e') = e$ causes e' at s.
4. Two conditions for e *du coup* e'
a. There is some location (info. state) where e causes e',
b. Before and after s, e' is omitted.
I assume that, if $@_s cause(e,e')$, $@_s holds(e)$ and $@_s holds(e')$.

(10)   A discourse P *du coup* P' is appropriate only if (P') entails the existence of an eventuality e (e') such that:

$$\exists s(@_s cause(e,e') \& \forall s' < s(@_s Omit\ holds(e')) \& \forall s' > s(@_s Omit\ holds(e'))).$$

5. Treatment of the examples
1: these examples are anomalous because the second condition is violated. The property of being handsome or tall are non–circumstancial: $\forall s' < s(@_s holds$(John is handsome/tall).
2: If John is tall and takes advantage of that whenever he plays basketball, let e be particular event of John playing basketball. Then e does not obtain before its location (since e is a particular event). Let e' be the event of John being tall (which obtains at every location). Then the sentence entails that John being tall causes John taking advantage of that at every location where John plays basketball, in particular at the location s where $@_s e$. Analogously for 4.
3: Before reaching 6 feet (e), John is not taller than his brother. So there exists s such that, at s John reaches 6 feet, becomes taller than his brother (e') and e causes e'. All transitional examples have a similar structure.
6. Remarks
a. Generally speaking, as noted in (RJ), many examples are improved when

the eventualities are mental operations (rather than the eventualities on which these operations bear) are in focus.

(11)   Marie fait un mètre quatre vingt, du coup on peut dire qu' elle
Mary is 6 feet tall,   DM   one can say that she
est grande
is tall

In 11, the eventuality e is learning/realizing that Mary is six feet tall, which causes the judgment ('one can say that ...'). In such epistemic cases, the info. state is a certain set of beliefs. The notion of omission (vs simple falsity) is crucial here. For example, in 12, the belief that the meeting has not to be put off was not necessarily false before the belief–event of learning/realizing that Mary will be on time. Maybe it was a simple possibility. The notion of omission (through its connection with the *Might* operator) takes care of that.

(12)   Marie sera   à l'heure, du coup il n'y a pas de raison de remettre
Mary will be on time,   DM   there is no   reason to put off
la réunion
the meeting

b. It is not required that e be confined to a particular location (think of *John is colour–blind*).
c. It is not required that the eventuality denoted by P' in 10 hold only at s (e can trigger a state such as being taller than one's brother if the brother's height is stable). Distinction between denoting a transitional event and giving access to such an event.

7. Causation
Treatments proposed for causation have problems to distinguish between a necessary precondition and a cause (see (Eckardt 1998) for a general discussion). Dowty (1979) proposes that actual causes are more easily suppressed than preconditions in a modal setting where worlds are compared to the actual world (à la Lewis). For instance, if, in the actual world:
e = Paul saved John's life,
e' = Subsequently, a truck hit John,
$e"$ = John died,
then, the worlds in which John is saved by Paul but is not hit by a truck are

more similar to the actual world than the worlds where John is not saved, dies and is of course not hit by a truck. We can suppress e' (the cause of e'') more easily.

In the following example, suffering from hay fever causes each individuated headache but Dowty's test tells us also that the hay fever is the cause of the (more abstract)[2] event 'having frequent headaches'.

(13) Jean souffre du   rhume des foins, du coup il a
     John suffers from hay fever,   DM   he has
     souvent mal à la tête
     frequent headaches

One might argue that having frequent headaches is not confined to some particular location(s) and that, in this respect, *du coup* should be blocked. However, the event of having frequent headaches emerges from quantifying over individuated events (headaches). In fact, 10 entails 14.

(14) P *du coup* P' is appropriate whenever P describes the cause e of an event which results from quantifying over particular events which are each caused by e.

5. Conclusion

It has been noted by French linguists that the word *coup* denotes something like a sudden event (probably because of its Greek origin). See the expressions *sur le coup* (*at first*), *tout à coup, d'un seul coup* (*all of a sudden, at once*). In *du coup*, this trace is partially lost since the noun can denote an i-level property (being tall, colour–blind). However, the local causal relation might be a remnant (possibly a metonymic one) of the 'sudden event' value. Under this view, what is 'sudden' it not the left eventuality but the relation between the two eventualities, which is required to be circumstantial.

References

Blackburn, Patrick (2000). Representation, reasoning and relational structures: A hybrid logic manifesto. *Journal of the IGPL* 8, 339–365.

---

[2]Mind the fact that an event obtained through quantification over events can be spatio–temporally localized. So, its abstract character is relative.

Carlson, Gregory N. (1977). *Reference to Kinds in English*. Ph.D. dissertation, University of Massachusetts, Amherst.

Dowty, David (1979). *Word Meaning and Montague Grammar*. Dordrecht: Reidel.

Eckardt, Regine (1998). *Adverbs, Events, and Other Things*. Tübingen: Max Niemeyer Verlag.

Jayez, Jacques and Corinne Rossari (1999). Pragmatic connectives as predicates. The case of inferential predicates. In Saint–Dizier, P. (ed.), *Predicative Structures in Natural Language and Lexical Knowledge Bases*, Dordrecht: Kluwer, 285–319.

Lakoff, Robin (1971). *If*'s, *and*'s and *but*'s about conjunction. In Fillmore, C.J. et al. (eds), *Studies in Linguistic Semantics*, New–York: Holt, Rinehart and Winston, 114-149.

Merin, Arthur (1999). Information, relevance and social decisionmaking: some principles and results of decision–theoretic semantics. In Moss L.S. et al. (eds), *Logic, Language and Computation*, Stanford: CSLI, 179–221.

Rossari, Corinne and Jacques Jayez (2000). *Du coup* et les connecteurs de conséquence dans une perspective dynamique. To appear in *Linguisticae Investigationes*.

Stalnaker, Robert (1978). Assertion. In Cole, P. (ed.), *Syntax and Semantics, Vol. 9: Pragmatics*, New York: Academic Press, 315–332.

Veltman, Frank (1996). Defaults in Update Semantics, *Journal of Philosophical Logic*, 25, 3, 221–261