

Narration, causality and epistemic modality

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The present paper is an attempt at studying the role played by causality within narrative discourses, both with respect to discourse connectives and to so-called discourse relations (in the sense of Asher & Lascarides 2003). It has been observed by many authors that causality plays a crucial role w.r.t. to (i) the coherence of narrative discourses, and (ii) the semantics of temporal and inferential connectives – see Jayez & Rossari (2001), Degand & Pander Maat (1999), Bras et al. (2001a/b), etc. I will try and bring together these results, and show not only causality but also epistemic modality are involved in construing narrative coherence, particularly with discourse connectives. More specifically, I will study *puis* and *donc* and claim that their complementary distributions within narrative contexts can be explained by their opposed contributions in terms of *epistemic causality*.

1 Narration and causality: strong vs. weak Narration

Many authors have observed that causality plays a central role in establishing a narrative discourse structure, cf. Asher & Lascarides (1993, 2003), Bras et al. (2001a/b), Moens & Caenepeel (1994)... Now if we simplify the typology of narrative discourse structures proposed Caudal (2006), two main empirical classes of narrative structures are worth contrasting, as I will show.

1.1 Establishing Narration in the absence of temporal connectives: weak/strong causality

In the absence of temporal discourse connectives, weak or strong causality is the key factor to narrative coherence – in SDRT terms, weak/strong causality is necessary in order to establish the *Narration* discourse relation (which is often coined in that case "weak Narration", cf. Bras et al. 2001). By strong causality, I refer to an actual causal relationship between two events e_α and e_β , as in (1) (where e_α is the event referent underlying speech act referent α , etc.):

- (1) Max pushed John (α). John fell (β).

By weak causality, I mean some kind of script-like knowledge about sequences of events – each successive event being somehow the expected outcome of some causal/temporal 'antecedent' event by virtue of world-knowledge rules; cf. Asher & Lascarides (1993). This is formally implemented in SDRT by means of axioms such as (2) (cf. Bras et al., 2001a/b). As an illustration, in the case of (3), the corresponding **Falling and Helping** axiom appears under (4): it tells us that when an event e_α of falling and an event e_β of helping-up underlie two connected speech act terms α and β , then α stands in an *Occasion* relation to β . *Occasion*(α,β) expresses a scriptal relation, under which β somehow follows from α (non-monotonically: $>$), thus reflecting a *contingent* kind of causality (namely, e_β is only one of the many possible consequences of e_α). This in turn can help establish the *Narration* discourse relation (Asher & Lascarides, 2003), cf. (5).

- (2) **Occasion** : $(?(\alpha,\beta,\lambda) \wedge [\phi(e_\alpha)]\alpha \wedge [\psi(e_\beta)]\beta) > Occasion(\alpha,\beta)$ ¹
(3) *Max fell. (π_1). John helped him up. (π_2)* (cf. Asher & Lascarides 2003)
(4) **Falling and Helping**: $(?(\alpha,\beta,\lambda) \wedge [fall(e_1, x)]\alpha \wedge [help-up(e_2, y, x)]\beta) > Occasion(\alpha,\beta)$
(5) **(Weak) Narration** : $(?(\alpha,\beta,\lambda) \wedge Occasion(\alpha,\beta)) > Narration(\alpha,\beta,\lambda)$ ²

Note however that weak causality/scripts cannot account for narrative sequences such as (6). Instead, it seems that a general law about 'event incompatibility' makes us interpret (6) as involving temporal succession: John cannot stop smiling AND take a bite of his sandwich at the same time.

- (6) John stopped smiling (e_α). He took one more bite of his sandwich (e_β).

Caudal (2006) named *Sequence* this sort of 'bare-bone' narrative relation; it can serve to construe the weakest possible kind of *Narration*, and involves causality in a negative way (namely, for *Sequence* to hold, e_α and e_β must not be causally related in any way).

1.2 Narration with discourse connectives: causality again

The second major class of narrative discourses involves discourse connectives. As opposed to 'Weak Narration', temporal connectives such as *puis* are generally described as establishing a 'strong' brand

¹ $[\phi(e_\alpha)]\alpha$ means that condition $\phi(e_\alpha)$ is part of the propositional content of term α .

² This means that β is to be attached to α with the *Narration* relation, α being an available site within the current context, and that the discourse relation is to be incorporated into the logical form as a conjunct on the formula labelled λ .

of *Narration*, cf Bras et al. (2001). Now it has been observed that *puis* seems to reject strong causality:

- (7) a. L'acide tomba dans le liquide. Le mélange réagit en explosant. (Bras et al. 2001)
 b. L'acide tomba dans le liquide. *Puis le mélange réagit en explosant.

This led e.g. Bras et al. (2001a/b) to conclude that it should be somehow stipulated within axioms at the semantics/pragmatics interface that *puis* rejects causality (or at least forbids the establishment of overtly causal discourse relations such as *Result*). Interestingly, Caudal (2006) observed that *donc* and *puis* have opposed distributions w.r.t. to causality. Thus, *puis* is perfectly felicitous with non-causal narratives involving the *Sequence* relation, whereas *donc* absolutely rejects it (cf. (8)), and *donc* is perfectly felicitous with strongly causal narratives, whereas *puis* rejects them (cf. (9)):

- (8) Jean cessa de sourire. Puis/#Donc il mordit encore dans son sandwich. (no causal relation)
 (9) Jean poussa Max. Donc/#Puis Max tomba. (strong causal relation)

1.3 Why *donc* and *puis* are related to (weak) epistemic causality

But it would be a bit hasty to conclude that the *donc/puis* contrast simply boils down to causality. It rather involves *epistemic causality*. Indeed, *donc* is known to be an inferential connective, operating both on the propositional content and on the illocutionary force (cf. Jayez & Rossari, 2001), but also involving some form of *epistemic (causal)* attitude (cf. Degand & Pander Maat, 1999). Thus in (10), the speaker deems the falling of tiles to be a likely/necessary consequence of the storm. And in (11), the causal link established with *du coup* differs substantially with that established by *donc* inasmuch as the speaker does not deem the inference made to be logically necessary from her point of view (i.e., *du coup* could be apologetic in this context, whereas *donc* could not: the speaker judges his (bad!) action to be perfectly logical/expected with *donc*; *donc* expresses an (epistemic) propositional attitude).

- (10) Il y a eu beaucoup de vent. **Donc** des tuiles sont tombées du toit.
 (11) J'étais en retard, donc/du coup j'ai pris le sens interdit.

Now as Caudal (2006) has demonstrated, both *donc* and *puis* are in fact sensitive to very weakly causal inferential links. E.g. the inference conveyed by *donc* can involve intentions rather than events (cf. (12) (it is therefore more a matter of planning than of causality), or it can be an instance of general reasoning based on more than one premise, as in (13). This suggests that *donc* involves a (vaguely causal) epistemic reasoning where elements of the discourse context are associated with world-knowledge to form the *conversational background* (CB; Kratzer, 1991) of the modal inference. Such a modal inference could be noted as follows, in the case of (13): *Donc-EPISTEMIC (CB)(ψ)*, where *CB* contains the appropriate contextual antecedents (in this case, it must contain propositions ϕ and ξ).

- (12) Grand-mère se mit en colère : "Mais pourquoi as-tu (...) choisi la petite malle? Puisque c'est ainsi, moi je vais aller chercher la grosse (α)!" Grand-mère partit **donc** (β) (#Puis Grand-mère partit). (Google)
 (13) "Vous deux, vous êtes stériles, vous ne pouvez pas me donner d'enfant (ϕ). Et mourir sans enfant est insupportable (ξ) !" Il partit **donc** (ψ) chercher la jeune fille. Dès son retour, il célébrerait leur mariage. (Google)

Since *puis* would not be licensed in those weakly causal inferential contexts (cf. (12)), it cannot be so much blocked by causality itself than by the same some sort of epistemic inference: *puis* says that some new event is not (highly) expected given some CB. This bit of data raises in turn an important theoretical question, which is that of the actual *nature* of the relationship between epistemic modality and causality in discourse structure-obviously, both notions involve inferences, but at different levels.

The remainder of this paper will focus on how epistemic causal connectives should be modelled within a formal discursive framework, by considering the three possible treatments identified in von Stechow & Gillies (2006): (i) by means of a multidimensional semantics (cf. Potts, 2005) treating modality on a par with commentatives/parentheticals (cf. e.g. Scheffler, 2006), (ii) by treating epistemic modals in terms of illocutionary force modifiers (cf. e.g. Faller 2006), or (iii) by proposing a more intricate treatment at the semantics/pragmatics interface. I will favour the later option, which is empirically supported by the fact that modal expressions have been demonstrated to affect not only illocutionary force/propositional attitudes but also propositional contents (cf. e.g., Papafragou 2005). This patterns well with the fact that discourse connectives too have been demonstrated to span these three levels of the semantics/pragmatics interface (Jayez & Rossari, 2001).

References

Asher, N.; Lascarides, A. (2003). *Logics of Conversation*. Cambridge: CUP.

- Bras, M.; Le Draoulec, A.; Vieu, L. (2001a). French Adverbial *Puis* between Temporal Structure and Discourse Structure, in : M. Bras; L. Vieu (eds.). *Semantic and Pragmatic Issues in Discourse and Dialogue: Experimenting with Current Dynamic Theories*, CRiSPI vol. 9, Oxford: Elsevier, 109-146.
- Bras, M. ; Le Draoulec, A. ; Vieu, L. (2001b). Temporal Information and Discourse Relations in Narratives: the role of French connectives *puis* and *un peu plus tard*. *Proceedings of Association for Computational Linguistics*, Toulouse, 6-11 juillet 2001.
- Caenepeel, C.; Moens, M. (1994), "Temporal structure and discourse structure". In C. Vet & C. Veters (eds.), *Tense and Aspect in Discourse*, Mouton de Gruyter, Berlin New York, 5-20.
- Caudal, P. (2006), " Tenses, connectives and narration(s)", talk given the *Chronos'7* conference, Antwerp.
- Degand, L.; Pander Maat, H. (1999), "Scaling causal relations in terms of speaker involvement", in *Proceedings of LORID 99*, 45-53.
- Faller, M. (2006), "Evidentiality and Epistemic Modality at the Semantics/Pragmatics Interface", talk given at the University of Michigan Fall 2006 Workshop in Philosophy and Linguistics.
- von Fintel, K. & Gillies, A. (2006), "Epistemic Modality for Dummies", ms., MIT.
- Jayez, J. & Rossari, C. (2001), "The discourse level sensitivity of consequence discourse markers" in *French Cognitive Linguistics* 12, 275-290.
- Kratzer, A. (1991), "Modality", in A. Stechow & A. Wunderlich (eds.), *Semantics: An International Handbook of Contemporary Research*, De Gruyter, Berlin, 639-650.
- Papafragou, A. (2005), "Epistemic modality and truth conditions", *Lingua* 116:1688-1702.
- Potts, C. (2005), *The Logic of Conventional Implicatures*, OUP, Oxford.
- Scheffler, T. (2005), "Syntax and Semantics of Causal denn in German", in *Proceedings of the 15th Amsterdam Colloquium*, Amsterdam.