



**HAL**  
open science

## Perspective on individuals

Philippe de Groote, Timothée Bernard

► **To cite this version:**

Philippe de Groote, Timothée Bernard. Perspective on individuals. *Sinn und Bedeutung* 29, Sep 2024, Noto, Italy. hal-04901118

**HAL Id: hal-04901118**

**<https://inria.hal.science/hal-04901118v1>**

Submitted on 20 Jan 2025

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution 4.0 International License

# Perspective on individuals

Philippe de Groote (LORIA) & Timothée Bernard (LLF)

**Introduction** In a seminal paper, Davidson (1967) posits that action verbs should be interpreted as containing a hidden argument corresponding to the event to which they refer. Davidson’s proposal has two a priori advantages. The first is that it removes a difficulty associated with the logical interpretation of verbs, namely, their apparent variable polyadicity, i.e., the fact that the number of the arguments they can take seems almost arbitrary. For example, while the transitive verb *to butter* intuitively denotes a binary relation, in sentence (1) it seems to also take a place and a time arguments, for a total of four arguments.

(1) Jones buttered the toast in the bathroom, at midnight.

Davidson’s solution to this puzzle is to interpret sentence (1) with a logical form comparable to the following one:

(2)  $\exists e. (\mathbf{buttered\ } e\ \mathbf{jones\ the\_toast}) \wedge (\mathbf{in\ } e\ \mathbf{the\_bathroom}) \wedge (\mathbf{at\ } e\ \mathbf{midnight})$

The second advantage is to account for the entailment relations that exist between sentence (1) and sentences (3a), (3b), (3c), directly from the properties of logical conjunction ( $\wedge$ ).

- (3) a. Jones buttered the toast in the bathroom.  
b. Jones buttered the toast at midnight.  
c. Jones buttered the toast.

In fact, Davidson’s idea has proved to be the most fruitful. It has been generalized by followers, mainly as a result of the work of Parsons (1990), and has allowed various phenomena related to verbal modification to be given a formal account, giving rise to a new field in formal semantics known today as “event semantics”.

**Intensional aspects of events semantics** Event semantics is often presented as offering a parallel between the semantic treatment of verbs and that of nouns, emphasizing the relations that exist between adverbs and adjectives, and more generally between verbal modifiers and nominal ones. This parallel, however, reaches its limits when the modifiers under consideration are of an intensional nature. If Mary sings gracefully while dancing, it does not entail that she dances gracefully. Event semantics correctly accounts for this lack of implication, since (4c) is not a logical consequence of (4a) and (4b).

- (4) a.  $\exists e. (\mathbf{sing\ } e) \wedge (\mathbf{graceful\ } e) \wedge (\mathbf{agent\ } e\ \mathbf{mary})$   
b.  $\exists e. (\mathbf{dance\ } e) \wedge (\mathbf{agent\ } e\ \mathbf{mary})$   
c.  $\exists e. (\mathbf{dance\ } e) \wedge (\mathbf{graceful\ } e) \wedge (\mathbf{agent\ } e\ \mathbf{mary})$

Similarly, if John is both a graceful singer and a dancer, it does not imply that he is a graceful dancer. However, the logical forms below, which parallels the ones above, are unsatisfying as (5a) and (5b) together imply (5c).

- (5) a.  $\exists x. (\mathbf{singer\ } x) \wedge (\mathbf{graceful\ } x) \wedge (x = \mathbf{john})$   
b.  $\exists x. (\mathbf{dancer\ } x) \wedge (x = \mathbf{john})$   
c.  $\exists x. (\mathbf{dancer\ } x) \wedge (\mathbf{graceful\ } x) \wedge (x = \mathbf{john})$

To avoid such spurious implications, it is common since Montague (1970) to model adjectives as functions from nouns to nouns, with nouns modelled as intensional properties of individuals. Here, however, we investigate whether such spurious implications can be avoided by strengthening the parallel between the interpretation of nouns and verbs.

**Interpreting nouns as sets of perspectives** In (4c), the subformula (**graceful**  $e$ ) does not express that Mary’s way of acting is graceful in general, but that her action  $e$ , a singing action, is graceful. Likewise, when we say that John is a graceful singer, we do not mean that John is graceful in general, but that he is graceful as a singer. In order to account for this intensionality at the level of logical forms, we introduce a notion of *perspective* together with a relation  $\succ$  between perspectives and individuals:  $p \succ x$  is true iff the perspective  $p$  is a perspective on the individual  $x$ . Note that we use *perspective* in a sense that is closer to the one used in frame semantics (Fillmore and Baker, 2009), for which a buying and a selling might be two distinct perspectives on the same underlying entity, than to the one used more recently in philosophy of language (Lasersohn, 2016; Asudeh and Giorgolo, 2016; Burke, 2022). With this new apparatus, we interpret nouns as sets of perspectives (just as verbs are interpreted as sets of events), which allows us to give the sentence *John is a graceful singer* the logical form in (6), which can be paraphrased as: *there exists a perspective on John that is a perspective of a singer and that enjoys a property of gracefulness*.

$$(6) \quad \exists x. (\exists p. (\mathbf{singer} p) \wedge (\mathbf{graceful} p) \wedge (p \succ x)) \wedge (x = \mathbf{john})$$

Using interpretations like (6) precludes the spurious implication mentioned above, while still licensing the correct inference that if John is a graceful singer then he is a singer. Our proposal makes the parallel between the treatment of nouns and that of verbs particularly strong, with perspectives playing the same role at the nominal level as events play at the verbal level. This allows various analyses developed for the verbal case to be transferred to the nominal case, and vice versa. It is well known, for example, that modal adverbs act at the sentential level, which means, in the framework of event semantics, that they take scope over the existential quantifier that introduces the event attached to the main verb of the sentence. This leads, at the nominal level, to a treatment of modal adjectives (*necessary*, *possible*, *alleged*, ...) as logical modal operators acting on the existential propositions that introduce the perspectives. Our proposal is also amenable to a subjective treatment of the privative adjectives, in the spirit of Partee (2010), which suggests a new treatment of the adverbs that feature some privative aspect, such as *partway* or *nearly*.

**Compositionality** It has been argued that event semantics does not fit well with compositional semantics because of a problematic interaction between quantification over individuals and existential quantification over events. This problem, which Winter and Zwarts (2011) call *the event quantification problem*, also arises with our notion of perspective. A nice solution to it has been worked out by Champollion (2011, 2015), and consists in interpreting verb phrases and sentences as generalized quantifiers over events rather than as sets of events. Adapting this solution, we interpret nouns as generalized quantifiers over perspectives. To conclude this abstract, we give a toy grammar which allows the kind of sentences that we have considered to be given an appropriate semantic interpretation.

$$\begin{aligned}
\llbracket \mathbf{John} \rrbracket &= \lambda P. P \mathbf{john} && : \text{NP} \\
\llbracket \mathbf{singer} \rrbracket &= \lambda f. \exists p. (\mathbf{singer} p) \wedge (f p) && : \text{N} \\
\llbracket \mathbf{graceful} \rrbracket &= \lambda N f. N (\lambda p. (\mathbf{graceful} p) \wedge (f p)) && : \text{N} \rightarrow \text{N} \\
\llbracket \mathbf{a} \rrbracket &= \lambda NP. \exists x. (N (\lambda p. p \succ x)) \wedge (P x) && : \text{N} \rightarrow \text{NP} \\
\llbracket \mathbf{sings} \rrbracket &= \lambda S g. S (\lambda s. \exists e. (\mathbf{singer} e) \wedge (\mathbf{agent} e s) \wedge (g e)) && : \text{NP} \rightarrow \text{S}' \\
\llbracket \mathbf{gracefully} \rrbracket &= \lambda V S g. V S (\lambda e. (\mathbf{graceful} e) \wedge (g e)) && : (\text{NP} \rightarrow \text{S}') \rightarrow \text{NP} \rightarrow \text{S}' \\
\llbracket \mathbf{is} \rrbracket &= \lambda OS. S (\lambda s. O (\lambda o. s = o)) && : \text{NP} \rightarrow \text{NP} \rightarrow \text{S} \\
\text{CLOSURE} &= \lambda v. v (\lambda e. \mathbf{true}) && : \text{S}' \rightarrow \text{S}
\end{aligned}$$

where  $\text{NP} = (\mathbf{e} \rightarrow \mathbf{t}) \rightarrow \mathbf{t}$ ,  $\text{N} = (\mathbf{p} \rightarrow \mathbf{t}) \rightarrow \mathbf{t}$ ,  $\text{S}' = (\mathbf{v} \rightarrow \mathbf{t}) \rightarrow \mathbf{t}$ , and  $\text{S} = \mathbf{t}$ .

## References

- Asudeh, A. and G. Giorgolo (2016). Perspectives. *Semantics and Pragmatics* 9(21), 1–57.
- Burke, L. (2022). *Monads, applicatives and the semantics of perspective: a solution to the problems of logical omniscience and granularity*. Ph.D. Thesis, University College London, University of London, London, UK.
- Champollion, L. (2011). Quantification and negation in event semantics. In B. H. Partee, M. Glanzberg, and J. Skilters (Eds.), *The Baltic International Yearbook of Cognition, Logic and Communication*, Volume Vol. 6, pp. 1–23. New Prairie Press.
- Champollion, L. (2015). The interaction of compositional semantics and event semantics. *Linguistic & Philosophy* 38(1), 31–66.
- Davidson, D. (1967). The logical form of action sentences. In N. Rescher (Ed.), *The Logic of Decision and Action*, Pittsburgh. University of Pittsburgh Press. Reprinted in Davidson (1980).
- Davidson, D. (1980). *Essays on Actions and Events*. London: Clarendon Press.
- Fillmore, C. J. and C. Baker (2009). A Frames Approach to Semantic Analysis. In B. Heine and H. Narrog (Eds.), *The Oxford Handbook of Linguistic Analysis*, pp. 313–341. Oxford University Press.
- Lasersohn, P. (2016). *Subjectivity and Perspective in Truth-Theoretic Semantics*. Number 8 in Oxford Studies in Semantics and Pragmatics. Oxford, New York: Oxford University Press.
- Montague, R. (1970). English as a Formal Language. In B. Visentini (Ed.), *Linguaggi nella Società e nella Tecnica*, pp. 189–224. Milan, Italy: Edizioni di Comunità.
- Parsons, T. (1990). *Events in the Semantics of English: A Study in Subatomic Semantics*. MIT Press.
- Partee, B. H. (2010). Privative adjectives: Subsective plus coercion. In R. Bauerle, U. Reyle, and T. Zimmermann (Eds.), *Presuppositions and Discourse: Essays Offered to Hans Kamp*, pp. 273 – 285. Leiden, The Netherlands: Brill.
- Winter, Y. and J. Zwarts (2011). Event semantics and Abstract Categorical Grammar. In M. Kanazawa, A. Kornai, M. Kracht, and H. Seki (Eds.), *Proceedings of Mathematics of Language, MOLI2*, Volume 6878 of *Lecture Notes in Artificial Intelligence, LNAI*, Berlin, pp. 174–191. Springer-Verlag.