

Semantics and
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BOOK OF ABSTRACTS



Scientific committee

Tadeusz Ciecierski (University of Warsaw), Kit Fine (New York University), Justyna Grudzińska-Zawadowska (University of Warsaw), Friederike Moltmann (Centre National de la Recherche Scientifique/New York University), Joanna Odrowąż-Sypniewska (University of Warsaw), Adam Przepiórkowski (University of Warsaw/Polish Academy of Sciences), Maria Spychalska (University of Cologne), Jakub Szymanik (University of Amsterdam)

Additional assistance

Anastazja Adamczyk, Krystian Bogucki, Natalia Karczewska, Marta Kasprzyk, Kamil Lemanek, Jakub Rudnicki, Bartosz Szyler

Typesetting

Marta Kasprzyk

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The Lvov-Warsaw School and Contemporary Semantics

How to remake a theory? The case of Ajdukiewicz's directival theory of meaning

Paweł Grabarczyk

IT University of Copenhagen / University of Łódź

The talk presents an attempt of a revision of Kazimierz Ajdukiewicz's "directival theory of meaning" (henceforth the DTM). Unfortunately, shortly after the theory was published in the 1930s Ajdukiewicz abandoned the idea and refused to revive it in his later work. The result of this is that the DTM became almost completely forgotten and is nowadays ignored even in historical overviews of existing theories of meaning.

I argue that this is very unfortunate because the DTM contains many fresh ideas which have never been properly explored by scholars. For this reason, it should be recognized as one of the most original achievements of the Lvov-Warsaw School.

Still, as I point out, reviving the DTM is not just a matter of going back to its original form. The reason for it is that Ajdukiewicz never treated the theory as an autonomous project. In reality, the DTM was always supposed to function as a backbone of his epistemological account of "radical conventionalism". I show that this subservient role of the DTM sealed its fate because it determined a number of peculiarities of the theory which made it fairly unattractive as semantics. I show that eliminating the remnants of the connection between the DTM and radical conventionalism helps to turn the DTM into a full-fledged theory of meaning capable of competing with contemporary functional role semantics.

Twardowski's Distinction between Actions and Products. Its Importance and Limitations

Friederike Moltmann

Centre National de la Recherche Scientifique/ New York University

Invited Lectures

General Session

Are counterfactuals hyperintensional?

Timothy Williamson
University of Oxford

Recent attempts to show that counterfactual conditionals are hyperintensional are flawed because they depend on ignoring contextual shifts. An alternative view will be sketched on which counterfactual conditionals have a compositional semantics derivable from a truth-functional reading of 'if' and a context-sensitive intensional reading of 'would', resulting in a context-sensitive strict conditional.

Special Session I: Subjectivity: Theoretical and Experimental Perspectives

Semantic phenomena outside of natural languages

Emmanuel Chemla

Centre National de la Recherche Scientifique

The talk will only indirectly address the topic of the special session. Various phenomena of human natural languages, which may prima facie appear as very "advanced" phenomena (implicatures, presuppositions, homogeneity, lexical constraints) can be found in non-linguistic settings, with humans or even in animal behavior. The approach is useful in general because (i) it helps identify objectively the minimal components needed to account for any given phenomenon, (ii) it provides information about the sources of the phenomenon.

Disentangling the types and sources of adjectival subjectivity

Stephanie Solt

Leibniz-Zentrum Allgemeine Sprachwissenschaft Berlin

Recent work on subjectivity has tended to focus on contrasts between two very different sorts of predicates: i) dimensional adjectives such as *tall*, which can be used to describe objective facts (*Anna is taller than Zoe*); ii) evaluative adjectives such as *beautiful* and personal taste predicates such as *tasty*, which seemingly express subjective judgments (*Zoe is more beautiful than Anna*; *the soup is tastier than the chili*). In this talk, I will turn the focus to a broad range of adjectives that fall between these two poles on the spectrum of subjectivity, examples being *clean/dirty*, *flat/bumpy*, *sharp/dull* and even *salty*. Can two individuals disagree faultlessly about which of two shirts is dirtier? which of two surfaces is bumpier? which of two dishes is saltier? Based in part on experimental findings, I argue that with respect to the availability of objective versus subjective interpretations of their comparative forms, gradable adjectives divide into (at least) three distinct groups, and that this behavior reflects (at least) two distinct sources of subjectivity: multidimensionality and judge dependence. I discuss the challenges involved in finding independent evidence for these proposed mechanisms and some possible ways to make progress in resolving them.

Subjectivity in Moral Statements

Isidora Stojanovic

Institut Jean Nicod

In "Disagreements about Taste vs. Disagreements about Moral Issues" (*American Philosophical Quarterly*, 2019), I argued that predicates of personal taste and moral predicates pattern differently, in that only the former are sensitive to (covert) experiencers. In this talk, I'd like to take a closer look at moral predicates, and explore the ways in which moral statements may still be subjective. One source of subjectivity lies in the fact that many moral predicates are gradable and multidimensional. Another, in the fact that many moral statements do employ experiencer-sensitive terms, such as "shocking", "appalling" or "cruel". Yet another, in the idea that there is no single, universally accepted morality. This talk should serve as an occasion to investigate how these different kinds of subjectivity interact and contribute to the overall semantics (and pragmatics) of moral statements.

Special Session II: Truthmaker Semantics and Situations

A Truthmaker Semantics for Conditional Imperatives

Kit Fine

New York University

Object-Based Truthmaker Semantics and its Application to Intensional Transitive Verbs

Friederike Moltmann

Centre National de la Recherche Scientifique/ New York University

Modal Meanings in a Truthmaker Semantics

Gillian Ramchand

University of Tromsø

Contributed talks

General Session

Epistemic Contradictions under Quantification: A Proof-Theoretic Perspective

Maria Aloni

University of Amsterdam

Julian Schlöder

University of Amsterdam

Luca Incurvati

University of Amsterdam

Epistemic Contradictions. Sentences of the form *p and might not p* sound incoherent. As observed by Yalcin (2007), this incoherence persists even in certain embedded environments (e.g. *suppose p and might not p*). This suggests that the incoherence of *p and might not p* is explained by a *semantic* defect of such sentences, not a pragmatic one (Mandelkern 2018, Incurvati & Schlöder 2019). However, if *p and might not p* is taken to be semantically *contradictory*, it follows that *might p* entails *p*—which is clearly unacceptable. That is, the following principles seem to be at odds (where \diamond formalises *might*).

(a) Epistemic contradiction: $p \wedge \diamond \neg p \vDash \perp$ (b) Non-factivity: $\diamond p \vDash p$

We approach this problem from a proof-theoretic perspective. The crucial principle of classical logic that allows one to infer the failure of (b) from (a) appears to be *classical reductio*. To wit: Assuming that *might p* is the case, one can suppose towards a contradiction that *not p*. By (a), one can derive a contradiction; thus, by classical *reductio*, one can discharge *not p* to infer *p*. Another problematic principle seems to be the classical disjunctive syllogism (DS): if *p* entails a contradiction one may infer *q* from *p or q*. To wit: if *p or not p* is the case, then *might p* entails *p* by DS.

However, we naturally reason using *reductio*- and DS-like inferences. Also, it does not seem to be wrong in general to apply these principles to epistemic vocabulary (e.g. one may infer *might p* from *must p* being contradictory). So the question at hand is this: how much of classical logic can be saved while simultaneously making sense of epistemic modals? The tension between (a) and (b) seems to suggest that classical logic needs to be revised vastly. We show here how to resist this suggestion: there is a systematic way of reconciling epistemic modality with classical logic.

Quantifiers and Epistemic Contradiction. One's immediate reaction to (a) and (b) may be to replace classical *reductio* with a principle one may call *epistemic reductio*: if from the assumption that *not p* one derives a contradiction, one is entitled to infer *might p* (Bledin 2014). This is attractive because epistemic *reductio* seems to stand in the same relation to (a), as classical *reductio* stands to the classical law of non-contradiction. (Or, in proof-theoretic terms, epistemic *reductio* is the natural inversion of (a)). Indeed, epistemic *reductio* is compatible with (a) and (b). An analogous move could be made for DS. But we argue that this approach does not go to the heart of the matter.

Once quantifiers are added to the logic, we see that epistemic *reductio* is also problematic. If we add standard natural deduction rules for quantifiers— $(\forall E)$ and $(\exists E)$ —then epistemic *reductio* validates the following inference (*) to $\forall x. \Diamond Ax \rightarrow \Diamond \forall x. Ax. Ax$.

$$\begin{array}{c}
 (\forall E.) \frac{\forall x. A}{A[y/x]} \\
 (\exists E.) \frac{\exists x. A}{\varphi} \quad \begin{array}{l} [A[y/x]] \\ \vdots \\ \varphi \end{array} \quad \begin{array}{l} \text{if } y \text{ does not occur} \\ \text{free in } A, \varphi \text{ or undis-} \\ \text{charged assumptions.} \end{array}
 \end{array}
 \quad (*) \frac{\frac{[\exists x. \neg Ax]^2 \quad \perp}{\Diamond \neg \exists x. \neg Ax} \text{ (epistemic } reductio)^2 \quad \frac{\frac{[\forall x. \Diamond Ax]^3}{\Diamond A[y/x]} (\forall E.) \quad [\neg A[y/x]]^1}{\perp} (\exists E.)^1}{\forall x. \Diamond Ax \rightarrow \Diamond \forall x. Ax} \text{ (conditional proof)}^3$$

But this is an unacceptable collapse of the *de re-de dicto* distinction. One instance of the conclusion of (*) is *if everybody might have won, it might be that everyone won*—which is clearly unacceptable. Thus, if one decides to replace classical *reductio* with epistemic *reductio*, one also needs to revise the classical principles about quantification. Instead of making such revisions by piecemeal, we pursue a general and precise strategy to determine how classical principles need to be weakened in the presence of epistemic modals.

Inferential expressivism is a novel approach to natural language semantics that integrates speech acts into proof theoretic semantics (Incurvati & Schlöder 2019). The result is a theory of content that combines the best aspects of the inferentialist programme and of the expressivist programme.

At a general level, *expressivism* holds that the meaning of linguistic items belonging to a certain category should be explained by reference to the connection those items bear to certain attitude-expressing speech-acts. Traditional expressivism takes this connection to be *direct*: a linguistic item receiving expressivist treatment signals the performance of a certain speech act, and the attitude expressed by the speech act gives the meaning of the linguistic item in question. Inferential expressivism, by contrast, takes the meaning of a linguistic item receiving expressivist treatment to be explained by reference to *inferential* connections to certain speech-acts expressing attitudes.

To see the merits of this, consider an example from Rumfitt (2000): negation. According to traditional expressivism about negation, *it is not p* serves to perform the non-assertoric speech act of *rejection* (which expresses the attitude *dissent*). But this does not square with the linguistic evidence, since *not* embeds in, e.g., conditional antecedents, whereas speech act indicators do not (this is the *Frege-Geach problem*). Inferential expressivism solves this issue, since it takes *not* to be a compositional (hence embeddable) operator, but *explains the meaning* of *not* in terms of its *inferential connections* to the speech act of rejection.

This can be made precise in *multilateral* logics, where propositional contents are accompanied by *force-markers* (Rumfitt 2000, Incurvati and Schlöder 2017). Using such logics, one can explain *not p* as *inferentially determined by* (but not reducible to) *reject(p)*. Embedded uses of *not* are then explained by reducing an embedding construction to its

inferential meaning. For instance, it is part of the meaning of *if p, then q* that, given *p*, it allows one to infer *q*. Thus, *assert(if not p, then q)* is explained as *assert(not p) ⊢ assert(q)*—where *not* appears non-embedded—and hence as *reject(p) ⊢ assert(q)*. In keeping with expressivism, rejection can then be understood as the speech act expressing dissent. Within a Stalnakerian framework—in which an assertion is a proposal to add a proposition to the common ground—we can then take the essential effect of a rejection of *p* to be that of blocking the proposed addition of *p* to the common ground.

This method can be applied to *might*. Again, on a traditional expressivist treatment of *might*, *it might be that p* serves to express a certain attitude about *p* (Schnieder 2010). But this does not square with the linguistic evidence, since *might* embeds in, e.g., conditional antecedents, leading to the Frege–Geach problem (von Fintel and Gillies 2007, MacFarlane 2014). Inferential expressivism avoids this problem since it takes the meaning of *might* to be explained by its inferential connections to a speech act called *weak assertion* (Incurvati & Schlöder 2019). The essential effect of a weak assertion of *p* is to block the addition of *not p* to common ground.

Classical principles. The upshot of this set-up is as follows: *might* can be characterised by proof rules that make the assertion of *might p* equivalent to the weak assertion of *p*: (\diamond E) *assert($\diamond p$) ⊢ w-assert(*p*)* and (\diamond I) *w-assert(*p*) ⊢ assert($\diamond p$)*. These rules (plus the characterisation of weak assertions) characterise *might* completely; since the weak assertion of *p* is incompatible with the assertion of *not p*, they in particular derive that *p and it might not p* is a contradiction.

Now, to expand classical first order logic with *might* is to add weak assertions and the rules for *might*. To avoid trivialising classical logic by this addition, we may revise the rules of classical logic to disallow the new inferences. We may hence phrase rules like classical *reductio* and classical existential elimination as follows.

$$(\exists E.) \frac{\begin{array}{c} [assert(A[y/x])] \\ \vdots \\ assert(\exists x.A) \end{array} \quad \begin{array}{c} assert(\varphi) \\ \text{if } y \text{ does not occur free in } A, \varphi \text{ or} \\ \text{undischarged assumptions and no} \\ \diamond\text{-Elimination occurs in the proof.} \end{array}}{assert(\varphi)} \quad (\neg I) \frac{\begin{array}{c} assert(A) \\ \vdots \\ \perp \end{array}}{assert(\neg A)} \quad \text{if no } \diamond\text{-Elimination} \\ \text{occurs in the proof.}$$

This strategy generalises: classical principles that are typically thought of as incompatible with epistemic contradictions are non-trivialising when their subderivations are restricted to disallow \diamond -Eliminations (as defined in the multilateral framework). We demonstrate soundness and completeness results showing that this strategy properly extends classical logic with epistemic modals.

Selected references

Bledin (2014), Logic Informed, *Mind*; Incurvati & Schlöder (2017), Weak Rejection, *AJP*.

Incurvati & Schlöder (2019), Weak Assertion, *PQ*; Mandelkern (2018), Bounded Modality, *Ph Review*.

Rumfitt (2000), 'Yes' and 'No', *Mind*.

Yalcin (2007), Epistemic Modals, *Mind*.

Thematic role features and predicate-modifier asymmetries

Curt Anderson

Heinrich-Heine-Universität Düsseldorf

Introduction I raise two points of interest regarding modification, predication, and the syntax-semantics interface. I argue that there is a conceptual tension between syntax and semantics, and develop an account of the syntax-semantics interface that helps dissolve this tension by building a new division of labor between syntax and semantics. I use this account to understand cases of predicate-modifier asymmetries, where readings available for attribute adjective disappear when the same adjectives are used predicatively.

Mainstream theories in formal semantics often rely on ordered argument lists; saturation of lambda bound variables returns progressively lower types as the arguments are saturated. The order of saturation can be visualized as a tree structure, and many authors take the hierarchical structure from argument saturation to be equivalent to the hierarchical structures in generative syntax. But, ordered argument lists in the semantic representation duplicate information from the syntactic component, namely the hierarchical order of arguments; ordered lists of arguments are how the semantics interfaces with the syntax, but otherwise are completely dispensable in the semantics. There is no semantic reason that the arguments for e.g. *give* should be ordered as they are. All things being equal, we should prefer a grammatical model where information is not duplicated across different levels of representation. I argue that, since argument order is duplicated across both syntax and semantics, a semantic representation where argument order is not represented is preferred to a view that it is.

I propose a different division of labor between syntax and semantics. In my proposal, syntax checks thematic role features on DPs. These features are semantically interpretable and determine how the referent of the DP participates in an event. Semantics unifies semantic representations (which I take to be frames). Unification of frames is constrained by the type information available within the frame (Petersen 2007), including the information contributed by thematic role features. The effect of function application is captured by the combination of thematic role features and frame unification, but function application itself does not exist as a rule of semantic composition.

This predicts more interpretations should generally be available in the absence of thematic role checking. This is borne out when looking at adjectives. Attributive adjectives generally allow for a larger field of interpretations than predicative adjectives, which by assumption check a holder thematic role. For example, adjectives such as *beautiful* lose their event-related interpretation in predicative position, as shown in the familiar contrast in (1) and (2).

- | | | | |
|-----|------------------------------------|-----|-------------------------------------|
| (1) | a beautiful dancer | (2) | This dancer is beautiful. |
| | a. a dancer who looks beautiful | | a. This dancer looks beautiful. |
| | b. a dancer who dances beautifully | | b. *This dancer dances beautifully. |

I examine case studies of meaning asymmetries between predicates and modifiers, and develop an account of composition divorcing syntactic and semantic composition. This allows for flexibility in how attributive adjectives are interpreted, a better understanding of the division of labor between syntax and semantics, and a principled account of a variety of predicate-modifier asymmetries.

Background and Proposal The basic proposal is to divorce semantic composition (e.g., argument saturation and identification of variables) from syntactic composition. I make use of several pieces of equipment: frame semantics for the semantic component, and Minimalist generative syntax with a feature-checking mechanism for the syntactic component.

Semantics: I use frames (Löbner 2017, Petersen 2007), recursive attribute-value structures with functional (e.g., type $\langle e, e \rangle$) attributes. Composition between frames is modeled as unification: two frames can unify if one frame subsumes the other, or there is a minimal third frame that subsumes both.

Syntax: I use a Pesetsky & Torrego (2001) style feature system making use of interpretable and uninterpretable features. Interpretable features must be valued during the syntactic derivation, otherwise the derivation fails, reflecting their role in semantic interpretation. Thematic role features are an interface between syntax and semantics: a thematic role feature $[i\theta]$ is valued by a finite set of thematic role labels (e.g., AGENT, THEME, etc.) corresponding to thematic role attributes in a frame. Thus, the agent valuation of the $[i\theta]$ feature is systematically related to the AGENT attribute in an event frame, THEME to a THEME attribute, and so on. Interpretable syntactic features denote frames; a feature maps one node (variable) to another via a frame attribute.

I adopt the view that predicative adjectives introduce states, paralleling how many verbs introduce events. A PredP projection (3) constructs a state from the meaning of the adjective (\approx relates a state to a frame value), and the referent of the DP is asserted to be the holder of the state via a syntactic feature $[i\theta: \text{HOLDER}]$ which is valued in SpecPredP (4). Importantly, I assume that the value that the state is related to must be an attribute of the HOLDER (5) or an attribute that could be constructed from “chaining” attributes/function composition (6).

Attributive adjectives compose with the nouns they modify via unification, but this unification is not constrained by thematic role features, allowing for a wider array of interpretations.

- (3)
- (4) a. $\llbracket [i\theta: \text{HOLDER}] \rrbracket = \lambda x[x = \text{HOLDER}(s)]$
 b. $\llbracket \text{Pred AP} \rrbracket = \lambda s \left[\begin{array}{l} z = \text{ATTR}(y) \wedge \mathbf{A}(z) \wedge \\ \mathbf{state}(s) \wedge s \approx z \end{array} \right]$
 c. $\llbracket \begin{array}{l} DP \quad \text{Pred AP} \\ [i\theta: \text{HOLDER}] \end{array} \rrbracket = \lambda s \exists x \left[\begin{array}{l} z = \text{ATTR}(y) \wedge \mathbf{A}(z) \wedge \\ \mathbf{state}(s) \wedge s \approx z \wedge \\ x = \text{HOLDER}(s) \wedge \dots \end{array} \right]$
- (5) $x = \text{HOLDER}(s) \wedge s \approx z \wedge z = \text{ATTR}(x)$ (6) $x = \text{HOLDER}(s) \wedge s \approx z \wedge z = \text{ATTR}_2(\text{ATTR}_1(x))$

Case study 1: Conceptual versus referential affordances Semantic composition based on attributes inherent to the NP is possible in attributive position, as shown in (7). In these cases, the NP provides suitable attributes for the modifier *red* to target, as in (8).

- (7) a. *a red pen* \rightsquigarrow a pen with a red cap (attribute: CAP)
 b. *a red pen* \rightsquigarrow a pen that writes in the color red (attribute: INK)

(8) $\llbracket red \rrbracket = \lambda x[\mathbf{red}(\mathbf{COLOR}(x))]$

McNally & Boleda (2017) observe that modifiers can relate to what they are modified in different ways. In an out-of-the-blue context, *red box* specifies a box where the surface of the box is red. But, in certain cases, context allows more possibilities for how to link *red* with *box*. For instance, in (9b), *red* specifies a color of something to be put into the box, not an attribute of the box itself.

- (9) a. Put the scarf in the red box! (preferred: box with a red surface)
 b. (*Context: For a fundraising sale, Adam and Barbara are sorting donated scarves according to color in different, identical, brown cardboard boxes. Barbara distractedly puts a red scarf in the box containing blue scarves.*)
 Adam: Hey, this one belongs in the red box! (McNally & Boleda 2017)

(10) $\llbracket red\ box \rrbracket = \lambda x[\mathbf{box}(x) \wedge \mathbf{red}(\mathbf{COLOR}(y)) \wedge x = \mathbf{PLACED-IN}(y)]$ (Author's analysis of (9b))

With a predicative adjective, however, the example no longer supports contextually-driven composition (see (11)); in this position, it is the conceptual properties of the nominal that drive composition.

- (11) Adam: *Hey, this one belongs in the box that is red!

I analyze attributive modification as a case of unmediated frame composition: the AP and NP frames may combine in any way that is licit given the properties of their respective frames as well as the speaker's world knowledge. On the other hand, predicative adjectives are more constrained, due to the holder attribute. Pred^0 links a state to the value provided by the adjective, and holder links this state to the referent of the DP the feature lives on. Attributes of the referent of the DP may be available for composition (see discussion of holder above, but (in the example illustrated) the color attribute is not an attribute of the referent, nor is it accessible via a chain of attributes.

Case study 2: Subjective modification with event-related modifiers Event-related adjectives such as *beautiful* also exhibit a well-known predicate-modifier asymmetry, as in (12) and (13) (Larson 1998).

- (12) Mary is a beautiful dancer.
 a. Mary is a dancer and she is beautiful. (intersective; referent-related)
 b. Mary is a dancer and she dances beautifully. (subjective; event-related)
- (13) This dancer is beautiful. \nrightarrow This dancer dances beautifully. (event-related unavailable)

I consider event-related attributive modifiers to target an attribute of an event within the semantic representation of the nominal. For simplicity, I use a manner event attribute that maps an event to the manner of that event, and a quality attribute of individuals that maps

individuals to a subjective quality. The adjective *beautiful* restricts the range of values associated with either of these attributes by contributing a type specification for the values of these attributes, shown in (14).

- (14) a. $\llbracket \textit{beautiful dancer} \rrbracket = \lambda x[\textit{person}(x) \wedge \textit{dance}(e) \wedge x = \textit{AGENT}(e) \wedge \textit{beautiful}(\textit{MANNER}(e))]$
 b. $\llbracket \textit{beautiful dancer} \rrbracket = \lambda x[\textit{person}(x) \wedge \textit{dance}(e) \wedge x = \textit{AGENT}(e) \wedge \textit{beautiful}(\textit{QUALITY}(x))]$

In predicative position, the holder attribute links the referent of the DP to a state related to the adjective. This only allows for *beautiful* to specify the quality attribute of the DP referent, and not the manner attribute of the event, as the manner attribute is not an attribute of the DP referent. Thus, predicative adjectives cannot be interpreted as event-related, unless the subject DP denotes an event.

Conclusion I examine how predication and attribution are distinguished in their syntax and semantics, and how a clear separation between syntax and semantics can be developed. I provide a new way of thinking about these problems via the use of thematic role features, using interpretable thematic role features to constraining unification, yielding a new view on the relationship between syntax and semantics and giving insight on what distinguishes modification from predication.

Model-Theoretic Semantics as Model-Based Science

Brendan Balcerak Jackson

University of Miami

In the early days of natural language semantics, Donald Davidson issued a challenge to those, such as Richard Montague, who would employ a model-theoretic framework. Such a framework gives a central role to a relativized notion of truth, such as truth in a model, or truth on an interpretation or assignment. Davidson argued that no theory of this kind can claim to be an account of the genuine truth conditions of sentences – and so a theory of meaning – unless it first makes clear how the relativized notion relates to our ordinary non-relativized notion of truth. Davidson’s challenge was re-issued in the 1980s by Ernest Lepore (1983), and developed into a challenge for the model-theoretic account of entailment in the 1990s by John Etchemendy (1999). In these same decades, however, the model-theoretic framework initiated by Montague flourished within linguistics, and by now has become one of the main paradigms within linguistics for doing truth conditional semantics (see e.g. Heim and Kratzer 1998, Jacobson 2014). But it has flourished without any consensus among linguists or philosophers as to how to answer Davidson’s challenge.

The aim of this paper is to develop an answer. According to the answer I develop, model-theoretic semantics is best understood as an instance of model-based science: a model-theoretic semantics for a natural language is a scientific model of truth conditions in the language. This makes good sense of the way model-theoretic tools are used in linguistics, and it allows us to answer Davidson’s challenge by showing how a theory that employs a relativized notion of truth manages to tell us about ordinary truth conditions.

My strategy is to begin by considering Etchemendy’s version of the challenge, which focuses on the use of model-theoretic semantics to account for entailment. Consider examples like the following:

- (1) Kermit ran quickly/slowly/clumsily/gracefully; so, Kermit ran.
- (2) Rolf is a brown/white/large/small dog; so, Rolf is a dog.
- (3) Gonzo opened/closed/broke the window; so, the window opened/closed / broke.

Entailment patterns like (1)-(3) are the sorts of patterns that semanticists typically expect compositional semantics to be able to explain, because they are plausibly *structural*, i.e. obtain just by virtue of the compositional structures of the sentences involved. One attraction of the model-theoretic framework is that it provides a powerful and elegant way of capturing structural entailments like these: within a suitably developed model-theoretic semantics, they will turn out to be cases where every model in which the premise is true is a model in which the conclusion is true as well. Structural entailment is explained simply as preservation of truth across all models (see Montague 1974, omitted).

However, Etchemendy argues that a model-theoretic account like this provides no real explanation of entailment at all, until it makes clear how the relativized notion of truth in a model relates to ordinary truth: “Before a theory of relative truth can be judged to have consequences, formal or otherwise, involving the standard *monadic* concept, we must give some explanation of exactly how the defined ‘*x* is true in *y*’ is related to the already understood ‘*x* is true.’” (Etchemendy 1999, p. 13) This simply echoes Davidson’s challenge. Etchemendy assumes that the only way to answer it is to treat ordinary truth as a “specification” of the relativized notion, i.e. to treat ordinary truth as simply truth on the “actual” or “correct” model. But what is the correct model? He identifies two ways of spelling this out, which respectively yield what he calls the *representational* and *interpretational* construals of relativized truth. He argues that neither construal provides the basis for a plausible account of entailment.

I agree. Furthermore, I argue that neither construal does justice to the way model-theoretic tools are actually used in linguistic semantics. One crucial problem for the representational construal is that it makes it impossible for compositional semantics to distinguish genuinely structural entailment patterns like (1)-(3) from entailments that depend on the idiosyncratic meanings of specific words, such as the following:

(4) Fozzy is a bachelor; so Fozzy is male.

A crucial problem for the interpretational construal is that it predicts that semantics is – or should be – primarily in the business of articulating the correct model. This prediction runs afoul of the fact that the correct model plays virtually no role in the vast majority of actual semantic theorizing.

Unlike, Etchemendy, however, I don’t think we should give up on the model-theoretic account of structural entailment. This is because we do not need to accept Etchemendy’s starting assumption that ordinary truth must be a specification of relativized truth. We make better sense of how semantics is actually done by thinking of model-theoretic semantics as an instance of model-based science (cf. Morrison 2015, Weisberg 2013). Scientific models in general aim to represent or illuminate some *target system*. The target system to be represented in this case is linguistic meaning, and a model-theoretic semantics is a mathematical (set-theoretic) model of this target system. It illuminates this target system by modeling the role that meaning – rather than “the world” – plays in determining the truth values of sentences. In order to do this, the notion of relativized truth employed within the model need not be a generalization of ordinary truth. Indeed, there need not be *any* very direct relationship between relativized and ordinary truth. In general, a scientific model can succeed in being an excellent representation of its target system without every element of the former directly corresponding to some element of the latter. Thus, the model-theoretic account of entailment can do without the assumption that ordinary truth is a specification, in either of Etchemendy’s senses, of truth in a model.

This brings us back, finally, to Davidson's original challenge. If the foregoing is correct, answering the challenge does not require us to be able to state any very direct relationship between relativized truth and ordinary truth conditions: the relationship is given by the role of the former in helping to make the semantics as a whole a good scientific model of the latter. Thus, the way to answer Davidson's challenge is to show how model-theoretic semantics manages to be a good model, a model that *fits* its target system. I conclude by identifying at least two different sorts of fit that we can reasonably expect to achieve with a model-theoretic semantics: an *input-output* fit and an *explanatory structure* fit (cf. Godfrey-Smith 2006). Thus, there are at least two different ways in which model-theoretic semantics, with its relativized notion of truth, can be used to successfully model ordinary non-relativized truth conditions.

References

- Davidson, Donald. 1973. In Defense of Convention T. *Studies in Logic and the Foundations of Mathematics* v. 68, 76-86.
- Etchemendy, John. 1999. *The concept of Logical Consequence*. CSLI Publications.
- Godfrey-Smith, Peter. 2006. The strategy of model-based science. *Biology and Philosophy* v. 21, 725-740.
- Heim, Irene and Kratzer, Angelika. 1998. *Semantics in Generative Grammar*. Blackwell Publishing.
- Jacobson, Pauline. 2014. *Compositional Semantics: An Introduction to the Syntax/Semantics Interface*. Oxford: Oxford University Press.
- Lepore, Ernest. 1983. What model-theoretic semantics cannot do? *Synthese* v. 54, 167-187.
- Montague, Richard. 1974. English as a formal language. In *Formal philosophy: Selected papers of Richard Montague*. Yale University Press.
- Morrison, Margaret. 2015. *Reconstructing Reality: Models, Mathematics, and Simulations*. Oxford University Press.
- Weisberg, Michael. 2013. *Simulation and Similarity: Using Models to Understand the World*. Oxford University Press.

Graded information semantics for indicative conditionals

Ivano Ciardelli

MCMP, LMU Munich

The material account of indicative conditionals famously suffers from many shortcomings. One is that it predicts a conditional $p \Rightarrow q$ to be a logical consequence of $\neg p$. As many pointed out [e.g., 4], this does not seem right: accepting (1-a) does not commit us either way with respect to (1-b): we may accept it or reject it consistently. This calls for an account that makes $p \Rightarrow q$ logically independent from $\neg p$.

- (1) a. The butler didn't do it. $\neg p$
 b. If the butler did it, he did it with a knife. $p \Rightarrow p$

Such an account was famously provided by Stalnaker [12]. Stalnaker's theory is based on the idea of minimal change: a conditional $p \Rightarrow q$ is true at a world w if q is true at the p -world which is "most similar" to w . Since p being false at w does not determine how things stand in the closest p -world, $p \Rightarrow q$ is predicted to be logically independent from $\neg p$.

Over the years, however, several problems with this account also emerged. For instance, it does not deal well with nested conditionals: (2-a) seems to mean the same as (2-b), but minimal change semantics does not validate $p \Rightarrow (q \Rightarrow r) \equiv p \wedge q \Rightarrow r$, nor can it be strengthened to validate it without collapsing to the material account [5, 11, 7].

- (2) a. If Bob is in Paris, then if he's staying in a hotel, he's at the Ritz.
 b. If Bob is in Paris and he's staying in a hotel, he's at the Ritz.

Second, an important observation which has become salient in the literature since the work of Kratzer [10] (see also [8]) is that conditional antecedents can restrict the range of modal operators appearing in the consequent clause. For instance, consider (3):

- (3) If Bob is not in London, he must be in Paris.

On its most salient interpretation, it conveys that all epistemically possible worlds where Bob is not in London are worlds where he is in Paris. That is, the range of epistemic *must* is not the whole set of epistemic possibilities, but the set of those possibilities where the antecedent is true. Minimal change semantics does not account for this interaction, and it cannot be easily be extended to account for it [8].

Inspired by earlier work on dynamic semantics [3, 14], in recent years various authors (Gillies [6], Yalcin [16], Bledin [2], Willer [15], Starr [13]) have proposed that indicative conditionals do not express properties of possible worlds, i.e., propositions, but properties of information states, where an information state is modeled as a set of possible worlds. These proposals build on the *Ramsey Test* view of conditionals: to check if an information state s supports a conditional $\alpha \Rightarrow \phi$, we first augment s hypothetically with α , and then check

whether the resulting state supports ϕ . More formally, $p \Rightarrow q$ is supported at s iff q is supported at the state $s[p]$ which results from restricting s to the p -worlds.

This view, which I will call *information semantics*, solves both problems we mentioned for minimal change semantics in an elegant way. First, since a conjunction is true just in case both conjuncts are true, we have $s[p][q] = s[p \wedge q]$, which implies that $p \Rightarrow (q \Rightarrow r)$ and $p \wedge q \Rightarrow r$ are equivalent. Second, suppose the information state parameter serves as domain of quantification for a modal O : then a conditional $p \Rightarrow Oq$ is supported at s just in case Oq is supported at $s[p]$; thus, when interpreting $p \Rightarrow Oq$ at s , O will end up quantifying over $s[p]$, the set of p -worlds in s . Thus, the behavior of nested conditionals and the interaction between conditionals and modals receive a natural account.

Existing versions of information semantics, however, do not retain all the attractions of minimal change semantics. In particular, they do not render $p \Rightarrow q$ logically independent from $\neg p$ (in some of these accounts, $\neg p$ entails $p \Rightarrow q$; in others, it is inconsistent with it). The reason is that, in these accounts, if s supports $\neg p$, then $s[p] = \emptyset$; thus, p cannot be consistently supposed, and so the conditional $p \Rightarrow q$ cannot be assessed in a non-trivial way. This is undesirable: even when we take $\neg p$ to be true, we are often able to suppose p (as a genuine indicative assumption), and form consistent beliefs under that supposition. As we noted above, accepting (1-a) as true does not commit us either way about (1-b).

I will present a semantics that combines in the attractions of information semantics with those of minimal change semantics. The proposal retains the main idea of information semantics: conditionals are assessed at information states, and $p \Rightarrow q$ is supported at s iff q is supported at $s[p]$. However, making the assumption that p does not always amount to *augmenting* s with p : when p runs against the information available in s , a revision of this information is required. To formalize this, I refine the modeling of information states with tools from the minimal change semantics tradition (also used in the study of belief revision since [9]): rather than modeling an information state just as a set of worlds, I model it as pair $s = (D_s, \leq_s)$, where D_s is a set of worlds and \leq_s is a total pre-ordering on this set. The minimal elements of \leq_s are the worlds which are considered possible given the available information; other worlds are disbelieved, but with different strengths; the higher a world is ranked by \leq_s , the more far-fetched it is taken to be.

I can only give a sketch of the formal details here. The semantics defines a relation of *support* $s \models \phi$ between graded states and sentences. The following are the crucial support clauses, where α is a (conditional-free) propositional formula:

- (4) a. $s \models \alpha$ iff α is true at each \leq_s -minimal world in s ;
 b. $s \models \alpha \Rightarrow \phi$ iff $s[\alpha] \models \phi$ where $s[\alpha]$ is the restriction of s to α -worlds.

Supposing α still amounts to restricting s to the α -worlds. But now, even when $s \models \neg \alpha$, it might still be possible to suppose α consistently. To see why, suppose that D_s contains some α -worlds, but none of these are \leq_s -minimal. Then, s supports $\neg \alpha$, but $s[\alpha]$ is a consistent state.

The minimal worlds in $s[\alpha]$ are exactly the \leq_s -minimal α -worlds in s . Thus, supposing α leads us to consider the least far-fetched worlds in which α is the case.

This system, *graded information semantics* (GrIS), combines the strengths of minimal change semantics and information semantics: as in the former, a conditional $p \Rightarrow q$ is logically independent from $\neg p$; as in the latter, we get the import-export equivalence, and predict that *if*-clauses restrict the domain of epistemic modals. Moreover, GrIS accounts for some features of conditionals which neither minimal change semantics nor standard information semantics predicts: (i) the existence of counterexamples to *modus ponens* for nested conditionals $p \Rightarrow (q \Rightarrow r)$ (see [11]); and (ii) the fact that the *or-to-if* inference from $p \vee q$ to $\neg p \Rightarrow q$ is *almost* logically valid, though not quite universally valid (see [1]).

References

- [1] Adams (1975): *The logic of conditionals: An application of probability to deductive logic*.
- [2] Bledin (2014): *Logic informed*.
- [3] Dekker (1993). *Transsentential meditations: ups and downs in dynamic semantics*
- [4] Edgington (1986). *Do conditionals have truth-conditions?*
- [5] Gibbard (1980). *Two recent theories of conditionals*.
- [6] Gillies (2004): *Epistemic conditionals and conditional epistemics*.
- [7] Gillies (2009): *On truth-conditions for 'if' (but not quite only 'if')*.
- [8] Gillies (2010). *Iffiness*.
- [9] Grove (1988): *Two modellings for theory change*.
- [10] Kratzer (1981): *The notional category of modality*.
- [11] McGee (1985): *A counterexample to modus ponens*.
- [12] Stalnaker (1968): *A theory of conditionals*.
- [13] Starr (2014): *What 'if'?*.
- [14] Veltman (1996): *Defaults in update semantics*.
- [15] Willer (2014): *Dynamic thoughts on ifs and oughts*.
- [16] Yalcin (2007): *Epistemic modals*.

Demonstrations as actions

Tadeusz Ciecierski
University of Warsaw

Piotr Makowski
University of Warsaw

Consider the following four situations:

[S1] Someone utters This is beautiful and points to a painting in a gallery.

[S2] Someone utters the sentence John can speak only THAT loud, imitating John's pitch of voice (cf. Levinson, 1983).

[S3] Someone utters the sentence of the language EL*: That fish was yea big which differs from English only in that EL* contains the expression yea which conventionally refers to the distance between hands of the speaker (cf. Perry, 1997). While uttering the expression, the speaker is making a suitable gesture.

[S4] Someone utters the sentence: I wish that noise would stop, doing nothing else and implying that the hearer knows what noise she is referring to (for example, there is only one noise disturbing the conversation (cf. Textor, 2007)).

In situations [S1], [S2], and [S3] different actions play the role of demonstrations. In [S1] it is a pointing gesture, in [S2] it is a certain way of using voice, in [S3]—it is conventional gesture associated with a certain expression of EL*. Also in the situation [S4] there is a demonstration, broadly conceived (even though the utterer is not performing any action except for uttering the sentence). In our talk we intend to discuss the problem of understanding demonstrations as actions, that is we want to answer the question in what sense one can speak of acts of ostension as present in situations like [S1]-[S4] (and other possible scenarios involving demonstratives).

The popular answer in the literature claims that demonstrations are acts associated by the complex intention: (a) to distinguish certain object x, and (b) to communicate a singular proposition about x, that is to transfer the knowledge that the utterance expresses a singular proposition about x (cf. Berckmans, 1990; Textor, 2007).

We shall propose a competitive answer. According to our proposal, demonstrations are semiotic acts accompanied by the intention to induce the addressee of an utterance to formulate certain explanatory hypothesis concerning the action of the speaker and - on the basis of that hypothesis - to formulate further hypothesis concerning the proposition expressed by the utterance. The model we want to defend differentiates between intentions that accompany the utterance from intentions that accompany the semiotic act of demonstration. The former ones - let's call them communicative intentions - are intentions to communicate a proposition. The latter ones - let's call them abductive intentions - are intentions to induce the addressee to make a certain inference which results in formulating the explanatory hypothesis pertaining to the demonstrating action.

Thus, according to our model, the situations [S1]-[S4] can be analyzed along the following lines:

[S1] The pointing by finger is an action which induces the addressee to formulate the hypothesis explaining that action (qua accompanying the utterance of *This is beautiful*).

[S2] The imitation of a certain pitch of John's voice is an action which induces the addressee to formulate the hypothesis explaining that action (as accompanying the utterance of *John can speak only that loud*).

[S3] Making a hand gesture conventionally related to the utterance of *yea* is an action which induces the addressee to formulate the hypothesis explaining that action (as accompanying the utterance of *That fish was yea big*).

[S4] Doing nothing (except for uttering the sentence itself) is an action which induces the addressee to formulate the hypothesis explaining that action (as accompanying the utterance of *I wish that noise would stop*).

Abductive intentions are always accompanied by a certain set of assumptions made by the speaker about hearer's representation of the communicative situation. These assumptions (possibly incorrect) always concerns certain aspects of the communicative situation and their representation.

In particular, they might pertain to conventions encoded in the meaning of expressions uttered (as in [S3]), or to putative domain of facts about what attracts the addressee's attention or what general expectations the addressee has etc. For example, in the situation [S4] the speaker assumes that the hearer may expect that the utterance of this will be accompanied by some demonstrative gesture. She also assumes that uttering the predicate *noise* guides addressee's attention to the presence of particular noise which is perceptually salient for the speaker and the addressee.

In our talk, we will present two applications of the model sketched above.

The first one concerns the debate about the semantic importance of referential intentions and demonstrations accompanying demonstrative utterances (cf. Reimer (1991), Roberts (1997), Leth (forthcoming)). We shall argue that the debate is rooted in the erroneous conception that referential intentions and demonstrating gestures have similar roles. The error in question comes from ignoring the distinction between communicative and abductive intentions.

The second application concerns the analysis of complex demonstratives (such as *that noise* in the situation [S4]). Here we will defend the view - along the lines proposed once by Kaplan (1979) and later defended by such authors as Larson and Segal (1995) - that the predicate occurring in a demonstrative expression plays the non-semantic role of the object of abductive intention.

In the final step, we will address the question of the place of the postulated explanatory inferences on the map of abductive inferences (cf. Schurz, 2008). This issue leads

directly to questions about atomism of demonstrating actions, their procedural character and the criteria of their effectiveness.

References

- Berckmans P. (1990). "Demonstrative Utterances". *Philosophical Studies*, 60: 281–95. Leth P. (forthcoming). "Hearers and Demonstrative Reference".
- Larson R., Segal G. (1995). *Knowledge of Meaning*, MIT Press. Levinson S. (1983). *Pragmatics*. Cambridge University Press.
- Kaplan D. (1979). "Dthat". In P. French, T. Uehling, and H. Wettstein (Eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis: University of Minnesota Press.400
- Perry J. (1997). "Indexicals and Demonstratives" In B. Hale & C. Wright (Eds.) *Companion to the Philosophy of Language* (pp. 586-613). Blackwell Publishing Ltd.
- Reimer M. (1991). "Do Demonstrations Have Semantic Significance?" *Analysis*, 51: 177-183.
- Roberts L. (1997). How demonstrations connect with referential intentions, *Australasian Journal of Philosophy*, 75(2): 190-200.
- Schurz G. (2008). "Patterns of abduction". *Synthese* 164: 201–234.
- Textor M. (2007). "Frege's Theory of Hybrid Proper Names Developed and Defended". *Mind*, 116: 947–81.

Bare Plurals and Implicit Domain Restriction

Diego Feinmann

University of Sheffield / École Normale Supérieure

It is a well-known fact that quantified NPs are context-dependent. For example, ‘every school’, in the examples below, means something different in each case: in (1), ‘every’ quantifies over the set of UK state schools, whereas in (2), it does over the set of French state schools.

- (1) Context: The UK Government has decided to reduce the budget for education.

Every school is going to suffer

=> Every *UK state school* is going to suffer

- (2) Context: The French Government has decided to reduce the budget for education.

Every school is going to suffer

=> Every *French state school* is going to suffer

The most influential proposal to handle this sort of data is what came to be known as the *C-variable account*: context provides a suitable domain of quantification, formalised as a predicate variable *C*. Classically, *C* is introduced by the D-determiner (or quantifier) and the denotation of *C* is intersected with that of the noun phrase. This account is associated with von Stechow (1994)’s seminal work, and I shall refer to it as the *classical account*. The competing proposal, due to Stanley (2000, 2002; Stanley & Szabó, 2000), attaches *C* to the head noun instead, and stipulates that the denotation of *C* is intersected with that of the head noun (because of this, Stanley’s account is known as ‘Nominal Restriction Theory’, NRT henceforth). Table 1 summarises these two proposals.

Table 1

Classical account	$IP[DP[Every_C\ NP[N[school]]\ VP[...]]]$
NRT	$IP[DP[Every\ NP[N[school_C]]\ VP[...]]]$

Stanley (2002; Stanley and Szabó, 2000) put forward a number of arguments in support of NRT; these arguments, however, have been met with considerable skepticism (for an assessment of Stanley’s arguments, see, for example, von Stechow, 2014). At the same, and as far as I am aware, no compelling empirical evidence has been reported indicating that domain variables are in fact introduced by the D-determiner, as stipulated in von Stechow (1994). In this talk, I shall present a novel empirical argument against NRT and in support of the classical account, which may settle the issue once and for all.

A Novel Empirical Argument

I argue that determinerless DPs and their pragmatic behaviour hold the key to the *C* variable location problem. The reasoning here is straightforward: if DPs lacking an overt D-determiner fail to be domain-restricted, then the domain restriction machinery must be introduced by the D-determiner. There have been some attempts to approach the location problem from this perspective, but these have all involved looking at whether *generic* DPs can be domain-

restricted. It is not clear what to make out of these data: examples have been reported showing that generic DPs cannot be domain-restricted (e.g. Krifka 1987, Teichman 2015), but there are also cases of generic DPs where domain restriction appears to be at work (e.g. Condoravdi, 1994). There is an additional problem: judgments about whether generic DPs can be domain-restricted are likely to be confounded by several factors (cf. Carlson, 1977).

To circumvent these issues, I propose to test whether domain restriction is possible with mass nouns and bare plurals (in non-generic, existential uses). To my knowledge, this has not been done before.¹ Consider (3b), for example: if *apples* were to introduce *C*, then, in the stipulated context, it would be strengthened to *apples from the churchyard's apple tree* via domain restriction. This restriction, however, does not take place, as revealed by the contrast in meaning between (3b) and (3c). Furthermore, the contrast between (3a) and (3b), indicates that the presence of *some* in the structure makes domain restriction possible.

- (3) Context: Pastor Hannah is concerned about the fact that someone has been eating the apples from the churchyard's apple tree on warm summer days. In a discussion with John, John confesses:²
- a. I ate some apples last week, please forgive me.
 - => I ate some apples from the churchyard's apple tree last week, pls. forgive me.
 - b. ? I ate apples last week, please forgive me.
 - ≠> I ate apples from the churchyard's apple tree last week, please forgive me.
 - c. I ate apples from the churchyard's apple tree last week, please forgive me.

The minimal pairs reported in (3) conclusively show that *C* variables must be introduced by D-determiners, as in von Stechow's (1994), and not by nouns, as stipulated in NRT. Two scenarios compatible with von Stechow's proposal must be considered, however. In (3b) *apples* could be combining with a silent existential quantifier or, alternatively, with no quantifier at all, the D position being \emptyset . If the former is the case, then it means that covert existential quantification does not introduce domain variables; alternatively, if *apples* combines with no quantifier at all, the D position being \emptyset , then a type-shifting rule must be posited to derive (3b)'s existential force. Further research, possibly involving cross-linguistic comparisons, should be carried out to determine which of these two hypotheses is correct.

References

- Arregui, Ana. 2008. "Some Remarks on Domain Widening." In Proceedings of the 27th West Coast Conference on Formal Linguistics, 45–53.

¹I am only aware of some examples (*not* minimal pairs) reported in Arregui (2008), which suggest that indefinites without an overt determiner may fail to take restricted domains *in the scope of negation*. The minimal pairs that I present here reveal that determinerless indefinites do not support DR, irrespective of whether negation is present.

²(3) is a slight (but not at all trivial) modification of Stanley's (2002) example #41.

- Carlson, Greg N. 1977. "Reference to Kind in English." PhD Thesis. University of Massachusetts, Amherst.
- Condoravdi, Cleo A. 1994. "Descriptions in Context." PhD Thesis. Yale University.
- von Fintel, Kai. 1994. "Restrictions on Quantifier Domains." PhD Thesis. University of Massachusetts at Amherst.
- . 2014. "Quantifier Domain Restriction." Presented at the Semantics Workshop, Rutgers University.
- Krifka, Manfred. 1987. "An Outline of Genericity." Presented at the SNS-Bericht 87-25, Seminar für Natürlich-Sprachliche Systeme, Universität Tübingen.
- Stanley, Jason. 2000. "Context and Logical Form." *Linguistics and Philosophy* 23(4): 391– 434.
- . 2002. "Making It Articulated." *Mind & Language* 17(1–2): 149–68.
- Stanley, Jason, and Zoltán Gendler Szabó. 2000. "On Quantifier Domain Restriction." *Mind & Language* 15(2–3): 219–261.
- Teichman, Matt. 2015. "Characterizing Kinds." PhD Thesis. University of Chicago.

Suspending Judgment: A Corrective

Alexander Geddes

University of Southampton

When considering whether something is true, or attempting to determine the correct answer to any other kind of question, we have multiple options. One is to make a relevant judgment, and thereby come to believe something that counts as an answer to the question at hand. But another is to suspend judgment, and thereby refuse, however temporarily, to accept any such answer.

It is now common to think of what is going on when we suspend judgment primarily in terms of a kind of doxastic state or condition, variously called ‘suspended judgment’, ‘suspension’ or ‘agnosticism’. There are then at least two distinct ways in which one might think of suspending judgment itself. First, as analogous to judging. That is, just as one might think of judging as a canonical way of coming to believe, so one might think of suspending judgment as a canonical way of coming to be in a state of suspended judgment. Or, second, as analogous to believing. That is, just as one might think of believing simply as a matter of being in a state of belief, so one might think of suspending judgment simply as a matter of being in a state of suspended judgment.

On either way of thinking, significant questions arise concerning the nature, content and cognitive role of states of this kind. And the project of answering these questions has been pursued by a number of writers in recent years, most notably Jane Friedman (MN-Oa,b,c, MN-P). In this paper, however, I argue that this project rests on a mistake. Suspending judgment ought to be understood, not as a matter of being in, or of coming to be in, any particular kind of doxastic state, but as a matter of *refraining from judging*. Once suspending judgment is understood in this way, I argue, it becomes clear that we have no need to countenance any uniquely corresponding state or attitude kind capable of sustaining an inquiry of the sort just mentioned.

I begin, in §1, by recounting and criticising some of the considerations that have shaped recent debate over the nature of these supposed states of suspended judgment, drawing in particular on Friedman’s work. In her widely endorsed MN-O paper, ‘Suspended Judgment’, Friedman argues against ‘non-belief’ accounts of such states, and in favour of an ‘attitude’ account. (The former will hold that being in a state of suspended judgment about whether p is a matter of *lacking* certain attitudes about whether p (of neither believing nor disbelieving p), perhaps after having performed some cognitive act; the latter will hold that it is a matter of *having* a certain (perhaps *sui generis*) ‘settled’ attitude about whether p .) She does so by considering a range of non-belief accounts, arguing that they all fail, and diagnosing these failures as being due to such accounts not requiring what she calls an ‘indecision-representing’ attitude.

I point out that there are two natural critical reactions that one might have to Friedman's discussion. First, she fails to consider non-belief accounts according to which non-belief must be *due to* (as opposed to simply *later in time than*) the performance of some appropriate past cognitive act to constitute a state of suspended judgment. And second, some perfectly ordinary, even paradigmatic, cases of suspending judgment, in which the evaluation of one's evidence is postponed for practical reasons, seem to provide counterexamples to an attitude account of the sort Friedman defends.

But I suggest that, while there is something right in both of these reactions, to adopt a non-belief account of their basis would be to take an insufficiently critical view of Friedman's overall approach. For she relies throughout on our judgments about whether phrases such as 'has suspended judgment' and 'is agnostic' (and cognates) apply in certain envisioned scenarios—or, more naturally, on our judgments about whether subjects have suspended judgment, or are agnostic, etc., in the relevant scenarios—taking these to be equivalent to judgments about whether the subjects in the envisioned scenarios are in states of suspended judgment: doxastic states of a kind in terms of which suspending judgment is to be understood. In doing so, Friedman simply assumes that there is such a state-kind, and so is committed to thinking that, in one way or another, her discussion is being disciplined by, and developed in accordance with, our grasp on its nature and our sensitivity to the presence or absence of its instances.

In §2, then, I argue that this approach embodies a number of mistakes. I begin with the question of why we should think that there is a doxastic state kind which deserves the label 'state of suspended judgment' in the first place. The most obvious anticipated answer to this question is simply that it would be surprising and revisionary to deny that there is such a state kind. For is it not precisely states of this kind that we speak of whenever we say that a subject has suspended judgment, or is agnostic?

In §§2.1-2.3, I argue that this is not the case. First, I consider sentences such as 'S has suspended judgment [about whether *p*]'. On its only natural interpretation, I suggest, this is a sentence in the present perfect, and not the simple present: it concerns something S *has done*, not something S *has*. (That is, read naturally, 'has' is an auxiliary and 'suspended' the main verb, with 'suspended judgment' being a verb phrase. And there is no natural reading of the sentence on which 'has' is the main verb and 'suspended' a premodifier, with 'suspended judgment' being a noun phrase.) So the phrase 'suspended judgment', in this claim, does not denote the kind of cognitive state S is presently in. Rather, it picks out the kind of cognitive act S performed in the past. And so its common currency cannot straightforwardly show that we ordinarily speak of states of suspended judgment, in the relevant sense. I consider the objection that the sentence is typically used to speak to S's current outlook, not just to something S has done in the past; but argue that this is in fact predicted by all extant accounts of the English perfect, and in a way that does nothing to support the claim that there

is a particular doxastic state kind corresponding to appropriate/correct uses of this sentence in its perfect reading.

Second, I consider sentences such as ‘S is agnostic [about whether p].’ I point out that, in its primary sense, agnosticism is (something like) a belief in the impossibility of knowledge concerning God or immaterial things. In its secondary, extended, sense—the relevant sense in this context—being agnostic involves having an attitude towards that subject matter that approximates or is analogous to agnosticism in the primary sense. However, this permits differences not only in subject matter, but also variation in the attitude concerning that subject matter. For nothing so strong as a belief in the impossibility of knowledge concerning X is required for a subject to be appropriately described as agnostic about X . So while attributions of agnosticism to a subject are clearly claims about that subject’s outlook, there is no guarantee that there is a single state kind corresponding to appropriate claims of agnosticism. Moreover, even if there were a single doxastic state kind underlying agnosticism in the extended sense, we have been given no reason to think that this state bears the kind of relation to the act of suspending judgment that we are looking for.

The upshot of these points, I then argue, is that it is inappropriate for Friedman to give judgments about whether subjects have suspended judgment or are agnostic the controlling role she does in shaping her account of states of suspended judgment.

None of this, of course, shows that there are *not* states of suspended judgment in terms of which suspending judgment is to be understood. In §2.4, then, I raise some initial grounds for doubt. On the one hand, one can continue to suspend judgment, or go on suspending judgment indefinitely. But one cannot continue to enter a doxastic state, or go on entering a doxastic state indefinitely. And so suspending judgment cannot be a matter of coming to be in such a state. Yet on the other, suspending judgment can mark the end of active inquiry. Yet simply being/remaining in a doxastic state, or having/maintaining an attitude—unlike entering a state, or adopting an attitude—cannot occupy this precise position. So it seems that suspending judgment cannot be a matter of being/remaining in a doxastic state, either. And while still not ruling out states of suspended judgment *per se*, this does leave their place in our naïve taxonomy of the mind problematically unclear.

This motivates the work of §3, in which I sketch an account of suspending judgment which has no place for any such state kind. According to this account, to suspend judgment about something is simply to refrain from making a judgment about it. To hold this is to hold that suspending judgment is primarily to be understood by reference to its place in the realm of mental action, rather than in its relation to the realm of mental states. But more specifically, it is to hold that, in understanding what it is to suspend judgment, we should be drawing on general points about the nature of refraining. To this end, I identify a number of key aspects of refraining, show how they apply to the case of refraining from making a judgment, and argue that this notion equips us to make all of the claims and distinctions we want to make when it comes to cases of suspending judgment. I conclude by showing how the proposed view

allows us to make sense of, and accommodate, the two initial critical reactions to Friedman's discussion identified in §1.

A Priori and Necessary Questions

Thom van Gessel

University of Amsterdam

Motivation. Since Kripke (1972), philosophers have distinguished *a priori* true statements from *necessarily* true ones. While (1) is *a priori* and contingent, (2) is *a posteriori* and necessary.

(1) I am here now.

(2) Hesperus is Phosphorus.

The distinction between *a priori* and necessary truths can be captured formally using two-dimensional semantics (Stalnaker, 1978; Kaplan, 1989): statements do not directly express propositions (*contents*, in Kaplan's terminology), but functions from contexts to propositions (*characters*). Given a context that provides the referents for indexicals and proper names, we obtain a content that is true or false in a world. To check if a statement is necessarily true, we keep the context fixed, while varying the world of evaluation. To check whether a statement is *a priori* true, we vary both the context and the world, but we only look at pairs in which the world of evaluation is the world specified by the context.

There is a natural way to extend the notions of *a priori* and necessity so they can also apply to questions. Questions either can or cannot be resolved before experience, and either are or are not about necessary facts. For instance, (3) is intuitively *a priori* and contingent, while (4) is *a posteriori* and necessary.

(3) Am I here now?

(4) Who am I?

We can resolve (3) without any knowledge of what the world is like, or even who asks the question. But given a context that provides referents for the indexicals, the question whether this person is at that place at that time is contingent. In contrast, (4) is not resolved until we find out who the speaker is. But in this case, given a referent for 'I', the question is about a necessary fact. Given these observations, it is natural to wonder whether two-dimensional semantics can be generalized in such a way that these notions apply to questions as well as statements.

Question semantics. Many accounts of question semantics analyze questions reductively, either as sets of answers (Hamblin, 1973; Karttunen, 1977) or as functions from individuals to answers (Hausser & Zaefferer, 1978). In these frameworks, it would be natural to call a question *a priori* (or necessary) just in case its true answer is. However, answers are usually construed as propositions, and *a priori* and necessity cannot be distinguished at this level. We could construe answers as characters instead, but then we should argue why the question 'Where are we?' is not *a priori*, even though it has the *a priori* true answer 'We are here!'. In the paper we will discuss this issue in more detail.

Here we will instead adopt the approach of inquisitive semantics (Ciardelli et al., 2019), in which questions are analyzed in terms of resolution conditions: the meaning of a question is construed as the set of information states in which it is resolved. An information state is a set of possibilities, namely the ones compatible with the information that the state encodes. Usually, these possibilities are worlds, but here we will construe possibilities as *context-world pairs*.

With this minor modification, the existing definitions of apriority and necessity can be generalized in such a way that they apply to questions and statements uniformly. While necessary truth and a priori truth are traditionally formalized as truth relative to some particular context-world pairs, we will say that both questions and statements are *necessarily supported* or *a priori supported*, which means that they are supported relative to some particular states.

Two-dimensional inquisitive semantics. For Kaplan (1989), the meaning of a statement is a function from contexts to propositions: given a context, we can obtain a proposition that encodes the truth conditions of the statement. A context c is a tuple $\langle a_c, p_c, w_c \rangle$ with an agent, position, and world such that in w_c , a_c is located at p_c (we leave out time here, as it is not crucial for the purposes of this abstract).

Analogously, it may seem that question meanings could be construed as functions from contexts to sets of sets of worlds: given a context c , we can determine the referent for ‘I’ in ‘Where am I?’ and thereby determine the resolution conditions of the question. However, this question is about what the current location is, so it would be wrong to let this be fixed by the context: we want the question to propose several locations as options rather than presuppose one. Since questions can be about *what the context is like*, we need to let c vary across resolutions. This is why sentence meanings should not be construed as functions from contexts to sets of sets of worlds, but rather as sets of sets of context-world pairs.

An information state is a set of pairs $\langle c, w \rangle$, which we can think of as a body of information about the context of utterance and the world of evaluation. A sentence meaning is a set of information states, namely the ones that are informative enough to resolve the issue raised by the sentence.

A model M is a structure $\langle C, W, A, P, I \rangle$ consisting of contexts, worlds, individuals, positions, and an interpretation function. We write $[\alpha]_{cfw}$ for the denotation of α with respect to context c , assignment function f and world w .

- $[I]_{cfw} = a_c$
- $[\text{here}]_{cfw} = p_c$
- $[\text{Located}]_{cfw} = \{ \langle x, y \rangle \mid x \text{ is at } y \text{ in } w \}$
- If a is any other constant, $[a]_{cfw} = I(a)(w)$
- If x is a variable, $[x]_{cfw} = f(x)$

We write $s \models_f \varphi$ to indicate that information state s supports φ under assignment f . Modulo the switch from worlds to pairs, we retain the support conditions from standard first-order inquisitive semantics. The crucial clauses are given here:

$$\begin{aligned}
s \models_f Pa_1 \dots a_n &\iff \text{for all } \langle c, w \rangle \in s : \langle [a_1]_{cfw}, \dots, [a_n]_{cfw} \rangle \in [P]_{cfw} \\
s \models_f a = b &\iff \text{for all } \langle c, w \rangle \in s : [a]_{cfw} = [b]_{cfw} \\
s \models_f \neg \varphi &\iff \text{there is no non-empty } t \subseteq s \text{ such that } t \models_f \varphi \\
s \models_f ?\varphi &\iff s \models_f \varphi \text{ or } s \models_f \neg \varphi \\
s \models_f \exists x \varphi &\iff \text{there is some } a \in A \text{ such that } s \models_{f_a} \varphi
\end{aligned}$$

Formulas with ? or \exists represent questions: for a state s to support $?Pa$ it is required that a has property P in all pairs in s , or in none. For s to support $\exists xPx$ (which can be read as ‘what is an x such that Px ?’), it is not just required that there exists an x with property P , but also that it is the same one in all pairs in s . The definitions of apriority and necessity are generalized in the following way, which applies to questions as well as statements:

- A sentence φ is a priori supported iff $\{\langle c, w_c \rangle / c \in C\} \models \varphi$
- A sentence φ is necessarily supported in context c iff $\{c\} \times W \models \varphi$

Examples. If we formalize (3) as $?Located(I, \text{here})$, it is indeed a priori, because the state consisting of all pairs $\langle c, w_c \rangle$ supports $Located(I, \text{here})$. But it is not necessary, as there are pairs $\langle c, w \rangle$ where in w , a_c is not located at p_c . The converse is the case for (4), which can be formalized as $\exists x(x = I)$: it is necessary because given any context c , which fixes an individual a_c , there exists someone who is equal to a_c in all worlds w . But it is not a priori: since two contexts might differ with respect to the value of a_c , the state consisting of all pairs $\langle c, w_c \rangle$ does not specify a single individual, and hence does not support the formula.

Selected references

- Ciardelli, I. , Groenendijk, J. , & Roelofsen, F. (2019). *Inquisitive Semantics*. OUP.
- Hamblin, C. L. (1973). Questions in Montague English. *Foundations of Language*, 10(1), 41–53.
- Hausser, R. , & Zaefferer, D. (1978). Questions and answers in a context-dependent Montague grammar. In *Formal semantics and pragmatics for natural languages*, (pp. 339–358). Springer.
- Kaplan, D. (1989). Demonstratives. In J. Almog, J. Perry, & H. Wettstein (Eds.) *Themes from Kaplan*, (pp. 481–563). OUP.
- Karttunen, L. (1977). Syntax and Semantics of Questions. *Linguistics and philosophy*, 1(1), 3–44.
- Kripke, S. (1972). Naming and necessity. *Semantics of Natural Language*, (pp. 253–355).
- Stalnaker, R. (1978). Assertion. In P. Cole (Ed.) *Syntax and Semantics 9: Pragmatics*, (pp. 315–332). Academic Press, New York.

A response to Liebesman and Magidor on copredication

Matthew Gotham

University of Oxford

Background Copredication is the phenomenon where predicates imposing apparently conflicting requirements can be felicitously applied to the same argument. For example, in (1), *by Tolstoy* seems to require that *books* denote information, while *on the shelf* seems to require that it denote physical objects. In recent years there has been increasing interest in the interplay between copredication and numerical quantification. How are the referents of a noun supporting copredication, like *book*, counted in a copredication sentence like (1), in comparison with non-copredication sentences like (2) and (3)? For example, [3] claims that three copies of the same book would count as three books for the purposes of (2) but not (1) or (3), and a physical volume instantiating three books would count as three books for the purposes of (3) but not (1) or (2).

- (1) Three books by Tolstoy are on the shelf.
- (2) Three books are on the shelf.
- (3) There are three books by Tolstoy.

Liebesman & Magidor's theory In [5], Liebesman and Magidor (L&M) present a theory of copredication according to which

- A noun supporting copredication denotes the union of the sets of its 'senses'. For example, $\llbracket \text{book} \rrbracket = \{b \mid b \text{ is a physical book}\} \cup \{b \mid b \text{ is an informational book}\}$.
- The appearance of a general conflict between (e.g.) physical properties and informational objects is illusory; copredication is possible because properties can be 'inherited'. For example, *War and Peace* can truly be on a shelf insofar as it inherits this property from a physical copy that instantiates it and is on the shelf.
- Truth value judgements for sentences like (1)–(3) are the result of quantifier domain restriction of the usual kind.

For example, in a situation where there are three copies of *War and Peace*, $\llbracket \text{book} \rrbracket = \{\text{copy 1, copy 2, copy 3, } \textit{War and Peace}\}$. However, one would not normally be able to truly assert there are four books because the domain of quantification would always be contextually restricted to some proper subset. Part of their case rests on the claim that what counts as three books for the purposes of (1)–(3) is more flexible than [3] allows. For example, (4) can be truly asserted in a context where there are three copies of *War and Peace* (and nothing else) on the shelf.

- (4) Exactly one book is on the shelf(: *War and Peace*).

Despite this additional flexibility, it is a consequence of L&M's view that no copredication sentence like (1) should have a reading requiring the existence of three copies of three different books—books that are both physically and informationally distinct (a 'double distinctness' reading), unlike [2, 3].

Response I will argue three theses against L&M's view:

1. There *is* a categorial conflict between (e.g.) physical properties and informational objects; the 'property inheritance' view does not hold water in the case of copredication.
2. Relatedly, to the extent that (4) can be interpreted as true in the situation described, this is the result of predicate transfer [6].
3. The double distinctness reading exists.

For thesis 1: imagine a situation in which there are three copies of *War and Peace* on the shelf and another one on the floor. If (4) is true because *War and Peace* is really on the shelf, then what is wrong with (5)?

(5) # Exactly one book is on the shelf. It is also on the floor.

I will argue that examples like (5) make copredication disanalogous to the phenomena for which L&M have invoked property inheritance, namely a whole inheriting properties from its physical parts and a kind inheriting properties from its instances (in the analysis of generics). In neither case does anaphoric reference invoking a property inherited from a different part/instance cause anomaly, as (6)–(7) show.¹ I will furthermore argue that anomaly such as is observed for (5) can serve as a diagnostic for predicate transfer, filling a gap in the literature.

(6) The table is touching the wall. It's also touching the floor.

(7) Mosquitoes carry malaria. They also carry dengue.

For thesis 2: L&M's argument depends on the claim that there is a true reading of (4) in the context described and in which (T3) holds [5, p. 139].

(T3) "is on the top shelf" [...] designates the same property as when it is used to ascribe a property to a physical entity

They defend (T3) on the basis of ellipsis examples like (8).

(8) *War and Peace* is on the top shelf, as is Ofra's blue pencil.

But this argument is weak, depending as it does on an identity-of-meaning theory of ellipsis and ignoring the possibility of a theory of ellipsis based on identity of structure. In fact, ellipsis *does* seem to be possible where the VP in the source clause ends up being interpreted as a transferred predicate, but the one in the target clause doesn't, e.g. in (9).

(9) I'm a bit worried because I'm parked in a disabled space, but then, so are several other cars without a blue badge.

¹ (7) can be true even if, as seems to be the case, no single mosquito can carry both infections.

Of course, there are also many examples where such attempted ellipses are anomalous, but I will argue that these can be accounted for by general constraints on discourse coherence, as laid out in [4] and applied to meaning transfer in [1].

For thesis 3: suppose that we want to emphasize the feats of memory that Sue is capable of; we could do so by uttering (10).

(10) Sue memorized three thick books last week.

I submit that it is very hard to interpret (10) as true under any conditions other than in which Sue memorized the contents of three physically thick books, each of which has distinct contents.

I will go on to argue that these observations are better accounted for in a system, like that in [3], in which predicates have selectional requirements that directly constrain the truth conditions of numerically quantified copredication sentences. At the same time, L&M provide reasons for thinking that the precise system in [3] is too restrictive; therefore, I will also argue that a mechanism for overriding the truth-conditional effect of selectional requirements, given certain pragmatic conditions, is needed.

References

- [1] R. Brandtner. “Deverbal nominals in context”. PhD thesis. Universita’t Stuttgart, 2011.
- [2] S. Chatzikyriakidis and Z. Luo. “Identity Criteria of Common Nouns and Dot-types for Copredication”. In: *OSLa* 10.2 (2018).
- [3] M. Gotham. “Composing Criteria of Individuation in Copredication”. In: *J Semant* 34.2 (2017).
- [4] A. Kehler. “Coherence and the Resolution of Ellipsis”. In: *Linguist Philos* 23.6 (2000).
- [5] D. Liebesman and O. Magidor. “Copredication and property inheritance”. In: *Philos Issues* 27 (2017).
- [6] G. Nunberg. “Transfers of Meaning”. In: *J Semant* 12.2 (1995).

The plural core of distributive conjunction: Cross-linguistic support for a non-classical meaning

Nina Haslinger

Georg-August-Universität Göttingen

Magdalena Roszkowski

University of Vienna

Valentin Panzirsch

University of Vienna

Viola Schmitt

Leibniz-ZAS, Humboldt University
Berlin

Eva Rosina

University of Vienna

Valerie Wurm

University of Vienna

In a nutshell: Non-distributive readings of conjunction do not follow straightforwardly from a meaning based on a generalization of the classical connective \wedge , and have been claimed to reflect a separate plurality-forming meaning of conjunction. Here, we argue that the semantics of conjunction generally involves plurality formation, even in the case of purely distributive (**‘D-only’**) conjunctions. This is supported by two cross-linguistic observations: (i) D-only conjunction strategies may morphosyntactically ‘contain’ conjunction strategies with a non-distributive reading, but the reverse pattern is not found. (ii) In several languages, conjunction strategies that are D-only in subject position permit cumulative readings in certain non-subject positions. We analyze this pattern within the Plural Projection framework [6], which allows us to form pluralities of arbitrary types. **Background: Iterative conjunctions (IC)** – conjunction forms that permit more than two conjuncts – fall into two classes morphosyntactically: **standard conjunctions (SC)** with a single coordinator (1-a) and **particle conjunctions (PC)** (cf. [7, 3]) where some or all conjuncts bear an extra marker μ (1-b). Semantically, IC differ wrt. the availability of non-distributive readings. We focus on predicates containing plurals, like the VP in (2), which are ambiguous between distributive and cumulative readings ([4] a.o.). Abstracting away from the fact that some languages require extra marking on the predicate for reading (2-a), we can distinguish between **D-only conjunctions**, which lack reading (2-b), and **D/ND conjunctions**, which have both readings.

(1)a. **A, B (COORD) C** (German A, B *und* C; Hungarian A, B *és* C; Polish A, B *i* C ...)

b. (μ) **A** (μ) **B (COORD)** (μ) **C** (where at least one of the μ 's is overt)

(German *sowohl A als auch B als auch* C; Hungarian *A is, B is (és) C is*; Polish *i A i B i C ...*)

(2) *John, Mary and Sue earned exactly 100 euros.*

a. **distributive:** ‘John, Mary and Sue earned exactly 100 euros each.’

b. **cumulative:** ‘John, Mary and Sue earned exactly 100 euros between them.’

Generalization 1: We used the Terraling database (<http://test.terraling.com>), which relies on judgments from native-speaker linguists, to find out if the semantic distinction between D-only and D/ND conjunctions correlates cross-linguistically with morphosyntactic marking. For conjunctions of proper names in subject position, our sample (24 languages from 10

major language families) shows the following: (i) SC are D/ND in all languages, whereas PC can be D-only. (ii) A D-only form of PC may transparently contain a D/ND SC, where COORD has the same overt realization in both strategies. This is exemplified by Hungarian [7] and Polish: The strategies in (1-a) are D/ND, but those in (1-b) are D-only. The reverse markedness relation is unattested. **Theoretical consequences:** We implement this correlation between morphosyntactic marking and distributivity as follows. The syntactic structure of IC universally contains the (possibly silent) coordinator COORD. It always expresses an operation \oplus related to sum formation (see below). SC of the form (3-i) thus denote pluralities and can have a cumulative or a distributive reading, depending on the predicate. PC have the structure in (3-ii), with additional markers μ on each conjunct. If a PC is D-only, distributivity results from the meaning of μ .

(3)(i) [A [COORD B]]

(ii) [[μ A] [COORD [μ B]]]

Generalization 2: Further support for the structure in (3-ii) comes from the fact that some languages have forms of PC that are D-only in subject position, but not in certain other positions: (i) German *sowohl A als auch B* (for some speakers), Serbian *i A i B* and Estonian *nii A, kui (ka) B* are D-only when conjoining proper names in subject position, but when they conjoin VP predicates, (4), the conjunction may have a cumulative reading wrt. a plural subject. (ii) Some PC-strategies (like those in (1-b)) permit cumulative readings in object, but not subject position.

(4) *Ada und Bea haben sowohl getanzt als auch geraucht.*

Ada and Bea have as.well danced as also smoked.

‘A and B were both dancing and smoking.’

Theoretical consequences: These subject/VP and subject/object asymmetries show that even seemingly D-only conjunctions have certain properties of plural expressions, supporting our claim that conjunctions generally contain a plural-forming operator. But what is the semantics of the μ -particles in such **asymmetrically distributive (AD) conjunctions**? We want to generate a cumulative reading in non-subject positions, but not in subject position, without appealing to lexical ambiguity. This resembles the behavior of English *every* DPs, which are distributive wrt. syntactically lower expressions, but have cumulative readings wrt. higher expressions ([5, 1] a.o.). As subjects asymmetrically c-command both the VP and the direct object, this generalization extends to AD conjunctions. The challenge is therefore to interpret (3-ii) compositionally in a way that predicts this cumulativity asymmetry and is compatible with a plurality-forming meaning for COORD. **Analysis:** We extend the analysis of English *every* in [2], which uses the Plural Projection framework [6]. This theory assumes pluralities of any semantic type (including predicates and propositions) which are formed by a cross-categorical sum operation $+$. We further extend the usual type theory by adding sets of pluralities (‘plural sets’). The composition rules distinguish between the semantic type a^* of plural sets with elements of type a and the type $\langle a, t \rangle$ of ordinary one-place predicates. Type-shifts mediate between a non-plural meaning \mathbf{a} and the plural set $\{\mathbf{a}\}$.

Definite plurals and D/ND conjunctions denote singleton plural sets (5-c). COORD denotes an operation that coincides with + unless it combines two plural sets, in which case we sum up all the pairs in their cross-product (5-a,b).

- (5)a. $P \oplus Q = \{p \oplus q \mid p \in P, q \in Q\}$ if P, Q are plural sets; otherwise, $P \oplus Q = P + Q$
 b. $\llbracket \text{COORD} \rrbracket = \lambda P_{a^*}. \lambda Q_{a^*}. P \oplus Q$ c. $\llbracket \text{Chris and Dora} \rrbracket = \llbracket \text{COORD} \rrbracket(\{\mathbf{d}\})(\{\mathbf{c}\}) = \{\mathbf{c} + \mathbf{d}\}$

The property of denoting a plural set ‘projects’ from a constituent to its mother; the meanings of complex constituents reflect the part-structure of the plurals they contain: In (6-a) the ‘projection’ rule combines $\llbracket \text{like} \rrbracket$ with each atomic part of the sum in (5-c), yielding a sum of unary predicates that preserves the part-structure of the definite. Combining two non-trivial plural sets, (6-b), requires an operator C that directly implements cumulativity: We consider all possible ways of ‘matching’ the atomic parts of the sum in (6-a) with atomic parts of the sum $\mathbf{a} + \mathbf{b}$. For each such matching, we perform functional application for the function-argument pairs and sum up the results via \oplus . We end up with a set of sums of propositions (6-b); it is mapped to true if it contains at least one sum all parts of which are true.

- (6)a. $\llbracket \text{like Chris and Dora} \rrbracket = \{\mathbf{Like}(\mathbf{c}) + \mathbf{Like}(\mathbf{d})\}$
 b. $\llbracket \text{Ada and Bea like Chris and Dora} \rrbracket = \mathcal{C}(\{\mathbf{L}(\mathbf{c}) + \mathbf{L}(\mathbf{d})\}, \{\mathbf{a} + \mathbf{b}\})$
 $= \{\mathbf{L}(\mathbf{c})(\mathbf{a}) + \mathbf{L}(\mathbf{d})(\mathbf{b}), \mathbf{L}(\mathbf{c})(\mathbf{b}) + \mathbf{L}(\mathbf{d})(\mathbf{a}), \mathbf{L}(\mathbf{c})(\mathbf{a}) + \mathbf{L}(\mathbf{d})(\mathbf{b}) + \mathbf{L}(\mathbf{c})(\mathbf{b}), \dots\}$

For AD conjunctions, we take μ to denote an operator that takes a plural set of predicates and a plural set of matching arguments and combines them via C (7-a). Combining two μ -marked conjuncts via COORD thus yields a sum of two operators on plural sets (7-b). The predicate meaning is shifted to a singleton plural set to combine with this sum (7-c), hence each part of the sum in (7-b) applies separately to the plural set in (6-a). Ultimately, each part of the predicate sum in (6-a) applies to \mathbf{a} and to \mathbf{b} . The resulting plural sets are again summed up via \oplus , yielding a set with a single ‘flat’ sum of propositions that expresses the distributive reading (7-c). The cumulative reading in non-subject position also falls out: When the PC combines with a transitive verb (8-a), the singleton plural sets denoted by the conjuncts combine with the verb meaning. Cumulation here simply results in applying the verb meaning to each conjunct. We obtain a set containing a single plurality of predicates, which can combine with the subject-plurality by means of C (8-b), yielding a cumulative reading in the same way as in (6).

- (7)a. $\llbracket \mu \rrbracket = \lambda x_{a^*}. \lambda P_{\langle a,b \rangle^*}. \mathcal{C}(P, x)$; $\llbracket \mu \text{ Ada} \rrbracket = \llbracket \mu \rrbracket(\{\mathbf{a}\}) = \lambda P_{\langle a,b \rangle^*}. \mathcal{C}(P, \{\mathbf{a}\})$
 b. $\llbracket [\mu \text{ Ada}] [\text{COORD} [\mu \text{ Bea}]] \rrbracket = \{\lambda P_{\langle a,b \rangle^*}. \mathcal{C}(P, \{\mathbf{a}\}) + \lambda P_{\langle a,b \rangle^*}. \mathcal{C}(P, \{\mathbf{b}\})\}$
 c. $\llbracket [[\mu \text{ Ada}] [\text{COORD} [\mu \text{ Bea}]]] [\text{like} [\text{Chris} [\text{COORD} \text{Dora}]]]] \rrbracket = \mathcal{C}((7-c), \{\{\mathbf{L}(\mathbf{c}) + \mathbf{L}(\mathbf{d})\}\})$
 $= \{\{\mathbf{L}(\mathbf{c})(\mathbf{a}) + \mathbf{L}(\mathbf{d})(\mathbf{a}) + \mathbf{L}(\mathbf{c})(\mathbf{b}) + \mathbf{L}(\mathbf{d})(\mathbf{b})\}\} \Rightarrow_{\text{SHIFT}} \{\mathbf{L}(\mathbf{c})(\mathbf{a}) + \mathbf{L}(\mathbf{d})(\mathbf{a}) + \mathbf{L}(\mathbf{c})(\mathbf{b}) + \mathbf{L}(\mathbf{d})(\mathbf{b})\}$
 (8)a. $\llbracket \text{like} [[\mu \text{ Chris}] [\text{COORD} [\mu \text{ Dora}]]]] \rrbracket = \{\mathcal{C}(\{\mathbf{L}\}, \{\mathbf{c}\}) \oplus \mathcal{C}(\{\mathbf{L}\}, \{\mathbf{d}\})\}$
 $= \{\{\mathbf{L}(\mathbf{c}) + \mathbf{L}(\mathbf{d})\}\} \Rightarrow_{\text{SHIFT}} \{\mathbf{L}(\mathbf{c}) + \mathbf{L}(\mathbf{d})\}$
 b. $\llbracket [\text{Ada} [\text{COORD} \text{Bea}]] [\text{like} [[\mu \text{ Chris}] [\text{COORD} [\mu \text{ Dora}]]]] \rrbracket = \mathcal{C}(\{\mathbf{L}(\mathbf{c}) + \mathbf{L}(\mathbf{d})\}, \{\mathbf{a} + \mathbf{b}\}) = (6-b)$

In sum: The syntactic structures in (3) plus Plural Projection derive our generalizations 1 and 2 from a unified, non-classical meaning for COORD, without ambiguity of μ -particles within a language. The analysis crucially relies on, and therefore provides new support for, pluralities of higher-type objects.

References

- [1] L. Champollion. Cumulative readings of *every* do not provide evidence for events and thematic roles. In M. Aloni, H. Bastiaanse, T. de Jager, and K. Schulz, editors, *Logic, Language and Meaning*, pages 213–222, Heidelberg, 2010. Springer.
- [2] N. Haslinger and V. Schmitt. Scope-related cumulativity asymmetries and cumulative composition. In S. Maspong, B. Stefánsdóttir, K. Blake, and F. Davis, editors, *Proceedings of SALT 28*, 2018.
- [3] M. Mitrović and U. Sauerland. Two conjunctions are better than one. *Acta Linguistica Hungarica*, 63(4):471–494, 2016.
- [4] R. Scha. Distributive, collective and cumulative quantification. In J. Groenendijk, T. Janssen, and M. Stokhof, editors, *Formal Methods in the Study of Language*, volume 2, pages 483–512. Amsterdam: Mathematisch Centrum, 1981.
- [5] B. Schein. *Plurals and Events*. MIT Press, Cambridge, MA, 1993.
- [6] V. Schmitt. Cross-categorial plurality and plural composition. To appear in *Semantics and Pragmatics*, 2019.
- [7] A. Szabolcsi. What do quantifier particles do? *Linguistics and Philosophy*, 38:159–204, 2015.

Referring nouns in name-informing quotation: A copula-based approach

Holden Härtl

University of Kassel

Quotations in name-informing constructions containing predicates like *call*, *refer to* etc. as embodied in (1) are used to display the linguistic shape of a concept's conventionalized name.

- (1) a. Blood poisoning is also called “septicemia”.
 b. Feline animals are commonly referred to with the word “cat”.

We have argued elsewhere that quotations of this sort are instances of pure quotation, i.e., a metalinguistic device used to demonstrate linguistic objects in a rule-like fashion, cf. “*Sofa*” *has four letters*, in contrast to standard denotational use, cf. *A sofa is a piece of furniture*, see, among others, Davidson (1979), Cappelen & Lepore (1997), Maier (2014). As an explicit indication of their metalinguistic status, pure quotations can be preceded by appositions like *the word*, as exemplified in (1b).

A pure-quotational approach towards name-informing quotation is challenged by instances in which the demonstrated name is accompanied by a determiner and, thus, apparently used as a referring expression. Consider the examples in (2).

- (2) a. The phenomenon is called a “sun halo”.
 b. A couch is also referred to as a “sofa”.

Referring uses of quoted expressions are excluded in canonical cases of pure quotation, cf. **A “sofa” has four letters*. This suggests quotations of the type in (2) are in fact referential hybrids, in which the quoted word is demonstrated and used denotationally both at the same time.

In his analysis of a related phenomenon, Recanati (2001) characterizes quotations as in *A “fortnight” is a period of fourteen days* as, what he calls, open quotations. With this type, the expression inside the quotes contributes to the semantic content of the sentence. As opposed to closed quotations, e.g., *“Fortnight” is an unfamiliar word*, open quotations are not recruited as singular terms (ibid.: 682–683), and the quoted expression's linguistic shape is not explicitly referred to, as the assertions are not “about words” (ibid.: 445–446). Crucially, the latter does not apply in cases like (2), which do represent statements about words, considering that the naming predicates involved require lexicalized signs (“*sun halo*”, “*sofa*”) as arguments.

The semantics of (proper) names has been extensively examined, see, e.g., Krifka et al. (1995), Matushansky (2008). The verbal root of a naming predicate involves three thematic arguments: an agent *x*, a theme *y* as well as a relational argument linked with the demonstrated name “*n*” of *y*, which, in cases like (2), is saturated by the shape of the head of a generic DP.

(3) *x call- y “n”*

$\lambda P \lambda n \lambda y \lambda x [\text{CALL}(x, y, \text{NAME}(\text{“}n\text{”}, y)) \wedge P(n)]$

Central in our analysis is the postulation of an underspecified copular relation (*P*) entailed by the naming predicate, and we assume hybrid uses like in (2) to result from an explication of this relation. *P* identifies the relation holding between the denotation of the name (*n*) and the theme argument (*y*). Heller & Wolter (2008) have argued (for copular sentences like *That is a woman*) that postcopular nominals denote sorts and, from this, it follows that the content of quotations like in (2) is retrieved from the linguistic shape of the sort’s name.

Copular *P* receives its value in the sentential context and can, in the terminology of Higgins (1979), be saturated by a specificational relation. We maintain this to be the case in (2a) above, which spells out as follows.

- (4) a. The phenomenon is a sun halo.
 b. $\lambda n [\text{PHENOMENON}(n)]$ (sun halo)

The subject DP is predicative in specificational sentences, see Geist (2006), Mikkelsen (2005). Therefore, it can only be pronominalized non-referentially in a left dislocation configuration, cf. the German equivalent in (5a), in contrast to the subject of predicational sentences, see (5b).

- (5) a. Die Erscheinung, *die / das ist ein Sonnenring.
 ‘the phenomenon_{FEM, PRON_{FEM}} / PRON_{NEUTER} is a sun halo’
 b. Die Erscheinung, die ist faszinierend.

Observe that with the underlying copular correspondent of (2b), left dislocation of the subject DP is ruled out, cf. **Eine Couch, das ist ein Sofa* (‘a couch_{FEM}, that_{NEUTER} is a sofa’). Based on this, we claim (2b), in contrast to (2a), to involve a different type of copula and express an identity relation instead between the denotations of the pre- and the postcopular nominal.

- (6) a. A couch is a sofa.
 b. $\lambda y \lambda n [y = n]$ (sofa) (couch)

Name-informing constructions of the identity type obligatorily involve the particle *also*, see (2b), as opposed to the specificational type, where the particle is optional. *Also* has an additive meaning, cf. Szwedek (1991), and entails in quotational contexts of both above types that a name (“*n*”) exists for *y* which belongs to the set of names used for *y*. We assume *also* to put the name’s shape in focus and not its denotation.

Our analysis has the empirical implication that the occurrence of an article in a name-informing quotation correlates with the use of quotes. We tested this in a corpus study on German data. 2×200 sentences were selected from DeReKo (IDS) containing name-informing uses of the verbs *nenn-* (‘call’) and *bezeichn-* (‘refer to’). Taking the occurrence of quotes as dependent variable, the analysis revealed a positive correlation for the name to be used more often in quotes if it is accompanied by an article. We interpret this as a reflector of a strategy to highlight the name’s metalinguistic use in the underlying copular sentence. The

finding was corroborated in a follow-up study on a larger corpus sample involving *nenn-*, in which we also observed a tendency for the name to be used in quotes less often if the construction includes *auch* ('also'). We take this to be an indicator of a reduced need to signal the name's metalinguistic use in the scope of *auch*. There was, however, no interaction between *auch* and article use.

The theoretical implications of our findings for the modelling of pure quotation will be discussed with a focus on the generalizability of our analysis. Specifically, we will argue that a copula-based analysis is suited also for other types of quotational constructions, including name-informing constructions where the name is the head of a subject DP, cf. *The "pharynx" refers to the area behind and below the mouth.*

References

- Cappelen, H., Lepore, E. (1997) Varieties of Quotation. *Mind* 106 (423), 429–450.
- Davidson, D. (1979) Quotation. *Theory & Decision* 11 (1), 27–40.
- Geist, L. (2006) *Die Kopula und ihre Komplemente. Zur Kompositionalität in Kopulasätzen.* Tübingen: Niemeyer.
- Heller, D., Wolter, L. (2008) That is Rosa. Identificational Sentences as Intensional Predication. In: Grønn, A. (Ed.): Proc. of SuB 12. University of Oslo: Oslo, 226–240
- Higgins, R. (1979) *The Pseudo-Cleft Construction in English.* New York: Garland Publishing.
- Krifka, M. et al. (1995) Genericity: An Introduction. In: Carlson, G. & F. Pelletier (Eds.): *The Generic Book.* Chicago: University of Chicago Press, 1–124.
- Maier, E. (2014) Pure Quotation. *Philosophy Compass* 9 (9), 615–630.
- Matshansky, O. (2008) On the Linguistic Complexity of Proper Names. *Linguistics & Philosophy* 31 (5), 573–627.
- Mikkelsen, L. (2005) *Copular Clauses. Specification, Predication and Equation* (Linguistics Today, 85). Amsterdam: Benjamins.
- Recanati, F. (2001) Open Quotation. *Mind* 110 (439), 637–687.
- Szwedek, A. (1991) The Contextual Nature of "Also". *AUNC Engl. Studies II* 206, 3–9.

And then there is 'then'

Elena Herburger

Georgetown University

I. The semantics of *if* has received a great deal more attention than that of its occasional partner *then*. But *then* is semantically not uninteresting. (1a) can mean that the speaker will be fine *because* she gets up at 7 rather than later, or that she'll be fine *despite* getting up at 7 rather than earlier. (1b), however, only has the 'because' reading (cf. Davis 1983 'weak'/'strong'):

- (1) a. If I get up at 7, I'll be fine time-wise. because/despite
 b. If I get up at 7, then I'll be fine time-wise. because

I argue in this talk that the interpretive effect of *then* in *if...then* can be explained in terms of *then* behaving as if it were focused when it is syntactically optional.

II. *Then* is infelicitous with conditionals that are true in virtue of the consequent being true, including *even if* conditionals (Davis 1983), biscuit conditionals (Austin 1970), or conditionals with disjunctive antecedents that exhaust all possibilities (Iatridou 1994, von Stechow 1994):

- (2) a. Even if I get up at 7, (#then) I'll be fine time-wise.
 b. If you need help, (#then) my name is Nick.
 c. If it is legal or illegal, (#then) he will do it.

This follows if *then* signals a 'because' reading (cf. Biezma 2014); if a conditional is true just in virtue of the truth of its consequent regardless of its antecedent, the antecedent cannot be taken to be describing the cause of the what is described by consequent.

III. The interpretive effect of *then* in (1)-(2) has been attributed to *then* directly. *Then* has been analyzed as carrying presupposition/conventional implicature that some (Iatridou 1994) or all (von Stechow 1994) alternatives to the antecedent make the consequent false. Alternatively, *then* is said to require a law-like relation between its antecedent (e.g. *if*-clause) and the clause it introduces (e.g. consequent) (Biezma 2014). But, (1a) shows that a 'because' reading does not require *then*. Nor does *then* always signal a 'because' reading. I discuss two cases:

IV. Stacking *then*: Whereas in (1) *then* is optional, it is obligatory in the 'stacked' antecedent in (3a). Moreover, the semantic equivalence between (3a) and (3b) ('Import/Export') indicates that the *then* introducing the second *if*-clause in (3a) makes no 'causal' contribution to meaning. Accordingly, a concessive 'despite' version of (3a) is also possible, as shown in (3c):

- (3) a. If I get up at 7, *(then) if the roads are clear, I'll be fine time-wise.
 b. If I get up at 7 and the roads are clear, I'll be fine time-wise.
 c. Even if I get up at 9, *(then) even if the roads are not clear, I'll be fine.

V. List *then*: *Then* also appears optionally possible with *if*-clauses that form part of a list. Though *then* is not licensed in biscuit conditionals (2b), it is licensed when the biscuit antecedent has alternatives and does not give rise to a 'because' reading (Zakkou 1997):

- (4) If you want coffee, there is a café around the corner. If you'd rather go for a drink, (then) there is a pretty rooftop bar on that same block.

Though *even if* cannot be followed by *then* introducing a main clause (2a), *still* rescues it (5). *Then* is similarly possible in concessive conditionals with *still* (von Fintel 1994) (6). I take *still* to indicate that there other scenarios under consideration, e.g. no impeachment in (5):

- (5) Even if impeachment passes the House, (then) he might still not be forced out of office as he might not be convicted in the Senate.
 (6) If John were dead, (then) the Sheriff would still want him.

VI. Analysis: I argue that the interpretive effects of causal *then* and list *then* are not due to the meaning or presuppositions of *then per se*, but rather follow indirectly from its syntactic optionality. **When *then* follows an *if*-clause optionally, its presence signals the equivalence of focus and hence requires consideration of other *if*-clauses.** If the alternatives are listed (or implied) as part of parallel conditionals, we have list *then*. If no alternatives are present, the alternatives to *if* Φ are taken to be the form *if not* Φ . The actual antecedent is then interpreted as the *only* scenario in which the consequent is true, resulting in something akin to Conditional Perfection. The ‘because’ reading follows from the fact that if the antecedent Φ describes the only scenario that makes the consequent Ψ true, there is a natural tendency to infer that Φ describes the cause of Ψ (cf. Pearl 2018).

VII. *If*-clauses translate as plural descriptions, along the following schema (Schein 2003):

(7) *If* Φ (*then*) $\Psi \Rightarrow$

$$[\iota E: \forall e E(e) \leftrightarrow \Phi] [\forall e: E(e)] [\exists E': \exists e' E'(e') \wedge \forall e' E'(e') \rightarrow \text{Follow}(e', e)] [\forall e': E'(e')] \Psi$$

‘The Φ eventualities are all followed by some eventualities all of which are Ψ eventualities.’ ((7) abstracts away from how similarity is measured.)

I take $[\exists E': \exists e' E'(e') \wedge \forall e' E'(e') \rightarrow \text{Follow}(e', e)]$ to be translating *then*, which may be phonologically silent, as in (1a), or overt, as in (1b). *Follow*, I argue, can be understood in a temporal sense (as paraphrased) or in an epistemic/logical sense (epistemic/backtracking conditionals). When *then* is silent, it is left open whether or not there are alternatives to Φ that result in the truth of Ψ , allowing thus for both a ‘because’ reading or a ‘despite’ reading as in (1a). When *then* is pronounced it is because of competition with the non-pronounced version that Φ is interpreted as triggering alternatives. If no alternatives are listed or implicit, as in (1b), Φ is taken to be the only alternative that results in the truth of Ψ (‘because’).

VIII. *Only if*: *only if* conditionals do not allow for *then*, posing an interesting puzzle.

- (8) Only if impeachment passes the House, *(then) is/there a trial in the Senate. Building on Iatridou (1994) and von Fintel (1994), I argue that the solution to the puzzle involves analyzing *then* as involving correlative dislocation (Geis 1985; Bhatt and Pancheva 2017).

Note correlative dislocation of NPs and PPs in German is possible with definite descriptions (9a), but not with quantifiers or only NPs (9b):

- (9) a. Den neuen Almodavarfilm (den) habe ich im Kino gesehen.
 the new Almodavar movie that have I seen in a movie-
 b. Jeden/nur einen Almodavarfilm (*den) habe ich im Kino gesehen.
 every/only one Almodovar movie that I have seen in a movie theater

Given the semantics in (7), the *if*-clause is a definite description and whatever allows (9a) can be said to also allow (1b). Analogously, whatever explains the ungrammaticality of the *only*-version of (9b) also explains the impossibility of *then* with *only if* in (8).

IX. Iatridou (1994) and von Stechow (1994) note that (10) (due to Irene Heim) threatens their analysis because *then* for them has a contrastive presupposition/implicature, yet no contrastive reading is present in (10):

- (10) Alle haben die Vorlesung verstanden. Hans hat sie verstanden. Maria hat sie verstanden. Und unser Freund Peter, der hat sie auch verstanden.

‘Everyone understood the lecture. Hans understood it. Maria understood it. And our friend Peter, he understood it too.’

I note that (10) parallels list *then*. And while von Stechow worries that (11) is infelicitous, (11) is impeccable once we add *too* as in (11’). This in fact makes it more parallel to (10), which includes *auch* (‘also’) (and would be # without it).

- (11) We will definitely play soccer. If the sun shines, we will. If it is cloudy and cold, we will. #And if it rains, then we will. (11’).... And if it rains, then we will too.

The referential/attributive distinction as a case of systematic polysemy

Katarzyna Kijania-Placek
Jagiellonian University

In this paper I intend to argue that linguistic ambiguity tests do not undermine the semantic treatment of the distinction between referential and attributive uses of definite descriptions. Kripke (1977) famously mocked the idea of treating the distinction as a case of homonymy and Bach (2007) and others (Neale 1990,) supported this critique. Amaral (2008) has suggested, however, that the ambiguity tests mentioned by those authors may in fact favor semantic ambiguity if we consider it to be a case of polysemy rather than of homonymy. More recently, Amaral's conclusion has been contested on the grounds that this would be a case of irregular polysemy and, as such, is subject to the criticism of both Kripke and Bach to the same extent as homonymy.

I join the debate at this last stage, supporting Amaral's conclusion by means of arguments that are based on cross-linguistic evidence. In particular, I will argue that the potential ambiguity of definite descriptions is in fact a case of systematic polysemy. Arguments against classifying the distinction as a case of systematic polysemy are based on the common assumptions underlying the debate, i.e. that the ambiguity is situated within the definite article. If it were systematic, it is argued, it should apply to other determiners, which it does not. Using cross-linguistic evidence from languages that do not use articles, I argue against the prevailing opinion that the ambiguity should be considered as an ambiguity of the determiner. Instead, I claim that the ambiguity thesis should rather be considered as an ambiguity of the definite description considered as a whole phrase. The main argument is based on a consideration of languages which do not have articles but which exhibit the phenomenon of referential and attributed uses of phrases used as referring (or denoting) individual objects. Since Donnellan's (1966) stories can be told equally well in Polish, the potential ambiguity cannot be connected to the definite article. Consideration of the ambiguity of the whole phrase, however, calls for generalizations to be made to other singular terms rather than other determiners. Yet, polysemic treatments of both pronouns and proper names has been proposed (see Leckie 2013, Jeshion 2015, Rami 2015, Schoubye 2016, Kijania-Placek 2018) and thus the argument against treating definite descriptions as systematically polysemous is undermined. I will additionally argue that definite descriptions meet other common criteria for being systematically polysemous, such as productivity, cross-linguistic sustainability, non-disjunctiveness, simultaneous learning of both meanings and anaphoric availability across both meanings (Apresjan 1973, Pustejovsky 1995, Krovetz 1998, Pethö 2001; Leckie 2013). If that is the case, however, ambiguity tests do not undermine the semantic ambiguity of definite descriptions and may even be regarded as supporting it.

References

- Amaral, F. S. (2008) Definite descriptions are ambiguous. *Analysis* 68(300): 288-297.
- Apresjan, J. D. (1973) Regular Polysemy. *Linguistics - An Interdisciplinary Journal of the Language Sciences* 12 (142): 5–32.
- Bach, K. (2007) Referentially Used Descriptions: A Reply to Devitt. *European Journal of Analytic Philosophy* 3(2).
- Donnellan, K. S. (1966) Reference and definite descriptions. *Philosophical Review* 75 (3): 281-304.
- Jeshion, R. (2015). A rejoinder to Fara's "‘Literal’uses of proper names". In: Bianchi, A. (ed.), *On reference*, OUP, pp. 280-294.
- Kripke, S. (1977) Speaker's Reference and Semantic Reference. *Midwest Studies in Philosophy* 2: 255–276.
- Krovetz, R. (1998). More than one sense per discourse. NEC Princeton NJ Labs, Research Memorandum.
- Leckie, G. (2013). The double life of names. *Philosophical Studies*, 165, 1139–1160.
- Pethö, G. (2001). What is polysemy? A survey of current research and results. In E. Nemeth & K. Bibok (Eds.), *Pragmatics and flexibility of word meaning* (pp. 175–224). Amsterdam: Elsevier.
- Pustejovsky, J. (1995) *The Generative Lexicon*. MIT Press, Cambridge, MA.
- Rami, D. (2015) The Multiple Uses of Proper Nouns. *Erkenntnis* 80 (Suppl 2): 405-432.
- Schoubye, A. (2016) Type-Ambiguous Names. *Mind* 126: 715–767.

On Kit Fine's Paradox of a Variable and Principle of Alphabetic Innocence

Maciej Kleczek

Goethe University Frankfurt

In [2] Kit Fine formulated the paradox of a variable. Roughly, it isolates a conflict between two intuitions concerning the semantic role of a variable. According to the first intuition a semantic role of a variable is exhausted by the range of its values. Consequently, any two variables turn out to be synonymous. On the other hand, in the context of an expression (a formula and/or polynomial), it happens that distinct variables play a different semantic role. Hence, a contradiction. In the first part of the talk we zoom in the structure of Fine's reasoning and abstract away from the Fine's example. As the outcome, we extract tacit assumptions, which lead to the paradox. These assumptions are principle of compositionality and a model-theoretic account of the meaning of a first-order formula in a structure. As the next step towards our solution to the paradox we discuss in detail the notion of the semantic role of a variable. We find it ambiguous. We distinguish between the syntactic role of a variable and the semantic role of a variable. The former amounts to cross-identification of argument places in the context of expressions such as a first-order formula and a polynomial. With this distinction at hand we relate Fine's paradox to principle of alphabetic innocence. Principle of alphabetic innocence requires that the meaning of a first-order formula must be invariant under each injective renaming of free occurrences of variables. Therefore, it provides a constraint on any possible synonymy relation. This principle is attributed in [9] to Kit Fine. We follow [9] and claim that a solution to Fine's paradox of a variable calls for an alphabetically innocent semantics for first-order languages. Admittedly, principle of alphabetic innocence is not a well-known semantic principle. Notwithstanding, we provide a direct evidence from a seminal model-theoretic source [8], which indicates a tacit endorsement of this principle. Preliminary speaking, our strategy of solving Fine's paradox is to reject the principle of compositionality and retain the model-theoretic account of the meaning of a first-order formula. Furthermore, our rejection of compositionality is going to be carefully motivated.

In the second part of the talk we focus on the model-theoretic semantics. We frame our discussion in the historical context and refer to [10]. Therein the full-blooded theory of the meaning of a first-order formula can be found. It identifies the meaning of a formula with the relation it defines. Interestingly, we isolate a serious ambiguity, which is implicit in [10]. Namely, the notion of a relation is understood in a two-fold way. The first reading is purely set-theoretic and is assumed in the contemporary model-theory. On the other hand, the second reading incorporates variables in the criteria of identity of relations. Apparently, the consequence of the former is that semantics is non-compositional and the relation of synonymy in a structure does not coincide with the relation of equivalence in a structure. With this at hand, we analyze the standard way of salvaging compositionality [6]. We conclude that it falls short

of satisfying the pre-formal reading of compositionality. This curious situation may be perceived as troubling. Apparently, a formula can receive two distinct and well-motivated semantic values. In order put worries to rest, we recall that Dynamic Predicate Logic [5] yields distinct relations of synonymy (though in a different context). Accordingly, we argue that our findings should not be interpreted as a methodological and/or semantic anomaly. Finally, we highlight that [10] contains enormously useful semantic resources. These resources are operations on relations of possibly different lengths, which entered the canon of relational database theory [1].

With these findings at hand, we switch to the contemporary perspective and observe that a semantic value is not assigned to a formula but to a formula in the finite variable context. The latter plays the role of a semantic representation of a formula. We argue that the notion of representation of a formula does not appear to be syntactically and semantically well-understood [3]. Consequently, we aim to develop a theory of representation of a formula. We observe that there exists just one formation rule for building representations, which requires that a representation contains all free variables of a formula. Furthermore, this rule does not decide in what way the relevant set of variables is ordered. We single out two possible orders: (a) canonical order and (b) order of occurrence. Next, we issue few arguments, which support the choice of order of occurrence. Subsequently, we develop the proper grammar, which inductively generates a set of representations of formulas in order of occurrence. Furthermore, we enquire into substitution operations for first-order languages. This is due to the fact that the principle of alphabetic innocence is formulated by means a substitution operation. We define an injective replacement of variables in a formula, which is obviously capture avoiding. We prove the substitution lemma for this operation. As a side issue we show how the variant of the relation of alpha – equivalence, proposed in [4], can be generated by means of our variable transformation operation. Next, we proceed towards construal of our alphabetically innocence semantics. It is parasitic on the notion of representation. Admittedly, we follow Tarski's suit [10]. Namely, we exploit operations found therein but ensure sensitivity to the order of occurrence. We point out subtle differences between our approach and Tarski. Namely, we index negation operations by natural numbers and treat the empty set as a polymorphic relation of any arity. This enables to recover, unlike in the Tarskian case, the law of double complementation and interdefinability of sentential operators. By resorting to our substitution lemma, we prove that our semantics is alphabetically innocent. Therefore, we provide a solution to Fine's paradox of a variable. Furthermore, we show that our semantic allows to define the converse relation. Hence, we refute the claim found in [9]. Finally, we critically discuss our semantics. We notice that our semantics inherits features of semantics discussed previously. These features are not a generic consequence of alphabetic innocence. Indeed, they follow from the choice of semantic values of formulas. A more serious upshot is the so-called syntactic contamination of our semantics [11]. Namely, it contains the record of the underlying syntax. Notwithstanding, we argue that in one way or another syntactic contamination besets each model-theoretic variant of the meaning of a formula and set-theoretic interpretations of

polynomials. This uneasy feature of our semantics is a consequence of our desire to keep an alphabetically innocent semantics close to the standard Tarskian semantics.

References

- [1] Abiteboul, S., et.al. (1995). *Foundations of Database: The Logical Level*. Boston : Addison-Wesley Longman Publishing
- [2] Fine, K. (2007). *Semantic Relationism*. Malden, MA: Blackwell Publishing.
- [3] Ghilardi, S. et.al (2007). First-Order Modal Logic. In. P. Blackburn et.al, *Handbook of Modal Logic*. Elsevier.
- [4] Goldblatt, R. (2011). *Quantifiers, Propositions and Identity*. Cambridge: Cambridge University Press.
- [5] Groenendijk, Jeroen & Stokhof, Martin (1991). Dynamic predicate logic. *Linguistics and Philosophy* 14 (1):39-100.
- [6] Hodges, W. (1997). Compositional Semantics for a Language of Imperfect Information. *Logic Journal of the IGPL* 5 (4):539-563.
- [7] Hodges, W. *Formal Features of Compositionality*. Journal of Logic, Language and Information. vol. 10. 2001.
- [8] Hodges, W. (2007). *A Shorter Model Theory*. Cambridge: Cambridge University Press.
- [9] Kracht, M.(2007). *Emergence of Syntactic Structure*, *Linguistics and Philosophy*. 30(1): 47-95.
- [10] Tarski, A. (1983) *On Definable Sets of Real Numbers*. In Tarski, A. *Logic, Semantics, Mathematics*. Indianapolis: Hackett Publishing.
- [11] Wehmeier, K. (2018). *The Proper Treatment of Variables in Predicate Logic*. *Linguistics and Philosophy*, 41(2): 209-249

Norms of Assertion: Empirical Data

Markus Kneer

University of Zurich

1. Introduction

Are assertions governed by *norms*? Differently put, are there rules of linguistic communication that determine whether or not an assertion should be made? Inquiries of this sort presuppose that (i) assertions of different sorts form a unified type of linguistic move or speech act, and (ii) that ‘the speech act [of assertion], like a game and unlike the act of jumping, is constituted by rules.’ (Williamson, 1996, 489). If we accept these premises, we can ask ourselves what requirements a speaker must fulfill in order to satisfy the norm of assertion. Four proposals dominate the literature (for recent reviews, cf. e.g. Weiner 2007; Pagin 2015; Goldberg 2015):

Belief: Assert that p only if you believe that p . (Bach 2008; Bach and Harnish 1979)

Justified belief: Assert that p only if you justifiedly believe that p . (Douven 2006; Lackey 2007)

Truth: Assert that p only if p is true. (Weiner 2005; cf. also Dummett 1959)

Knowledge: Assert that p only if you know that p . (Williamson 1996, 2002; Brandom 1998; DeRose 1996, 2002; Adler 2002; Hawthorne 2003; Turri 2011; Benton 2011; for early accounts, cf. Black 1952; Unger 1975; Searle 1976)

The epistemic requirements of the four accounts differ considerably. Whereas on the last two views, the norm of assertion is factive, it is acceptable on the first two accounts to make an assertion that p even if p is false. Which of the above rules, if any, constitutively defines the speech act of assertion is principally a matter of empirical inquiry – an inquiry that ‘must face the linguistic data’ (Douven, 2006, p. 450, cf. also Turri 2013, Pagin 2015).

Turri (2013) has presented evidence according to which the norm of assertion is factive; in further works (Turri 2015, 2016) he reports findings in favour of the knowledge account. In my talk, I will demonstrate that most of these experiments are misconceived, and that Gettier cases can play a helpful role in empirically exploring the norm of assertion. I will report a series of studies with a total of about 2500 participants, which suggest that the norm of assertion is neither truth nor knowledge, but justified belief. The following section briefly summarizes one experiment.

2. An Example Experiment

2.1 Participants, materials and procedure

In an online experiment with 379 participants (164 female, age $M=36$ years, $SD=12$ years), participants were randomly assigned to one of three conditions of the well-worn AMERICAN

CAR vignette (Nichols et al. 2003): Bob’s friend Jill has driven a Buick (an American car) for years. In the knowledge condition K, Jill still drives a Buick. In the Gettier condition TJB, Jill has replaced it with a Pontiac (also an American car), of which Bob is unaware. In the false belief condition FB, Jill now drives – unbeknownst to Bob – a Mercedes. Bob’s wife wants to know what car Jill drives. Participants were asked forced-choice questions whether Bob should say p , whether Bob really knows that p , whether p is true and whether Bob is justified in believing that p (in that order), where p stands for ‘Jill drives an American car’.

2.2 Results and Discussion

A logistic regression was run to explore the effects of knowledge, truth, and justification on assertability (Figure 1). The logistic regression model was significant, $\chi^2(3)=33.08$, $p<.001$, explained 21% (Nagelkerke R^2) of the variance in assertability and correctly classified 93.9% of cases. Knowledge proved insignificant (Wald $\chi^2(1)=.006$, $p=.940$). Justification had a significant impact on assertability (Wald $\chi^2(1)=9.58$, $p=.002$), and so did truth Wald $\chi^2(1)=13.77$, $p<.001$). While advocates of a factive account of assertion might consider this a welcome result, a closer look at the FB condition frustrates further expectations. Though only 4% of participants deem p true, 84% consider it nonetheless assertable. A second logistic regression explored the effects of knowledge, truth, and justification on assertability in the FB condition. The model was significant, $\chi^2(3)=11.46$, $p=.009$, explained 14% (Nagelkerke R^2) of the variance in assertability and correctly classified 86.2% of cases. The impact of truth on assertability proved insignificant (Wald $\chi^2(1)=.146$, $p=.702$), and so did the impact of knowledge (Wald $\chi^2(1)=.545$, $p=.460$). The impact of justification on assertability was significant (Wald $\chi^2(1)=.8.38$, $p=.004$).

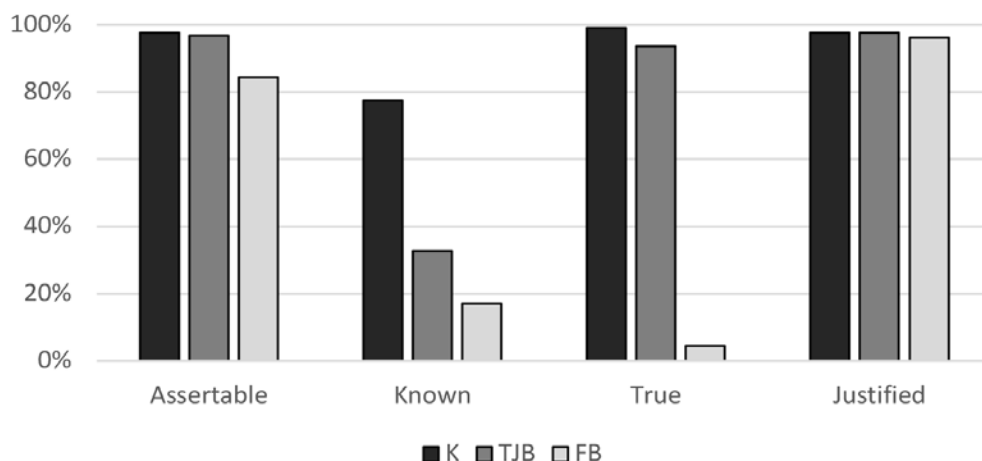


Figure 1: Percentages of participants who deem p assertable, known, true, and justified across the three conditions of the AMERICAN CAR scenario.

The experiment suggests that knowledge is not the norm of assertion, and that it isn’t factive either. Justification, by contrast, seems to be a strong predictor of assertability.

3. Further Experiments

I will present three to five more experiments (depending on time) using different scenarios, experimental designs and analyses to demonstrate that these findings are robust. The follow-up experiments will also give further insights regarding more nuanced versions of the four accounts outlined in the introduction, and provide insights regarding normative *force* that have been largely neglected both in the theoretical and empirical literature.

References

- Adler, J. (2002). *Belief's own ethics*. Cambridge, Mass.: MIT Press.
- Bach, K. (2008). Applying pragmatics to epistemology. *Philosophical Issues*, 18(1), 68-88.
- Bach, K., & Harnish, R. (1979). *Linguistic communication and speech acts*. Cambridge, Mass.: MIT Press.
- Benton, M. A. (2011). Two more for the knowledge account of assertion. *Analysis*, 71(4), 684-687.
- Black, M. (1952). Saying and disbelieving. *Analysis*, 13(2), 25-33.
- Brandom, R. (1998). *Making it explicit: Reasoning, representing, and discursive commitment*. Cambridge, Mass.: Harvard University Press.
- DeRose, K. (1996). Knowledge, assertion and lotteries. *Australasian Journal of Philosophy*, 74(4), 568-580.
- DeRose, K. (2002). Assertion, knowledge, and context. *The Philosophical Review*, 111(2), 167-203.
- Douven, I. (2006). Assertion, knowledge, and rational credibility. *The Philosophical Review*, 449-485.
- Dummett, M. (1959). Truth. *Proceedings of the Aristotelian Society*, 59(1), 141-162.
- Goldberg, S. C. (2015). Recent Work on Assertion. *American Philosophical Quarterly*, 52(4), 365-380.
- Hawthorne, J. (2003). *Knowledge and Lotteries (Vol. 1)*. Oxford: Oxford University Press.
- Lackey, J. (2007). Norms of Assertion. *Nous*, 41(4), 594-626.
- Nichols, S., Stich, S., & Weinberg, J. (2003). Metaskepticism: Meditations in ethno-epistemology. *The skeptics*, 227-247.
- Pagin, P. (2015). Assertion. In *Stanford Encyclopedia of Philosophy*.
- Searle, J. R. (1976). A taxonomy of illocutionary acts. In K. Gunderson (Ed.), *Language, mind and knowledge* (pp. 344-369). Minneapolis: University of Minnesota Press.

- Turri, J. (2011). The Express Knowledge Account of Assertion. *Australasian Journal of Philosophy*, 89(1), 37-45, doi:10.1080/00048401003660333.
- Turri, J. (2013). The test of truth: An experimental investigation of the norm of assertion. *Cognition*, 129(2), 279-291.
- Turri, J. (2015). Knowledge and the norm of assertion: a simple test. *Synthese*, 192(2), 385-392.
- Turri, J. (2016). Knowledge and assertion in "Gettier" cases. *Philosophical psychology*, 29(5), 759-775.
- Unger, P. (1975). *Ignorance: A defense of skepticism*. Oxford: Clarendon Press.
- Weiner, M. (2005). Must We Know What We Say? *The Philosophical Review*, 114(2), 227-251.
- Weiner, M. (2007). Norms of assertion. *Philosophy compass*, 2(2), 187-195.
- Williamson, T. (1996). Knowing and asserting. *The Philosophical Review*, 105(4), 489-523.
- Williamson, T. (2002). *Knowledge and its Limits*. Oxford: Oxford University Press.

Talking about Logics

Alexander Kocurek

Cornell University

Sentences like (1)–(3) suggest that attitude verbs, conditionals, and epistemic modals are hyperintensional. Yet there is no obvious way to regiment sentences like ‘intuitionistic logic is the correct logic’ and ‘the law of non-contradiction holds’ so that their semantic value may be both logically impossible and non-trivial when embedded.

- (1) Inej believes intuitionistic logic is the correct logic.
- (2) If the Liar were both true and not true, the law of non-contradiction would fail.
- (3) Classical logic might not be correct.

This paper does two things. First, it presents a formal language for regimenting “logic talk”, i.e., sentences that express propositions about logic itself. Second, it compares two hyperintensional semantic frameworks for interpreting this language, viz., the “impossible worlds” framework and the logical expressivist framework developed by [redacted], which explains hyperintensionality using shifting conventions rather than impossible worlds. It is argued that the latter approach is preferable to the former.

We build the formal language in three steps. (To keep things simple, we only show how to embed logic talk into counterfactuals, though the key ideas extend easily to other expressions.) We start with a language L_1 summarized as follows:

$$\phi = p \mid \neg \phi \mid (\phi \wedge \phi) \mid (\phi \vee \phi) \mid (\phi \longrightarrow \phi) \mid (\phi \longleftrightarrow \phi) \mid \Box \phi \mid (\phi \Box \rightarrow \phi).$$

The impossible worlds semantics for L_1 interprets logic talk using “impossible worlds”, represented as sets of sentences (Berto et al., 2018). Models are tuples $\mathbf{I} = \langle W, P, f, V \rangle$ where W is a set of worlds, $P \subseteq W$ is the set of *p*ossible worlds, $f: \wp(W) \times W \rightarrow \wp(W)$ is a selection function obeying the usual constraints (e.g., $f(X, w) \subseteq X$), and V is a valuation function where (i) for each $w \in P$ and each p , $V(p, w) \subseteq \{0, 1\}$, and (ii) for each $w \subseteq (W - P)$ and each formula ϕ , $V(\phi, w) \subseteq \{0, 1\}$. If $w \subseteq P$, then $\llbracket \phi \rrbracket^{\mathbf{I}, w}$ is defined in the usual recursive way (e.g., $\llbracket \neg \phi \rrbracket^{\mathbf{I}, w} = 1 - \llbracket \phi \rrbracket^{\mathbf{I}, w}$); otherwise, $\llbracket \phi \rrbracket^{\mathbf{I}, w} = V(\phi, w)$. Consequence is preservation of truth at possible worlds.

The expressivist semantics introduces a shiftable convention parameter into points of evaluation.¹ A *convention* over W is a function c such that (i) for each atomic p , $c(p) \subseteq W$, and (ii) for each n -place boolean connective Δ , $c(\Delta): \wp(W)^n \rightarrow \wp(W)$. An *index* over W is a world-convention pair; we let I^W be the set of indices over W . Models are pairs $\mathbf{C} = \langle W, f \rangle$

¹ This semantics for counterlogicals is defended in [redacted]. It is inspired by similar ideas in Barker 2002, Einheuser 2006, and [redacted].

where $f: \wp(I^W) \times I^W \rightarrow \wp(I^W)$ obeys the usual constraints. The semantics is as follows (Δ is any boolean connective):

$$\begin{aligned} \llbracket p \rrbracket^{C,w,c} = 1 &\iff w \in c(p) \\ \llbracket \Delta(\phi_1, \dots, \phi_n) \rrbracket^{C,w,c} = 1 &\iff w \in c(\Delta)(\llbracket \phi_1 \rrbracket^{C,c}, \dots, \llbracket \phi_n \rrbracket^{C,c}) \\ \llbracket \Box \phi \rrbracket^{C,w,c} = 1 &\iff \forall v \in W: \llbracket \phi \rrbracket^{C,v,c} = 1 \\ \llbracket \phi \Box \rightarrow \psi \rrbracket^{C,w,c} = 1 &\iff f(\llbracket \phi \rrbracket^C, w, c) \subseteq \llbracket \psi \rrbracket^C. \end{aligned}$$

Consequence is preservation over indices whose convention parameter interprets the boolean connectives classically. The impossible worlds semantics and the expressivist semantics generate the same logic over L_1 , so they do not yet make contrary predictions.

Next, we extend L_1 to a language L_2 with propositional quantifiers (we introduce a new stock of propositional variables A_1, A_2, A_3, \dots for technical convenience):

$$\phi ::= \dots \mid A \mid \forall A \phi \mid \exists A \phi.$$

At first pass, we can regiment, e.g., ‘the law of excluded middle holds’ as $\forall A \Box(A \vee \neg A)$. Thus, (2) is regimented as $(I \wedge \neg I) \Box \rightarrow \neg \forall A \Box \neg(A \wedge \neg A)$.²

It is easy to extend the expressivist semantics to L_2 : where g maps each A to a set of worlds, $\llbracket \forall A \phi \rrbracket^{C,w,c,g} = 1$ iff for all $X \subseteq W$, $\llbracket \phi \rrbracket^{C,w,c,g^{A \rightarrow X}}$. This is just the standard semantic entry for propositional quantifiers in **S5II**. If one extends the impossible worlds semantics similarly, however, it makes strange predictions about *de re* counterfactuals; e.g., it predicts that $\exists A((A \wedge \neg A) \Box \rightarrow q) \models \forall A((A \wedge \neg A) \Box \rightarrow q)$, i.e., if there is one contradiction that counterfactually implies q , then every contradiction counterfactually implies q .³ The problem is that $\forall A$ usually compositionally reinterprets sentences involving A . But there is no easy way to do this at impossible worlds, since any arbitrary set of sentences may represent an impossible world. As a result, $\forall A$ and $\exists A$ do not affect the interpretation of complex formulas like $A \wedge \neg A$. By contrast, the expressivist semantics makes no such predictions and is generally more well-behaved.

While L_2 can regiment claims about laws of logic, it cannot yet regiment claims about entire logics (e.g., ‘intuitionistic logic is the correct logic’). To remedy this, we extend L_2 to a language L_3 with nominals $\lambda_1, \lambda_2, \lambda_3, \dots$ standing for logics and hybrid operators taking these nominals as arguments (Arecas and ten Cate, 2007):

$$\phi ::= \dots \mid \lambda \mid @_\lambda \phi \mid \downarrow \lambda. \phi.$$

² This may not be quite right, since we may want to regiment the failure of these laws using the ‘external’ classical negation. A more accurate regimentation can be given using L_3 .

³ This is true whether or not propositional quantifiers range over subsets of W or of P . Similar problems (though not this particular problem) arise with substitutional propositional quantifiers.

Informally, we may read λ as “ λ is the correct logic”, $@_\lambda$ as “according to λ , . . .”, and $\downarrow \lambda$. as “where λ stands for the current logic, . . .”. We single out a nominal constant κ to designate a classical convention. This language can regiment, e.g., the failure of excluded middle more accurately as $\downarrow \lambda. @_\kappa \neg \forall A \Box @_\lambda(A \vee \neg A)$ (footnote 2). It can also regiment counterfactuals where conventions are held fixed, either as $\downarrow \lambda. ((\phi \wedge \lambda) \Box \rightarrow \psi)$ when conjunction is classical or more generally as $\downarrow \lambda_1. (\downarrow \lambda_2. @_\kappa(@_{\lambda_2} \phi \wedge @_{\lambda_2} \lambda_1) \Box \rightarrow \psi)$.

Again, while it is unclear how to extend the impossible worlds semantics with these operators in a well-behaved manner, it is easy to extend the expressivist semantics: simply enrich variable assignments to map each λ to a convention. Doing so produces some nice results. For instance, while $(p \wedge \neg p) \Box \rightarrow q$ is non-trivial, $@_\kappa (p \wedge \neg p) \Box \rightarrow q$ and $(p \wedge \neg p \wedge \kappa) \Box \rightarrow q$ are. This presents a new picture of logically impossible worlds (and perhaps impossible worlds more generally) as possible worlds described differently.

References

- Areces, Carlos and ten Cate, Balder. 2007. “Hybrid Logics.” In Patrick Blackburn, Frank Wolter, and Johan van Benthem (eds.), *Handbook of Modal Logic*, 821–868. Elsevier.
- Barker, Chris. 2002. “The Dynamics of Vagueness.” *Linguistics and Philosophy* 25:1–36.
- Berto, Francesco, French, Rohan, Priest, Graham, and Ripley, David. 2018. “Williamson on Counterpossibles.” *Journal of Philosophical Logic* 47:693–713.
- Einheuser, Iris. 2006. “Counterconventional Conditionals.” *Philosophical Studies* 127: 459–482.

Imperatives in Commitment Spaces

Manfred Krifka

Leibniz-Zentrum Allgemeine Sprachwissenschaft

The talk will present a semantic theory of imperatives that treats them as speech acts *sui generis*, different from assertions of deontic modal propositions (contra Kaufmann 2011). It covers a wide range of their uses and their combinatorial behavior with respect to disjunction, conjunction, conditionalization and negation. It makes use of a temporalized notion of commitment space as proposed first in Krifka (2015) for questions.

For understanding the proposal, some preliminary notions have to be introduced. Propositions φ are interpreted with respect to world/time indices i that form a discrete partial order $<$, representing branching time, where two indices i, i' are different only if there is a proposition φ such that $\varphi(i)$ and $\neg\varphi(i')$. Context sets are sets of indices c that represent the immediate common ground, the epistemic alternatives of how the world/time of the conversation may be like according to overtly shared knowledge of the interlocutors. In the course of conversation, the context set changes in two ways relative to a proposition φ . One is informative update (Stalnaker 1974): $c + \cdot\varphi = \{i \in c \mid \varphi(i)\} = c'$, i.e. c is reduced to those indices i for which the proposition φ is true. Notice that $c' \subseteq c$. The other is situative update (Szabolcsi 1982): $c + \bullet\varphi = \{i \in c \mid \exists i' \in c [i' \leq i \text{ and } i \text{ is the earliest index after } i' \text{ such that } \varphi(i)]\}$. For example, if in the conversational state represented by c a cat walks in, and this event is common ground of all participants, then c changes to $c + \bullet\lambda i \exists x [\text{cat}(i)(x) \wedge \text{walk-in}(i)(x)] = c'$. Notice that $c \cap c' \neq \emptyset$ in this case, as the indices of c' have developed away from the indices of c , but we have if $c + \bullet\varphi = c'$ then $c' + \cdot\varphi = c'$, i.e. the information φ gets established after situative update. Also, notice that the propositions of the context set change with time: Assume that $c + \bullet\lambda i \exists i' [i' <_{1h} i \wedge \text{rain}(i'')] = c$, i.e. c contains the information that it rained an hour before, and $c + \bullet\lambda i \exists i' [i' <_{1h} i] = c'$, i.e. one hour passed, and this is common ground, then with an appropriate analysis of the $<_{nh}$ relation, it holds that $c' + \bullet\lambda i \exists i' [i' <_{2h} i \wedge \text{rain}(i'')] = c'$, that is, c' contains the information that it rained two hours before.

One case of situative update is performative update, by which a speaker performs a particular speech act that changes the index, typically by introducing new commitments (disregarding changes by the utterance itself). For example, assertive speech acts introduce commitments to the truth of a proposition (cf. Brandom 1983), where $x \vdash \varphi$ stands for $\lambda i [x \text{ is committed in } i \text{ for the truth of } \varphi \text{ in } i]$. The assertion of speaker s that φ at the context set c results in the update $c + \bullet s \vdash \varphi = c'$, i.e. in c' speaker s became committed to the truth of φ . If the addressee a is credulous, this results accepting the proposition φ itself as well, $c + \bullet s \vdash \varphi + \cdot\varphi$. If a objects by asserting $\neg\varphi$, this results in $c' + \bullet a \vdash \neg\varphi$, a context set in which the two participants disagree, and c' cannot be further updated. Honoring the central role of commitments in updates, context sets c will be called “commitment states”.

In order to capture the fact that conversation does not only change the common ground in terms of the information agreed upon, but also in the ways how it may develop in the future (as e.g. regulated by questions), this notion is extended to “commitment spaces”. A commitment space C is a set of commitment states ordered by a relation \prec , where $c \prec c'$ if either $c' \subseteq c$ (informative update) or $c(i) \wedge c(i') \rightarrow i < i'$ (situative update). The root of C , rendered as \sqrt{C} , is the set of smallest commitment states in c , ideally a singleton set; \sqrt{C} is the information actually assumed at the current point in conversation. If $c \in \sqrt{C}$ and $c \prec c'$, then c' is a commitment state such that it is common ground that the world/time index may develop in such a way that it is in c' ; this covers both informative and situative developments. Informative and situative updates are defined for commitment spaces; e.g. $C + \bullet s \vdash \varphi = \{c \in C \mid \exists c' \in \sqrt{C} [c' + \bullet s \vdash \varphi = c]\} = C'$, making it the case that in all $c \in C'$, the commitment $s \vdash \varphi$ is established.

The notion of commitment spaces was first proposed for the speech acts of questions. For example, in a question whether φ or $\neg\varphi$ is the case, the speaker restricts C to $\sqrt{C} \cup C + \bullet a \vdash \varphi \cup C + \bullet a \vdash \neg\varphi$, i.e. the root of C does not change but the addressee a is either committed to φ or is committed to $\neg\varphi$. Here, we suggest to model imperative update $!\varphi$ as an update that guarantees that in every development of C , an update occurs in which the addressee acquires a certain property $\varphi[a]$: $C + !\varphi[a] = \sqrt{C} \cup \{c \in C \mid \exists c' \in C [c \preceq c' \wedge \exists c'' \in C [c'' \preceq c' \wedge c'' + \bullet \varphi[a] = c'']]\}$. Notice that this makes interrogative updates a subcase of imperative updates in which a should perform a commitment (cf. Searle 1976 for questions as a subcase of commissives). As first example for other imperatives, take, $C + s$ to a : *Do the dishes!*, resulting in $C + !\lambda i [\text{do_the_dishes}(i)(a)]$, i.e. the root of C does not change but the continuations of C are restricted so that in every development there comes a commitment space such in which the proposition $\lambda i [\text{do_the_dishes}(i)(a)]$ is established.

This model of imperatives is close to Barker (2012), according to which the speaker restricts the future course of the world so that the addressee performs a certain action, but differs insofar as future courses are restricted to the commitment space C , representing the possible developments that the participants of conversation have agreed upon. The model is also related to Portner (2004), according to which imperatives affect the to-do list of the addressee, except that there are no separate to-do lists required. In the model, imperatives differ from performative deontic modals such as *You must do the dishes*, which update a commitment space by introducing the deontic modal proposition which can be rendered as stating that in all histories that are compatible with the duties of the addressee a , a is doing the dishes: $C + \bullet \lambda i \forall h \in \text{Duty}(i)(a) \exists i' \in h [\text{do_the_dishes}(i')(a)]$. Imperatives differ from desideratives *like I wish that you do the dishes* in a similar way, where such sentences refer to histories expressing the wishes of the speaker. They also differ from assertions about the future such as *You will do the dishes*, which update C by an assertion by which the speaker commits to the proposition that in all normal continuations of the world/time index, there is an index at which the addressee is doing the dishes. All these meanings are, however, all close enough to the

meaning of imperatives so that they can be used to make the addressee behave in a certain way. We will also show how specific uses of imperatives, like non-directive uses as in *Get well soon* and stative imperatives as in *Stay well* can be handled in the present framework.

In the current proposal, imperatives can be disjoined by $C + [!\phi[a] \vee !\psi[a]] = [C + !\phi[a]] \cup [C + !\psi[a]]$, restricting C to continuations that contain an update by $\phi[a]$ or $\psi[a]$, e.g. *do the dishes or do your homework*, where the single imperative does not imply the disjoined one. Imperatives can be conjoined by $C + [!\phi[a] \& !\psi[a]] = [C + !\phi[a]] \cap [C + !\psi[a]]$, restricting C to continuations that contain updates by $\phi[a]$ and $\psi[a]$, not necessarily at the same index. Imperatives can also be negated by $C + \sim!\phi = C - [C + !\phi]$, restricting C to those continuations in that contain no update by $\phi[a]$, resulting in the proper meaning for prohibitives. Imperatives can be conditionalized, as in *If you are hungry, take some biscuit*, by restricting C to those continuations such that all $c \in C$ in which $\lambda i[\text{hungry}(i)(a)]$ is established are such that all continuations of c in C contain updates by $\lambda i[\text{take_biscuit}(i)(a)]$. Imperatives can be disjoined with other speech acts as in *Go away or I will call the police*, restricting C to future continuations that contain $\lambda i[\text{go_away}(i)(a)]$ holds or in which s is committed to calling the police. Cases like *Earn money and you will be happy* are interpreted as conditional and restrict C such that for those $C' \subseteq C$ in which $!\lambda i[\text{go_away}(i)(a)]$ is established, the speaker is committed that a will be happy.

References

- Barker, Chris. 2012. Imperatives denote actions. *Sinn und Bedeutung* 16.
- Brandon, Robert B. 1983. Asserting. *Noûs* 17. • Kaufmann, Magdalena. 2011. Interpreting imperatives. Springer.
- Krifka, Manfred. 2015. Bias in Commitment Space Semantics: Declarative questions, negated questions, and question tags. *SALT*. 25. LSA Open Journal Systems.
- Portner, Paul. 2004. The semantics of imperatives within a theory of clause types. *SALT*. 14.
- Searle, John. 1976. A classification of illocutionary acts. *Language in Society* 5.
- Stalnaker, Robert. 1974. Pragmatic presuppositions. In: Munitz, M K. & P K. Unger, (eds), *Semantics and Philosophy*. New York: New York University Press.
- Szabolcsi, Anna. 1982. Model theoretic semantics of performatives. In: Kiefer, F, (ed), *Hungarian linguistics*. Amsterdam: John Benjamins.

Perception verbs and two types of indirect knowledge

Kalle Müller

University of Tübingen

In this paper, I propose an analysis for the difference between inferential and reportative readings of perception verbs with finite *that*-clauses in contrast to perception verbs with bare infinitives. The analysis draws on the new observation that German perception predicates with *that*-clauses can be accompanied by prepositional *an*-phrases which are highly restricted within this use and are only compatible with inferential readings.

Challenges. I) Perception verbs with finite *that*-clauses carry a certain epistemic load, while perception verbs with bare infinitives are epistemically neutral (Bayer 1986, Maienborn 2011, Kratzer 2017/2007). This renders the inference in (2) invalid, whereas the inference in (1) is valid (examples taken from Kratzer 2017/2007).

- (1) Beryl saw Meryl sprinkle the white powder on Cheryl's dinner.
The white powder was the most deadly poison.
 Beryl saw Meryl sprinkle the most deadly poison on Cheryl's dinner. *valid*
- (2) Beryl saw that Meryl sprinkled the white powder on Cheryl's dinner.
The white powder was the most deadly poison.
 Beryl saw that Meryl sprinkled the most deadly poison on Cheryl's dinner. *invalid*

II) Furthermore, perceptions verbs with bare infinitives refer to direct perception or evidence, cf. (3), while perception verbs with finite *that*-clauses can usually refer to indirect knowledge or evidence, cf. (4) (Aikhenvald 2007, Kratzer 2017/2007). In (4ab), it is not necessary that Margaret has witnessed the event of Mary killing the king directly. In (4a) she might draw an inference and in (4b) she might have been told so.

- (3) Margaret saw/heard Mary kill the king. *direct perception*
- (4) a. Margaret saw that Mary killed the king. *inference*
 b. Margaret heard that Mary killed the king. *report*

III) In German, perception verbs with finite clauses can be accompanied by a prepositional *an*-phrase that indicates the source of inference, cf. (5). While *hören* with a finite clause often receives a reportative interpretation, the presence of such an *an*-phrase forces an inferential reading, cf. (6).

- (5) a. **An dem blutigen Messer** sah Margaret, dass Marie den König getötet hat.
 [On the bloody knife] Margaret saw that Mary killed the king.
 b. **An dem Geräusch** hörte Margaret, dass Marie den König getötet hat.
 [On that sound] Margaret heard that Mary killed the king.
- (6) a. Es gab einen Schrei. **Daran** hörte Margaret, dass Marie den König getötet hat.
 There was a scream. [On that] Margaret heard that Mary killed the king.
 b. Margaret sprach mit Marion. **#Daran** hörte Margaret, dass Marie den König getötet hat.
 Margaret talked to Marion. [On that] Margaret heard that Mary killed the king.

In this use, *an*-phrases are possible with all kinds of perception predicates with *that*-clauses in German, (e.g. *sicht-/hör-/spürbar, dass*) but neither with nouns or bare infinitives (**Daran*

that-clause via relativization (Kratzer 2016). Kratzer (2016) proposes the analysis in (11) for speech act verbs like *say*. In (12), this analysis is carried over to *hear* such that Margaret heard *x*, where *x* is a modal anchor for $C_{\text{content}}(x)$ which is a domain projection function from *x* to the set of worlds that are compatible with the content of *x*, i.e. that Mary killed the king.

- (11) a. Margaret [says that Mary killed the king].
 b. $\lambda e \lambda w \exists x [\text{say}(x)(e) \ \& \ \forall w' (w' \in C_{\text{content}}(x) \rightarrow \text{Mary-killed-the-king}(w'))]$
 (12) a. Margaret [heard that Mary killed the king].
 b. $\lambda e \lambda w \exists x [\text{hear}(x)(e) \ \& \ \forall w' (w' \in C_{\text{content}}(x) \rightarrow \text{Mary-killed-the-king}(w'))]$

In (12) above, the modal anchor is not overtly realized. If we assume that the *an*-phrase is the overt realization of the internal argument of perception verbs when associated with an inferential function, then it suppresses the C_{content} domain projection in (6b) and prevents a reportative interpretation. In this case, the *that*-clause does not express the content of a report but a conclusion along the lines of (10).

Differences between inferential and reportative readings with respect to the *an*-phrase, but also with respect to presuppositional behavior, show that there is not only a contrast between direct and indirect perception, but also between very different types of what has been called indirect perception.

The talk will also discuss the possibilities to derive these readings compositionally and generally and elaborate on remaining issues.

References

- Aikhenvald, A. 2007. "Information source and evidentiality: What can we conclude?" *Rivista di Linguistica* 19,1: 209-227.
- Axel-Tober, K. & K. Müller 2017. "Evidential sentence adverbs in German. Diachronic development and synchronic meaning." *Journal of Historical Linguistics* 7:1-2, 9-47.
- Barwise, J. 1981. "Scenes and Other Situations". *Journal of Philosophy* 78, 369-97.
- Bayer, J. 1986. "The role of event expressions in grammar". *Studies in Language* 10, 1-52
- Hacquard, V. *Aspects of Modality*. PhD thesis, MIT.
- Higginbotham, J. 1983. "The Logic of Perceptual Reports: An Extensional Alternative to Situation Semantics," *The Journal of Philosophy*, 80: 100-27.
- Hintikka, J. (1969a). "Semantics for Propositional Attitudes". In: *Models for Modalities*, Dordrecht: Reidel, 87-111.
- Hintikka, J. (1969b). "On the Logic of Perception". In: *Models for Modalities*, Dordrecht: Reidel, 151-183.

- Kratzer, A. 2017/2007. "Situations in Natural Language Semantics", The Stanford Encyclopedia of Philosophy (Winter 2017 Edition), Edward N. Zalta (ed.), forthcoming URL = <<https://plato.stanford.edu/archives/win2017/entries/situations-semantics/>>.
- Kratzer, A. 2016. "Evidential Moods in Attitude and Speech Reports" (Slides). https://works.bepress.com/angelika_kratzer/10
- Maienborn, C. 2005 "On the Limits of the Davidsonian Approach: The Case of Copula Sentences." *Theoretical Linguistics* 31/3: 275-316.
- Maienborn, C. 2011. "Event semantics". In: *Semantics*, vol. 1 (= *Handbooks of Linguistics and Communication Science* 33.1), 802-829.
- Vlach, F. 1983. "On Situation Semantics for Perception," *Synthese*, 54: 129–52.

What does it mean to want? What's-most-preferred vs. What's-good-enough

Milo Phillips-Brown

MIT Linguistics and Philosophy

Overview. In this paper I do three things. The first thing is organize the debate about the semantics of *want*: I distinguish what I call *What's-most-preferred Accounts* from *What's-good-enough Accounts*.¹ What's-most-preferred Accounts—the orthodoxy—say that you want what you most prefer, given certain alternatives. What's-good-enough Accounts—a minority approach—say that you want what's good enough (in your eyes). The second thing I do is argue against What's-most-preferred Accounts; the third is give a new What's-good-enough Account.

Against What's-most-preferred Accounts. The standard-bearers of the *want* literature are Heim (1992), von Fintel (1999), Levinson (2003), Villalta (2008), and Condoravdi and Lauer (2016). These semantics, and their more sophisticated descendants, differ in important ways; but they each say, in outline, that you want what you most prefer, given certain alternatives. In discussing such What's-most-preferred accounts, it will help to have a particular one in view. I'll use von Fintel's semantics (p. 118). Where $\text{DOX}^*(S)$ is a certain superset of S 's belief set:²

Von Fintel's semantics, approximately. 'S wants p ' is true iff p is true in every best world in $\text{DOX}^*(S)$, as ranked by S 's preferences.

Von Fintel's semantics has a problem, a problem that's shared by all What's-most-preferred Accounts: being most preferred is neither necessary nor sufficient for being wanted.

Being most preferred isn't sufficient for being wanted because sometimes we want none of the options, even the most preferred one. Imagine someone deeply depressed. The depressive says 'there's nothing I want to do today: not stay home, not go to the beach, not even feel better'. Yet she does prefer some things to others. Something is most preferred (some worlds are best in $\text{DOX}^*(\text{the depressive})$), but nothing is wanted.³

Being most preferred isn't necessary for being wanted because sometimes we want many options, even those not most preferred. Imagine your dinner options are the pizzeria, ramen shop, hot dog stand. Hot dogs sound bad; the others sound good; you most prefer the pizzeria.

- (1) (a) I want to go to the ramen shop. (b) And I *really* want to go to the pizzeria!

¹ The taxonomy only applies to *preference*-based accounts of *want*; not to e.g. Braun's (2015, p. 149) view.

² $\text{DOX}^*(S) = \{w : w \text{ is compatible with what } S \text{ believes will happen, no matter how she chooses to act}\}$.

³ Maybe in *some* contexts, there are things the depressive can be truly said to want. Even if so, the context above doesn't seem to be such a context. That's the problem for What's-most-preferred Accounts.

The ramen shop is wanted ((1a) is true), but it's not most preferred (not every best world in $\text{DOX}^*(\text{you})$ are ramen shop-worlds).

In response to similar cases, Levinson and Condoravdi and Lauer hypothesize that the preference relation for *want* varies by context. Adapting this idea to von Fintel's semantics:

Von Fintel's semantics, approximately, with varying preference relation. 'S wants p' is true in c iff, relative to the preference relation in c , p is true in every best world in $\text{DOX}^*(S)$.

The idea is that the ramen shop *is* most preferred, just on its own dimension of value (along another dimension, that honor goes to the pizzeria). In a context whose preference relation represents this dimension—that favors things noodle-y and broth-y—(1a) rightly comes out true. But the view fails in other cases. Say you're going to draw a ticket from a hat. Most are worthless, but the red ticket is worth \$50 and the blue ticket \$100. You say: 'I want to get the red ticket, and I *really* want to get the blue ticket'. The red ticket is wanted, but not most preferred. Levinson says: the red ticket *is* most preferred, just on its own dimension of value. But what would this value be? The two tickets are good for the same thing: money. With respect to the dimension against which you value the red ticket, it's *not* most preferred. But it is wanted.

A simple What's-good-enough Account. According to What's-good-enough Accounts—floated by van Rooij (1999) and endorsed by Lassiter (2011)—you want what's good enough (in your eyes). Why isn't there anything the depressive wants, even though something's most preferred? Because nothing is good enough; life is misery. Why is it that you want to go to the ramen shop, even though it's not most preferred? Because it's good enough; ramen would be nice.

We'll represent S 's (graded) preferences with V_S , a function from propositions to real numbers (S prefers p to q iff $V_S(p) > V_S(q)$). And we'll represent what's good enough with a threshold, a real number: p is good enough for S when $V(p)$ meets the threshold.

Simple What's-good-enough Account. 'S wants p' is true iff $V_S(p)$ meets a certain threshold.⁴

You want to go to the pizzeria and to the ramen shop; the values you assign to going to each meet the threshold. There's nothing the depressive wants; none of the expected values she assigns to anything meet the threshold. The account thus gets right what What's-most-preferred Accounts get wrong. But it needs to be refined, since *want* is context-sensitive.

Interlude: the context-sensitivity of *want*. The same *want* ascription can be true in one context but false in another.⁵ For example, suppose in the dinner case it's late at night, and the hot dog stand, the pizzeria, and the ramen shop are the only places open. You say, 'of

⁴ van Rooij's view is a Simple What's-good-enough Account: 'S wants p' is true iff the *expected value* S assigns to p exceeds the expected value S assigns to a tautology.

⁵ Others have argued for this conclusion; e.g. Levinson, Villalta, and Condoravdi and Lauer.

course neither [ramen shop, pizzeria] place do I really *want* to go to. (At this hour, though, they're the only places that pass for decent.)' In this context, both (1a) and (1b) are *false*. In the earlier context, both were true. The Simple What's-good-enough Account can't make sense of this.

A new context-sensitive What's-good-enough Account. I propose that what changes by context is what counts as good enough; something can be good enough in one context (and so truly said to be wanted), but not in another (and so not).

Context-sensitive What's-good-enough Account. 'S wants p' is true in *c* iff $V_S(p)$ meets the threshold in *c*.⁶

In the context where (1a) and (1b) are both true, the values you assign to going to each of the ramen shop and the pizzeria meet the threshold; in the context where both (1a) and (1b) are both false, neither value meets the threshold.

All-things-considered *want*. It's sometimes thought that there are contexts where you're truly said to want only the most preferred option: e.g. a context where (1b) is true but (1a) false. It's what you want, all things considered. My account allows for such contexts: the threshold is set to the value you assign to the most preferred option. Only it comes out wanted, since the value you assign it meets the threshold, but the values you assign to dispreferred options do not: e.g. if the threshold is set to the value you assign to the pizzeria, then the value you assign it meets the threshold ((1b) is true) but value you assign the ramen shop doesn't ((1a) is false).

⁶ Lassiter says *want* is evaluated against contextually-set alternatives, which determine a threshold: 'S wants p' is true in *c* iff the expected value *S* assigns to *p* is 'significantly greater' (p. 182) than the average of the expected values that *S* assigns to the alternatives in *c*. But suppose you're vegetarian and allergic to crabs. You'll be forced to eat one of ratatouille (50 expected value), chicken (-50), or crabs (-2000). 'You want to eat chicken' is false, but the expected value you assign to eating chicken is significantly greater than the average (-975) of the alternatives.

Export of fictional truth as analogical reasoning

Merel Semeijn

University of Groningen

Export and the patchwork problems. There is a general consensus to follow Lewis' (1978) reality principle when analysing 'import' of fictional truth, e.g. because I know that 'Water is H₂O', I assume that 'In the Sherlock Holmes novels (*SH*), water is H₂O'. There is no such consensus on how to model 'export' of fictional truth, i.e. learning something about the real world from engaging with fiction. Take the following quote from Fleming's *Thunderball*:

(1) New Providence, the island containing Nassau, the capital of the Bahamas, is [...] fringed with some of the most beautiful beaches in the world (adopted from Friend, 2008)

Although it is part of a fictional narrative, we can learn empirical facts about the real world from (1). It is generally assumed (e.g. Currie, 1990; García-Carpintero, 2013; Matravers, 2014) that this is possible because a fictional narrative may contain (indirect) assertions of the author (e.g. (1)) besides fictional statements. Friend (2011) distinguishes two problems with such 'patchwork' views of fiction: First, it prevents us from defining 'fictional narrative' as a narrative that consists of fictional statements and hence to provide a principled way of classifying fiction. Second, on some versions of the view (e.g. Currie, 1990) it predicts that we constantly switch between the cognitive states of imagination and belief while engaging with a fictional narrative. This does not square with our phenomenology of engaging with fiction.

An intentionalist account. Recently there has been a general tendency to move away from Gricean accounts of speech acts, where speech acts are defined in psychological terms of reflexive communicative intention, to normative accounts (e.g. Williamson, 2000; Geurts, 2018). Similarly, García-Carpintero (2013) argues that, unlike the intentionalist accounts on offer, a normative account of speech acts *can* adequately solve the patchwork problems by putting the classification of fiction in normative terms. I argue that we can solve the patchwork problems in a Gricean account (by defining fictional narrative as consisting of fictional statements), if we analyse export as being based on analogical reasoning. I explore this possibility using Matravers' (2014) framework but the move is extendable to other accounts. In Matravers' two-stage model of narrative interpretation, the first stage is neutral between fiction and non-fiction, i.e. you just entertain the content of the narrative. This means that the theory predicts no difference in experience between reading (1) and a 'regular' fictional statement. In the second stage the difference between fiction and non-fiction becomes apparent. Roughly, if you interpret *p* as a non-fictional statement, you will have a disposition to believe *p*; if you interpret *p* as a fictional statement, you will not. However, Matravers does not want to base a classification of fiction on this difference precisely because a fictional narrative may contain sentences such as (1) towards which we have a

disposition to believe. Contra Matravers, I use the distinction between different dispositions to believe as a basis for a classification of fiction:

(N) a 's narrative N is non-fictional iff for every statement p that is a part of N a R-intends¹ the audience to entertain p and as a result of that adopt p as belief

(F) a 's narrative F is fictional iff for every statement p that is a part of F a R-intends the audience to entertain p and as a result of that adopt $O_F p$ as belief

(F) contains the independently motivated (See Anonymous, 2017) adjustment of Matravers' theory that fictional content does not 'evaporate' after engaging in a narrative but is added to our beliefs as 'parafictional' belief under an 'In fiction F ,'-operator (O_F). Drawing the fiction/non-fiction distinction in this way means that a fictional narrative is no longer a patchwork of statements towards which we have different dispositions to believe. All statements that are part of a fictional narrative (including sentences such as (1)) are just fictional statements (assertions of a fictional narrator) that update our beliefs with parafictional beliefs, i.e. there are no 'authorial intrusions'. This offers a principled way of classifying fiction and avoids the second patchwork problem, but leaves the question of how to account for export; How do we arrive at the belief that 'Nassau is the capital of the Bahamas' when after reading (1) all we are left with is the parafictional belief that 'In *Thunderball*, Nassau is the capital of the Bahamas'?

Export as analogical reasoning. I propose that export of fictional truth can be understood as based on a kind of analogical reasoning with parafictional beliefs. I adopt the terminology and schematization of Hesse's (1966) and Bartha's (2010) two-dimensional approach in which an analogical inference (e.g. Reid's 1785 analogical argument) is justified if [1] a 'source' (e.g. Earth) and 'target system' (e.g. Mars) exhibit a 'positive analogy' (e.g. both Earth and Mars orbit the sun) and [2] the source system exhibits a 'vertical relation' of correlation between properties in and outside the positive analogy (e.g. Earth's orbiting the sun is correlated to it sustaining life) that can be extended to the target system (e.g. Mars' orbiting the sun may be correlated to it sustaining life), given that [3] there is no 'negative analogy' (e.g. Mars is smaller than Earth) that is also correlated to the relevant positive analogy and hence prohibits this:

Source	Target			
P	P*	[positive analogy]	P: Earth orbits the sun	P*: Mars orbits the sun
A	¬A*	[negative analogy]	A: Earth's radius is 6,371 km	A*: Mars' radius is 6,371 km
Q			Q: Earth can sustain life	Q*: Mars can sustain life
		Q*		

Just like Reid was justified in inferring that Mars could sustain life (Q*), we can license analogical inferences based on parafictional beliefs. Suppose I have read *SH* and have obtained the parafictional beliefs that 'In *SH*, a villain called Moriarty terrorized 19th century

¹ Following García-Carpintero (2013), 'R-intends' abbreviates Gricean conditions for reflexive communicative intention.

London’, ‘In *SH*, London is the capital of England’ and ‘In *SH*, Bakerstreet crosses Crawford street’). Suppose I already knew that ‘(Actually) London is the capital of England’:

Source	Target		
Q	$\neg Q^*$	Q: In <i>SH</i> , Moriarty terrorized London	Q*: Moriarty terrorized London
A	A*	A: In <i>SH</i> , London is the capital of England	A*: London is the capital of England
B		B: In <i>SH</i> , Bakerstreet crosses Crawford street	B*: Bakerstreet crosses Crawford street
	B*		

Because the *SH* worlds and the real world exhibit the positive analogy *A* and *A** (i.e. the fiction is realistic with respect to this geographical fact), *A* and *B* are correlated (i.e. belong to the same cluster of geographical facts) and there is no negative analogy relevantly correlated (e.g. *Q* is not in the same cluster of facts as *A* and *B*), we are licensed to extend the vertical relation to the real world and hence infer *B** (i.e. that ‘(Actually) Bakerstreet crosses Crawford street’). What export inferences are licensed is thus genre dependent, i.e. dependent on with respect to what clusters of facts the fiction is perceived (or assumed) to be realistic.

Narrative as factory. The view that I have proposed in this abstract offers a uniform analysis of export of facts stated in fiction (the main focus of this abstract) and another type of export that Gendler (2000) calls ‘narrative as factory’, i.e. when we learn general truths that are not explicitly stated from reading fiction. For instance, because I have obtained parafictional beliefs about *The Lord of the Rings* (*LOTR*) that imply that ‘In *LOTR*, long exposure to excessive power can corrupt even the humblest person’ and I know that *LOTR* is realistic with respect to facts about the human (or humanlike) psyche, I can infer that ‘(Actually) long exposure to excessive power can corrupt even the humblest person’.

Selected references

- Friend, S. (2011) ‘Fictive utterance and imagining’, *Proc Aristotelian Society*
- García-Carpintero, M. (2013) ‘Norms of fiction-making’, *British Journal of Aesthetics*
- Matravers, D. (2014) *Fiction and Narrative*, OUP

Temporal reference in non-specific indefinites

Yael Sharvit
UCLA

Sam Alxatib
CUNY GC

The main claim. The transparent/opaque ambiguity of indefinites in intensional contexts finds a parallel in the interpretation of embedded tenses. The parallel, we argue, is explained within a theory of attitude reports that relies on syntactically-represented concept-generators, à la Percus & Sauerland (2003), Anand (2006), Charlow & Sharvit (2014) and Percus (2013). We capture it by treating tenses as quantifiers over events. We further argue that this combination of assumptions provides a principled substitute to Abusch’s (1988, 1997) Upper Limit Constraint.

The facts. The presence of *someone* in (1) gives rise to a specific/non-specific ambiguity.

- (1) John thinks that someone got married.
 - a. Non-specific reading
John to himself: “Someone got married.”
 - b. Specific reading
John to himself (pointing at \uparrow): “This guy got married.”

The non-specific reading of an indefinite noun phrase sometimes comes in two flavors: opaque and transparent (see Fodor 1970). When the head of an indefinite noun phrase is modified by a tensed clause, the non-specific opaque reading has an attitude-anchored tense, and the non-specific transparent reading has a speaker-anchored tense (see Kusumoto 2005).

- (2) Last year, Bill said that John met someone who married a millionaire.
 - a. Non-specific opaque reading
Bill: “John met someone who married/*will marry a millionaire”
 - b. Non-specific transparent reading
Bill (pointing at a group of people who married millionaires prior to the speaker’s now, possibly in Bill’s future): “John met one of these people.”

Analysis, Step I – ‘de re’ semantics

- (3) Main assumption:
The *res* of an attitude report is an argument of the attitude verb (Cresswell & von Stechow 1982 and Heim 1994, attempting to answer the famous question posed in Quine 1956).
- (4) a. Ralph believes that Ortcutt is a spy and that he is a pillar of the community.
b. *Ralph* [*believe*^{de-re}-w₀ *Ortcutt*^{res}] [$\lambda x \lambda w_2$ [*x spy-w*₂]]

- (5) For any type σ , $x^{\text{res}} \in D_\sigma$ relevant property P , world w , time t , and attitude holder y :
 $[[V_{\text{ATT}}^{\text{de-re}}]]^c(w)(x^{\text{res}})(P^{(c,(s,(i,t)))})(t)(y) = T$ iff
 $\exists H[H \in \text{SUITABLE}(x^{\text{res}}, y, w, t) \ \& \ \text{ACC}_{\text{ATT}^{\text{de-re}}}(y, w, t) \subseteq \{(w', t') \mid P(H(w', t'))(w')(t')=T\}]$.
- (6) $H \in \text{SUITABLE}(x^{\text{res}}, y, w, t)$ only if $H(w, t) = x^{\text{res}}$.
- (7) $\exists H[H \in \text{SUITABLE}(\mathbf{o}, \mathbf{r}, \mathbf{w}_c) \ \& \ \text{ACC}_{\text{believe}^{\text{de-re}}}(\mathbf{r}, \mathbf{w}_c) \subseteq \{w \mid [[\text{spy}]]^c(w)(H(w)) = T\}]$

Suppose a tense is a time-picking pronoun (Partee 1973); it can be a ‘res’ (Abusch 1988, 1997).

- (8) $[[\text{past}_m]]^c$ is defined only if $g_c(m) < t_c$.
 $[[\text{pres}_m]]^c$ is defined only if $g_c(m) \circ t_c$.
 When defined, $[[\text{tense}_m]]^c = g_c(m)$.

- (9) T(emporal) A(lignment) C(onstraint):

The attitude holder knows where she stands, temporally, in relation to x^{res} , even if she doesn’t know where she herself is temporally located.

- (10) U(pper) L(imit) C(onstraint) (Abusch 1988, 1997)

The now of an epistemic alternative is an upper limit for the denotation of tenses.

Analysis, Step II – an enriched ‘de re’ syntax

Percus & Sauerland (2003) propose that LFs of attitude reports may contain pronouns that denote concept generators. A concept-generating pronoun applies to a ‘res’ *in-situ* and yields a concept.

- (11) a. ... V_{ATT} ... [1 7 0 [... [G1 α^{res}]-w7-t0 ...]] ...
 b. $[[G_1]]^c$ is a concept generator; $[[G_1]]^c([[\alpha^{\text{res}}]])^c$ is a $[[\alpha^{\text{res}}]])^c$ -appropriate concept.

- (12) $[[V_{\text{ATT}}]]^c(w)(Q^{(c,(s,(i,t)))})(y)(t) = T$ iff
 $\exists G[G \in \text{SUITABLE}(y, w, t) \ \& \ \text{ACC}_{\text{ATT}}(y, w, t) \subseteq \{(w', t') \mid Q(G)(w')(t') = T\}]$.

- (13) $G \in \text{SUITABLE}(y, w, t)$ only if for every z in $\text{Dom}(G)$: $G(z)(w, t) = z$. (Suitability may entail other things, such acquaintance, TAC-compliance, etc.)

Applied to a tense example (John thought that Mary is married to a millionaire):

- (14) a. *John* [$T_{\text{ense}} \text{past}_4$] *think*-w9 [4 7 0 [*Mary* [$T_{\text{ense}} [G_4 \text{pres}_3^{\text{res}}]$]-w7-t0] *mm*-w7]]
 b. $\exists G[G \in \text{SUITABLE}(\mathbf{j}, \mathbf{w}_c, [[\text{past}_4]]^c) \ \& \ \text{ACC}_{\text{think}}(\mathbf{j}, \mathbf{w}_c, [[\text{past}_4]]^c) \subseteq \{(w, t) \mid [[\text{mm}]]^c(w)(G([[\text{pres}_3]])^c(w, t))(\mathbf{m}) = T\}]$

Tense-anchoring follows from Doxastic Privacy

- (15) Doxastic Privacy (Percus (2013)). “When we describe a person’s candidate for the actual world, we avoid explicitly situating individuals from other worlds among those candidates. (Or explicitly excluding them.)”

Suppose tenses “pick out” eventualities, not times. As such, they bring about Doxastic Privacy violations when they are: (i) existentially closed inside a transparent noun phrase, or (ii) not “wrapped” by a concept-generator inside an opaque noun phrase. In addition, ULC-effects follow from concept-generator suitability: an attitude holder cannot have a ‘de re’ belief about an event that has not yet begun.

- (16) a. $\forall \dots \text{say-}w_9 \dots 1 \ 7 \ 3 \ [\dots [\text{some} \dots [[G_1 \text{tense}_{6,0}^{\text{res}}] \dots V\text{-}w_9]] \ [8 \ [\dots [G_1 e_8^{\text{res}}] \dots]]] \dots$
 b. $\forall \dots \text{say-}w_9 \dots 1 \ 7 \ 3 \ [\dots [\text{some} \dots [[G_1 \text{tense}_{6,0}^{\text{res}}] \dots V\text{-}w_7]] \ [8 \ [\dots [e_8] \dots]]] \dots$
 c. $\forall \dots \text{say-}w_9 \dots 1 \ 7 \ 3 \ [\dots [\text{some} \dots [\text{tense}_{6,0} V\text{-}w_9]] \ [8 \ [\dots [G_1 e_8^{\text{res}}] \dots]]] \dots$
 d. $* \dots \text{say-}w_9 \dots 7 \ 3 \ [\dots [\text{some} \dots [\text{tense}_{6,0} V\text{-}w_7]] \ [8 \ [\dots [e_8] \dots]]] \dots$
 e. $* \dots \text{say-}w_9 \dots 1 \ 7 \ 3 \ [\exists_6 [\text{some} \dots [\text{tense}_{6,3} V\text{-}w_9]] \ [8 \ [\dots [G_1 e_8^{\text{res}}] \dots]]] \dots$
 f. $\forall \dots \text{say-}w_9 \dots 7 \ 3 \ [\exists_6 [\text{some} \dots [\text{past}_{6,3}/*\text{pres}_{6,3} V\text{-}w_7]] \ [8 \ [\dots [e_8] \dots]]] \dots$

- (17) $[[\text{past}_{m,n}]^{c:g}]$ is defined only if $g(m)$ is an eventuality, $g(n)$ is a time and $\text{TIME}(g(m)) < g(n)$.
 $[[\text{pres}_{m,n}]^{c:g}]$ is defined only if $g(m)$ is an eventuality, $g(n)$ is a time and $\text{TIME}(g(m)) \circ g(n)$.
 When defined, $[[\text{tense}_{m,n}]^{c:g}] = g(m)$.

Summary

The Doxastic Privacy-driven ‘de re’ mechanism derives: (i) the transparent/opaque ambiguity of non-specific indefinites, (ii) the temporal anchoring facts pertaining to non-specific indefinites, and (iii) the Upper Limit Constraint on tenses-under-attitudes. Thus, in drawing on concept generators, the proposal connects the transparent/opaque ambiguities of indefinites to those of tenses, and derives Abusch’s Upper Limit Constraint on tense construal.

References

Abusch, D. (1988). Sequence of tense, intensionality, and scope, WCCFL 7, Stanford University. Abusch, D. (1997). Sequence of tense and temporal de re. *Linguistics and Philosophy* 20:1-50. Anand, P. (2006). De De Se. PhD dissertation, MIT.
 Charlow, S. and Y. Sharvit (2014). Bound 'de re' pronouns and the LFs of attitude reports. *Semantics and Pragmatics* 7:1-43. Cresswell, M.J. and A. von Stechow (1982). 'De re' belief generalized. *Linguistics and Philosophy* 5:503-535.

- Fodor, J. D. (1970). *The Linguistic Description of Opaque Contexts*. PhD dissertation, MIT.
- Heim, I. (1994). Comments on Abusch's theory of tense. In H. Kamp (ed.), *Ellipsis, Tense and Questions*, 143-170. DYANA deliverable R2.2.B, University of Amsterdam.
- Kusumoto, K. (2005). On the quantification over times in natural language. *Natural Language Semantics* 13:317-357.
- Percus, O. (2013). Res-marking in belief reports. Handout from Workshop on Attitudinal Semantics, September 2013, Keio University.
- Percus, O. and U. Sauerland (2003). On the LFs of attitude reports. *Sinn und Bedeutung* 7, 228-242.
- Quine, Willard van Orman (1956). Quantifiers and propositional attitudes. *The Journal of Philosophy* 53:177–187.

Lexically imprinted concepts are the constituents of linguistic thought

Antonin Thuns

Université Libre de Bruxelles

Of all the components of the linguistic system that contribute to the determination of utterance meaning, lexical meanings seem to be the most open to heavy pragmatic intrusion, that is, to “top-down” influences from the extra-linguistic context of utterance (Recanati 2010). Indeed, radical contextualist arguments in favor of the underdetermination thesis (i.e., the thesis that linguistically encoded meaning underdetermines truth-conditions) are the strongest when they focus on the semantic variability of lexical items. For example, “Travis cases” (Vicente 2012), which are designed to show that truth-conditions are sensitive to conversational interests, are based on the contextual sensitivity of one-place predicates: *The leaves are green* (naturally green vs. painted green); *The kettle is black* (manufactured black vs. burnt black).

From a theoretical point of view, a “maximalist” conception of the contextual sensitivity of lexical items might be desirable precisely to the extent that it allows to keep a “minimalist” conception of contextual influences on the other components of the linguistic system. Hinzen (2015) argues for a strict distinction between the level of lexical organization and the level of grammatical organization of an utterance and for the restriction of top-down contextual influences to the lexical level. Grammar thus fully determines the “thought” expressed by an utterance, modulo whatever specifications of lexically contributed meanings are contextually required. The apparent need of “unarticulated constituents” to account for the intuitive truth-conditions of an utterance is a theoretical illusion, possibly resulting from a conflation between the “thought” directly expressed by an utterance (e.g., for an utterance of *It rains*, the simple thought that it rains; for an utterance of *It is 6 o’clock*, the simple thought that it is 6 o’clock) and further thoughts (“implicatures”) that are more or less automatically triggered by the utterance in a standard context (the thought that it must be raining at some place, the thought that it must be 6 am or pm and that this also is relative to some place, etc.).

Assuming the lexical organization of an utterance to be the locus of heavy pragmatic intrusion, what is the relationship between lexically encoded meanings and the intuitive contribution of words to utterance content? A widespread view in the literature is that lexical meanings play a “scaffolding” role in the process of determining the propositional constituents or “concepts” individual words end up standing for. That is, lexical meanings trigger and guide the search for contextually appropriate candidates to be the “concepts” contributed by lexical items. Once this is done, contributed concepts replace lexical meanings (the scaffold is removed) and are just what lexical items happen to express in a given utterance.

It is useful to distinguish between two kinds of contributed concepts under the scaffolding/replacement view: ad hoc concepts and stable concepts. Ad hoc concepts are one-

off products of utterance interpretation, tailor-made for the occasion. When someone replies *Sam is a saint* to the question of whether Sam can look after the kids (Allott & Textor 2012: 187), the ad hoc concept SAINT* pragmatically inferred is supposed to be just the one that makes the reply optimally relevant in the situation. Allott & Textor propose restricting the notion of ad hoc concepts to occasion-bound interpretations and argue that genuine ad hoc concepts are not even concepts at all. Whereas a concept – lexicalized or not – is a stable “memory address” or “mental file” and can survive changes in its informational content, an ad hoc concept is more like “a mental note written for a particular occasion” (*ibid.* 192). Ad hoc concepts are goal-directed and individuated by their informational content and do not need to survive beyond utterance interpretation (the “note” is thrown away after use). It thus makes more sense to conceive of them as temporary data structures rather than as atomic constituents of thought.

At the same time, authors recognize that we also have a great deal of mental concepts that are not lexicalized, such as concepts of certain kinds of mood, weather, pain (Sperber & Wilson 1998). These are stable entities in our mental life, for which the popular metaphor of “mental files” – stable memory addresses in which information about recurring patterns in the subject’s cognitive environment is stored and revised – seems appropriate. Stable non-lexicalized concepts could just happen to be selected as the occasional senses of words whose lexical meaning is more general.

There are thus two pragmatic roles for lexical concepts: helping elaborate ad hoc “concepts”; or helping select among pre-existing concepts. Sometimes, the best interpretive route is to home in on an already existing concept or “mental file” that the lexical item helps retrieve; other times, genuine modulation must take place and a temporary data structure (a “mental note”) is what the word winds up standing for. Both processes are most likely complementary. However, a consequence of the scaffolding/replacement view is that lexical words make quite heterogeneous contributions to intuitive content. At times, they contribute a concept; other times, something that hardly deserves to be called a concept. Moreover, since a lexical concept serves either as an informational gateway or as a placeholder for another kind of mental concept, its fate is to be systematically replaced by something else, nonlinguistic in nature. Words thus often turn out to be mere vessels for concepts that might have only a tenuous link with their meanings.

This, I submit, runs against empirical evidence that, much to the contrary, lexical words cannot fail to have a cognitive effect qua labels, which suggests that linguistic labels must be more than syntactic placeholders and pointers to encyclopaedic information. Lupyan (2012) has investigated the idea that linguistic labels modulate and “enhance” nonlinguistic cognition, even to the point of infiltrating visual perception. Lupyan & Lewis (2017) claim that labels have an abstracting effect on knowledge and promote more categorial perceptions. This suggests that the very process of lexicalization and the use of lexical words goes with a specific abstract or

synthetic cognitive format that is active in utterance comprehension and that the scaffolding/replacement view fails to capture.

Going back to Hinzen's divide between grammatical and lexical organization, I propose to add that, although lexical organization is indeed the locus of pragmatic infiltration, lexically conveyed content is forced into "grammaticalized thought". Notably, even though the intuitive truth-conditional contribution of a word is better captured by a set of inferences rather than by an atomic concept, it is nevertheless treated, at the level of the thought directly expressed by the utterance, as the contribution of an atomic concept. I propose the phrase "lexically imprinted concept" to refer to the concepts contributed by lexical words at the level of linguistic thought. Lexically imprinted concepts are bona fide concepts and not mere meaning potentials: they are or purport to be "about" some object or topic and are open to contextual infiltration. At the same time, they are cognitively governed or regimented by the abstracting power of the lexical word, so that they are indelibly "lexically imprinted". In virtue of its linguistic framing, the concept contributed by a word does not reduce to its pragmatically determined content. Accordingly, the "object" or "property" of which the lexically contributed concept is a concept cannot be equated with an ordinary object or property: it is rather of a purely representational, abstract nature. There is no straightforward replacement of linguistically expressed concepts by other concepts or "data structures". My argument thus provides additional support to the view that linguistic thought should be distinguished from nonlinguistic thought, even at the lexical level.

References

- Allott, N., & Textor, M. (2012). Lexical pragmatic adjustment and the nature of ad hoc concepts. *International review of pragmatics*, 4(2), 185-208.
- Hinzen, W. (2015). Nothing is hidden: contextualism and the grammar- meaning interface. *Mind & Language*, 30(3), 259-291.
- Lupyan, G. (2012). Linguistically modulated perception and cognition: the label-feedback hypothesis. *Frontiers in psychology*, 3, 54.
- Lupyan, G., & Lewis, M. (2017). From words-as-mappings to words-as-cues: The role of language in semantic knowledge. *Language, Cognition and Neuroscience*, 1-19.
- Recanati, F. (2010). *Truth-conditional pragmatics*. Oxford: Oxford University Press.
- Sperber, D., & Wilson, D. (1998). The mapping between the mental and the public lexicon. *Language and thought: Interdisciplinary themes*, 184, 200.
- Vicente, A. (2012). On Travis cases. *Linguistics and philosophy*, 35(1), 3-19.

Proportional quantifiers call for mereotopology

Marcin Wągiel

Masaryk University in Brno

Introduction. The main aim of this paper is to contribute to our understanding of quantification in natural language by exploring the so far neglected domain of subatomic quantification, i.e., quantification over parts of building blocks of the denotations of singular count nouns. Since standard approaches to nominal semantics are grounded in mereology (e.g., Link 1983, Landman 2000, Champollion 2017), they model entities as being equivalent to mere sums of their parts, i.e., neglect the arrangement of parts, and often postulate the existence of atoms, i.e., objects without proper parts. This contrasts with an old ontological intuition that entities are often made up of smaller entities, i.e., parts, related to each other in a particular manner (Varzi 2016). In addition, humans conceive objects simultaneously as complete wholes and collections of parts (Elkind et al. 1964). The vital question is to what extent these facts are relevant for natural language. In this paper, I present new evidence in favor of a mereotopological approach to nominal semantics (Grimm 2012) as well as novel data concerning the interaction between quantification and subatomic parthood. I argue that certain quantificational expressions are sensitive to subatomic part-whole structures and indicate topological relations such as integrity.

Data. The evidence comes from properties of partitives involving proportional quantifiers. In general, such constructions remain somewhat understudied (but see Ionin et al. 2006) despite their great relevance for important issues concerning quantification in the nominal domain. In particular, Polish distinguishes lexically between what I will refer to as TOPOLOGY-NEUTRAL and TOPOLOGY-SENSITIVE proportional quantifiers. For instance, let us consider the three HALF-words *połowa*, *pól* and *połówka* (all ‘half’). At first sight, they seem synonymous but closer examination reveals some non-trivial distributional and interpretative contrasts. Specifically, *połowa* simply designates approximately 50% of an entity. If it is a singularity, it quantifies in terms of volume, whereas in the case of a plurality, it quantifies over singularities making it up and as such it is compatible with count singulars, plurals and mass terms. On the other hand, *pól* and *połówka* are sensitive to whether the referent of the c-commanded DP comes in one piece or constitutes a discontinuous entity. While *pól* yields a measure only of an integrated object, *połówka* has even a stronger meaning, i.e., it also requires a resulting part to constitute an integrated object in its own right. These properties are reflected in the distribution since both *pól* and *połówka* can only combine with singular count nouns and are incompatible with expressions denoting arbitrary sums and scattered entities, i.e., plurals and mass terms, see (1) for the contrasts. Furthermore, since partitives involving *połowa* and *pól* in (2) denote an arbitrary half, they are felicitous in both scenarios illustrated in Figure 1 and 2. On the other hand, *połówka* has to denote a contiguous subdivision, and thus it is inadequate in a

scenario illustrated in Figure 2. A similar pattern arises in other proportional quantifiers, e.g., *ćwierć* ~ *ćwiartka* (‘quarter’) and *część* ~ *częstka* (‘part’).

- (1) a. *połowa* / *pół* / *połówka* jabłka
 half₁ / half₂ / half₃ of-the-apple
 b. *połowa* / #*pół* / #*połówka* jabłek
 half₁ / half₂ / half₃ of-the-apples
 c. *połowa* / #*pół* / #*połówka* wody
 half₁ / half₂ / half₃ of-the-water

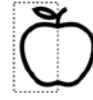


Figure 1:

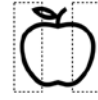


Figure 2:

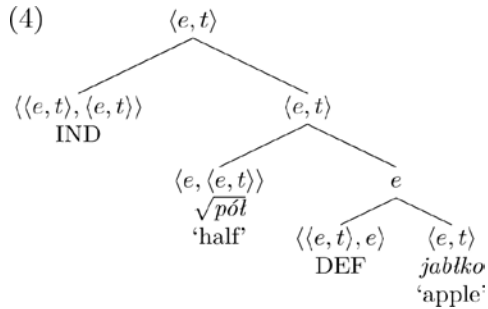
- (2) *Połowa* / *Pół* / #*Połówka* jabłka jest zgniła/-e/-a.
 half₁ / half₂ / half₃ of-the-apple is rotten_{F/N/F}
 ‘A half of the apple is rotten.’

Cross-linguistic support. The contrasts in (1) and (2) are not a Polish idiosyncrasy. In the talk, I will discuss novel data from several other languages demonstrating that various formal means may be employed in order to differentiate between topology-neutral and topology-sensitive partitives. For instance, while Portuguese and Dutch distinguish lexically between the two types of proportional quantifiers, German marks an obligatory contiguous part reading with a special marker and Mandarin and English use different constructions in order to indicate the discussed flavors, e.g., compare *half the NP* ~ *a half of the NP*.

Analysis. Building on Grimm (2012), I develop a mereotopological approach to nominal expressions. I assume mereology augmented with topological notions such as connectedness (Casati & Varzi 1999). First, I model singular individuals in terms of mereotopology where topological relations between parts are specified, whereas pluralities are modeled in terms of mereology, and thus bear not topological commitments. Next, I assume that singular count nouns are semantically more complex than mass nouns since they specify their referents as integrated object (cf. natural units in Krifka 1989). For instance, the difference between count *apple* and mass *apple-stuff* is that the first is a predicate of integrated wholes as opposed to scattered substances or arbitrary sums. This distinction can be captured by the mereotopological notion of maximally strongly self-connected, thus *mssc*, which guarantees that an entity is an integrated whole, see (3-a) (for details see Casati & Varzi 1999). Furthermore, in order to account for the partitive constraint (de Hoop 1997) I assume a null definite article which introduces the standard maximization operator and selects the unique member of a singleton set (its indefinite counterpart introduces a choice function). As a result, in a context in which there is one relevant apple DEF turns the $\langle e, t \rangle$ denotation of *jablko* into type *e*. In addition, I posit a partitioning function π which is an operation of type $\langle \langle e, t \rangle, \langle e, t \rangle \rangle$ which selects a set of entities, i.e., a predicate *P*, and yields its subset $\pi(P)$ such that it is a set of those elements in *P* that do not overlap (relative to a context; Scontras 2014). Application of *mssc* to $\pi(P)$ would then yield a contiguous part (3-b). In *połówka*, IND is introduced by a suffix but it can also have other exponents. Finally, I employ a contextually conditioned measure function μ which returns different measures for different DPs, e.g., number or

volume (Bale & Barner 2009). With all these pieces in place, the denotations of Polish HALF-words are given in (3-c)–(3-e) and the structure for *połowka jabłka* in (4). This semantics explains the contrasts in (1)–(2).

- (3) a. $\llbracket \text{jabłko} \rrbracket = \lambda x [\text{MSSC}(\text{APPLE})(x)]$
 b. $\llbracket \text{IND} \rrbracket = \lambda P \lambda x [\text{MSSC}(\pi(P))(x)]$
 c. $\llbracket \text{połowa} \rrbracket = \lambda y \lambda x [x \sqsubset y \wedge \mu(x) \approx \mu(y) \times 0.5]$
 d. $\llbracket \text{pół} \rrbracket = \lambda y . y_{\text{MSSC}} \lambda x [x \sqsubset y \wedge \mu(x) \approx \mu(y) \times 0.5]$
 e. $\llbracket \text{połowka} \rrbracket = \llbracket \text{IND} \rrbracket (\llbracket \text{pół DP} \rrbracket)$



References

- Champollion (2017) Parts of a whole: Distributivity as a bridge between aspect and measurement
- Casati & Varzi (1999) Parts and places: The structures of spatial representation
- de Hoop (1997) A semantic reanalysis of the partitive constraint
- Elkind et al. (1964) Studies in perceptual development II: The part-whole perception
- Grimm (2012) Number and individuation
- Ionin et al. (2006) Parts of speech: Toward a unified semantics for partitives
- Krifka (1989) Nominal reference, temporal constitution and quantification in event semantics
- Landman (2000) Events and plurality: The Jerusalem lectures
- Link (1983) The logical analysis of plural and mass nouns: A lattice-theoretical approach
- Scontras (2014) The semantics of measurement
- Varzi (2016) *Mereology*

Contributed talks

Special session I: Subjectivity: Theoretical and Experimental Perspectives

PROPOSITIONS and propositions

Paul Dekker

ILLC / University of Amsterdam

Capital PROPOSITIONS Indicative sentences can be used in a wide variety of ways, such is commonplace. But there are two typical uses of indicatives which are distinct, but easily and naturally confused. The first is the use of indicatives to make assertions, depict the world, . . . , a use which is arguably the primary target of investigation of analytical philosophers, logicians and natural language semanticists. Without, here, wanting to commit to any specific concept of a proposition, such understanding of indicative sentences construes them as what I cannot better label than STATING PROPOSITIONS, (“capital propositions”). It is taken to belong to the very essence of such propositions that they are either TRUE or FALSE — never both, sometimes neither — and for the proper understanding of a sentence as stating a PROPOSITION it is thus required that the interlocutors at least assume that they mutually agree on the meaning (or satisfaction criteria) of the terms employed. It must be publicly determinate in a given context what would make for the stated PROPOSITION to be TRUE, i.e., what the contextually determined proposition is.

Emphatic Propositions Indicative sentences can also be read in a more directive, less retrospect, way. They can be used to lay out prospects by what I do not know a better term for than that of *staging propositions*, (“emphatic propositions”). *Propositions* may consist in a projected future, a classification or categorization of things, a statement of rules or regulations, a definition of terms, or of an identity. The *staging of propositions* may perhaps not constitute a homogeneous class of uses of indicative sentence of its own, but all of its instances share this essential characteristic that the staged *propositions* are not presented as being true or false, but typically are *agreed* or *disagreed with* — possibly neither, possibly both — depending on whether our various experiences and interests, our wishes, guts and feelings align with the world as it is staged to be. *Propositions* invite us to attune to a world as characterized, both in our verbal as well as our non-verbal proceedings, and they may invite an adaptation of our expectations concerning linguistic conventions, too.

Exchangeability The discussion between propositions and *propositions* has been observed before¹, but the two are often confused, and easily mistaken for each other. Aristotle’s descriptive generalizations about classical Greek tragedies have later been construed as constitutive stipulations. The proposition that “We will attack tomorrow in the morning” can be construed as either a statement of fact, or a proposal for action. Generic statements systematically allow for both descriptive and normative readings. Likewise, one may read

¹ E.g., Recanati distinguished between constative and performative readings of declaratives.

the definition of, say, a *validity* in a logical textbook, as either a definition of what a validity is, or of what henceforth will count as such.

Evaluative Language “Evaluative language”, like personal-taste talk, moral speech, and aesthetic discourse has recently become the subject of much controversy in linguistics and (analytic) philosophy. It raises the challenge of what Max Kölbel has dubbed “faultless disagreement”, the idea being that various world-mates may entertain contradictory ‘propositions’ without any one of them being wrong. TRUTH has therefore been argued to be perspective-, or judge-relative, or otherwise index- or context-dependent. Interestingly, ‘propositions’ are no longer taken to be the things that are TRUE or FALSE and, as I will argue further in the talk, actually have become void of any intersubjective content.

Faultless Disagreement In my talk I argue, instead, that such evaluative discussion do not feature any PROPOSITION, but that the *disagreement* concerns *propositions*, as is in their nature. We can (suppose we) agree on some cake, and even on its taste, and have two *propositions* on the table: The *proposition* that the cake be categorized as belonging to the tasty things, and that it belong to the non-tasty things.² E.g., my idea of tasty may be such that the cake is tasty, whence *my proposition* that it is, and your idea of tasty is such that it is not, whence *your opposing proposition* that it is not. We can agree that the PROPOSITION that it is tasty_{according to my standards} is TRUE and that the PROPOSITION that it is tasty_{according to your standards} is FALSE. However, there is *no* PROPOSITION that it is tasty_{according to no standards}. A fortiori, there is no such proposition that we disagree about. What can we do? We can *agree to disagree*, and nobody will be wronged or hurt. We can also advance an agreement, if we synchronize on a standard solid enough to yield a PROPOSITION that the cake is tasty_{according to that standard}. The truth of that proposition then can be *decided*. Such synchronization can be achieved in various ways, by brute force, by deliberation, socratically, . . . , but that is for another occasion.

Relative PROPOSITIONS The upshot of the above investigation is that evaluative judgments are not TRUE or FALSE, because they are no PROPOSITIONS but just *propositions*. If we don’t *agree* on the proper use of the terms employed in their formulation, then nobody can be said to be RIGHT, because no matters of fact can serve to decide the issue—if not from another standard, independently *agreed upon*. TRUTH is thus assessment relative only because PROPOSITIONS are. For if its assessment relativity plays up a proposition loses its pretension of truth and becomes a *proposition* and only if public standards are fixed again, a PROPOSITION is reborn and VERACITY are back into play.

Further Prospects The upshot of the discussion is that agreement trumps truth: the bearers of truth and falsity, the objects of study of truth-conditional semantics, derive from the cognitive and social practices of agreement, which in turn figure as the objects of study of conceptual and distributional semantics.

² Alternatively, that some piece of music is baroque or not, or that a certain behavior is queer, or that this or that argument is valid, or some particular reviewer is an expert, etc.

Selected references

Coppock 18, "Outlook-based semantics"

Kölbel 04, "Faultless disagreement"

MacFarlane 14, "Assessment Sensitivity"

Recanati 13, "Content, mood and force".

Taste, traits and tendencies

Alexander Dinges
University of Hamburg

Julia Zakkou
Free University of Berlin

What is it for something to taste good to someone? What is it, for instance, for a cake to taste good to you? It is very natural to appeal to *dispositions* in response. The cake tastes good to you iff you are disposed to get pleasant gustatory reactions when you eat it (roughly). Such analyses, however, face an immediate challenge. Suppose you assert

- (1) The cake tastes good to me.

Whatever you know about the cake, or about other people's reactions to the cake, this assertion seems problematic unless you have tried the cake yourself. If you haven't tried the cake yourself, you should rather say things like "The cake might taste good to me" or "The cake will taste good to me" or "The cake would taste good to me." Call this the *acquaintance requirement*.¹ The acquaintance requirement is puzzling on the dispositional analysis. Dispositions can be had even if they have never been manifested. For instance, a vase can be breakable even if it never breaks. It should thus be possible to have a disposition to have pleasant gustatory experiences from eating the cake even if you never ate it and therefore never actually had the relevant gustatory experiences. So why can't you properly assert that the cake tastes good to you when you haven't tried it?

This paper reviews responses to this challenge on behalf of the dispositionalist. We critically discuss the ideas that assertions of sentence (1) conversationally implicate, semantically presuppose or express that the speaker has tried the cake as well as accounts that derive this requirement from the epistemic norms of assertion (such as the knowledge norm). Accounts along these lines have been suggested in the literature, but we find them wanting for reasons we'll outline. Implicature accounts struggle because the acquaintance requirement isn't cancelable. Presuppositional accounts struggle because the acquaintance requirement doesn't survive in standard "presupposition holes." Expressivists have trouble with third-personal sentences like "The cake tastes good to Hannah," which seem to require acquaintance on the part of Hannah. Accounts that appeal to the norms of assertion cannot properly explain why the acquaintance requirement remains when we explicitly weaken assertoric force. For instance, "The cake *probably* tasted good to me, but I never tried it" still sounds off.

Against the background of this negative discussion, we suggest to rethink the dispositional analysis. On our view, taste properties aren't dispositions but what we will call *tendencies*, where a tendency can be understood as a disposition that has been manifested. We explain the acquaintance requirement on this basis—namely, as an entailment of the proposition expressed by (1).

¹ See e.g. Ninan, 2014; Franzén, 2018; Anand and Korotkova, 2018 for recent discussion.

One major worry with the entailment account is that “The cake doesn’t taste good to me” also comes with an acquaintance requirement. This is puzzling on the entailment account because it now seems that both (1) and its negation entail acquaintance. This has the absurd consequence that speakers are necessarily acquainted with the cake. To respond, we suggest that taste sentences have an underlying quantificational structure along the following lines

- (1) The cake tastes good to me.
 TEND(e): tastes-good(the cake, me, e).
 Events e of eating the cake tend to cause gustatory pleasure in me.

On the most natural reading, the negation takes narrow scope along the following lines.

- (1) The cake doesn’t taste good to me.
 TEND(e): not: tastes-good(the cake, me,e).
 Events e of eating the cake tend to not to cause gustatory pleasure in me.

Thus, (1) and (2) are no longer negations of one another.

This is parallel to generics. “Bird fly” and “Birds don’t fly” don’t seem to be negations of one another either. And this is presumably because the negation naturally takes narrow scope.

- (2) Bird fly.
 GEN(x: x is a bird): x flies.
- (3) Birds don’t fly.
 GEN(x: x is a bird): x doesn’t fly.

A further important concern is that our appeal to tendencies rather than dispositions is ad hoc because tendencies are entirely unheard of as a metaphysical category. To respond, we turn to sentences ascribing character traits such as

- (4) Hannah is brave.

As before in the case of taste, it is exceedingly natural to analyze such statements dispositionally, such that Hannah is brave iff she is disposed to act bravely under the relevant circumstances (roughly). Again, though, this gives rise to an immediate concern. It seems problematic to assert (5) unless Hannah has acted bravely at least once before and hence unless she has faced a situation where bravery can manifest itself. When this condition isn’t met, you should rather say “Hannah is potentially brave” or “Hannah would be brave” or “Hannah will be brave.” Call this the *stimulus requirement*. Again, why should this requirement be in place when braveness is just a disposition?

Alvarez (2017a, 2017b) has recently argued that character traits should be understood as tendencies in our sense rather than dispositions and that the stimulus requirement should thus be understood as an entailment. We will strengthen her case for this conclusion by applying the results from our previous discussion of taste. We will further use this discussion to show that the notion of a tendency is not ad hoc and has other fruitful uses.

Notice our focus on explicitly relativized predicates of personal taste such as “tastes good to me” (relativized PPTs, for short). Most of the discussion on the acquaintance requirement in the literature focuses instead on predicates of personal taste without overt relativizations such as “tasty” and “fun” (bare PPTs, for short) or aesthetic predicates such as “beautiful” and “moving.” We chose this focus because we think that, for methodological reasons, it is wise to leave bare PPTs and aesthetic predicates aside, at least initially, when studying the acquaintance requirement. These terms create independent noise due to their controversial semantics. Relativized PPTs, in contrast, are comparatively well understood, and so they allow us to study the acquaintance requirement in otherwise ideal circumstances. Given the complexity of the data surrounding the acquaintance requirement one can only benefit from this simplification.

References

- Alvarez, M. (2017a), “Are character traits dispositions?”, *Royal Institute of Philosophy Supplement*, 80: 69–86.
- Alvarez, M. (2017b), “Desires, dispositions and the explanation of action”, in J. A. Deonna and F. Lauria (eds.), *The Nature of Desire* (Oxford: Oxford University Press), 119–135.
- Anand, P., and Korotkova, N. (2018), “Acquaintance content and obviation”, in U. Sauerland and S. Solt (eds.), *Proceedings of Sinn und Bedeutung 22. ZAS Papers in Linguistics 60* (1), 55–72.
- Franzén, N. (2018), “Aesthetic Evaluation and First-Hand Experience”, *Australasian Journal of Philosophy*, 96/4: 669–682.
- Ninan, D. (2014), “Taste predicates and the acquaintance inference”, *Proceedings of SALT*, 24: 290–309.

Contributed talks
Special Session II:
Truthmaker Semantics and Situations

Modal Truthmaker Paradox

Gregor Damschen

University of Oldenburg

1 Introduction

Recently, Elke Brendel (Brendel 2018) has discovered a new semantic paradox: the truthmaker paradox (TP). The TP is a provable contradiction resulting from Milne’s selfreferential sentence “This very sentence has no truthmaker” (Milne 2005; Milne 2013). As the TP only presupposes that “having a truthmaker” is factive, but not its converse, that is Truthmaker Maximalism, the predicate “having a truthmaker” is not extensionally equivalent to “being true”. Hence, the TP does not seem to be the same as the (strengthened) Liar. Brendel shows, that TP is a problem of its own that cannot solve metaphysical problems of truthmaking.

However, there are three ‘weaknesses’ of the truthmaker paradox. First, as Brendel herself admits (see Brendel 2018: 10, note 8), the TP does not seem to be a genuinely new semantic paradox as it is a consequence of Montague’s theorem (Montague 1963). If one blocks one of the principles which build Montague’s theorem, the TP is blocked (see Brendel 2018: 12). Second, if one accepts the assumption that “having a truthmaker” is a one-place predicate ‘Tm’ that can be encoded in a language complex at least as Robinson arithmetic $Q+$, a Tarski-style solution for the paradox would be typing the one-place predicate ‘Tm’ (“having a truthmaker”), for example typing ‘Tm’ in the first principle of Montague’s theorem, that is the factivity principle (see Brendel 2018: 12). Third, the TP assumes that a sentence has a truthmaker if this sentence is provable in Robinson arithmetic (Brendel 2018: 8-9). That is, provability implies having a truthmaker.

In this paper, I present a variant of the Truthmaker Paradox that avoids some of these weaknesses: first, it does not rest on Montague’s theorem, second, it does not assume that provability implies having a truthmaker. I call this paradox the “Modal Truthmaker Paradox” (MTP). However, MTP gives rise to a new problem for truthmaker maximalists (e.g. Armstrong 2004) as it assumes a weak variant of Truthmaker Maximalism. If a truthmaker maximalist would like to block the MTP she has to give up even a weak form of truthmaker maximalism. In some sense, MTP is a revenge version for truthmaker maximalists as Halbach’s Paradox (Halbach 2008) is one for verificationists.

2 Brendel’s Truthmaker Paradox

Principles governing central features of the predicate ‘Tm’ in $Q+$ (Brendel 2018: 9):

$$(I)^* \vdash Q+ \text{ Tm}(\ulcorner \sigma \urcorner) \rightarrow \sigma$$

$$(II)^* \text{ If } \vdash Q+ \sigma, \text{ then } \vdash Q+ \text{ Tm}(\ulcorner \sigma \urcorner)$$

(for all sentences σ of the language of $Q+$)

- | | | |
|------|---|-----------------------|
| 1() | $M \equiv \neg Tm(\ulcorner M \urcorner)$ | By diagonalization |
| 2(2) | $Tm(\ulcorner M \urcorner)$ | Assumption |
| 3(2) | M | 2, (I)* |
| 4(2) | $\neg Tm(\ulcorner M \urcorner)$ | 1, 3 |
| 5() | $\neg Tm(\ulcorner M \urcorner)$ | 2, 4, (weak) reductio |
| 6() | M | 1, 5 |
| 7() | $Tm(\ulcorner M \urcorner)$ | 6, (II)* |
| 8() | $\neg Tm(\ulcorner M \urcorner) \ \& \ Tm(\ulcorner M \urcorner)$ | 5, 7, &-introduction |

3 Modal Truthmaker Paradox

Principles governing central features of the predicate ‘Tm’ in Q+:

- | | | |
|--------|--|--|
| (FACT) | $\vdash Q+ Tm(\ulcorner \sigma \urcorner) \rightarrow \sigma$ | Tm-Factivity |
| (WTMM) | $\vdash Q+ (\sigma \rightarrow P\ulcorner Tm(\ulcorner \sigma \urcorner) \urcorner)$ | Weak Truthmaker Maximalism:
If σ is true, then it is at least possible that σ has a truthmaker. |

(for all sentences σ of the language of Q+)

- | | | |
|------|--|--|
| 1() | $D \equiv \neg P\ulcorner Tm(\ulcorner D \urcorner) \urcorner$ | By diagonalization
“D impossibly has a truthmaker.” |
| 2(2) | D | Assumption |
| 3(2) | $\neg P\ulcorner Tm(\ulcorner D \urcorner) \urcorner$ | 1, 2, equivalence |
| 4(2) | $P\ulcorner Tm(\ulcorner D \urcorner) \urcorner$ | 2, (WTMM), Modus ponens |
| 5() | $\neg D$ | 3, 4, reductio |
| 6() | $\neg Tm(\ulcorner D \urcorner)$ | 5, (FACT), Modus tollens |
| 7() | $N\ulcorner \neg Tm(\ulcorner D \urcorner) \urcorner$ | 6, (NEC) |
| 8() | $\neg P\ulcorner Tm(\ulcorner D \urcorner) \urcorner$ | 7, $N\neg/\neg P$ |
| 9() | D | 1, 8, equivalence |
| 10() | $\neg D \ \& \ D$ | 5, 9, &-introduction |

References

Armstrong, D. M. (2004). *Truth and truthmakers*. Cambridge: Cambridge University Press.

- Brendel, E. (2018). Truthmaker maximalism and the truthmaker paradox. *Synthese*. published online 02 November 2018. <https://doi.org/10.1007/s11229-018-01980-2>
- Halbach, V. (2008). On a side effect of solving Fitch's paradox by typing knowledge. *Analysis*, 68, 114–120.
- Milne, P. (2005). Not every truth has a truthmaker. *Analysis*, 65, 221-24. Milne, P. (2013). Not every truth has a truthmaker II. *Analysis*, 73, 473-481.
- Montague, R. (1963). Syntactical treatments of modality, with corollaries on reflexion principles and finite axiomatizability. *Acta Philosophica Fennica*, 16, 153-167.

Why knowing me is different from believing me

Kajsa Djärv

University of Pennsylvania

We show that *know* and *believe* differ fundamentally at the level of argument structure, and that this split generalizes across attitude verbs. Unlike *know*, *believe* permits an optional *Source-DP*.

Background: Following Hintikka (1969), Stalnaker (1974) and Heim (1992), attitude verbs are standardly analyzed as quantifiers over worlds; *know* and *believe* both quantify over the worlds w^t that are compatible with the attitude holder's beliefs in w^o . They differ in that *know* additionally entails (or presupposes) that p is true in w^o (a perspective standard also in the philosophical tradition, where knowledge is typically taken to involve 'justified true belief'; cf. Gettier 1963).

- (1) a. $[[\text{believe}]] = \lambda p_{st} \lambda x_e. \forall w^t \in \text{Dox}_x(w) \rightarrow p(w^t) = 1$
 b. $[[\text{know}]] = \lambda p_{st} \lambda x_e: \underline{p(w) = 1}. \forall w^t \in \text{Dox}_x(w) \rightarrow p(w^t) = 1$

Looking only at examples with clausal complements, this picture appears to be borne out (and can be extended to other attitudes, where these involve quantification over different kinds of worlds):

- (2) I {know/believe/mentioned/discovered} that [_PAnna was the culprit].

Data. The core observation of this paper is that *believe*, unlike *know*, allows for a special kind of DP argument, denoting the source of the p -information. We observe this across attitude verbs:

- (3) a. I {believe, trust} **him** [_Pthat Anna is to blame]. (**B-verbs**)
 b. *I {know, discovered, mentioned, loved} **him** [_Pthat Anna is to blame]. (**K-verbs**)

What explains this difference? We propose that it follows from a fundamental difference between *K* and *B*-verbs, contra (1). Evidence for the nature of this distinction comes from three semantic observations (i)-(iii), and the syntactic realization of the *Source-DP* across languages (iv).

(i) Interpretation of sentences where the verb takes *only* a DP-argument, which is animate or some kind of 'Repository of Information' (e.g. *the news*, *the report*) (Anand et al. 2019): for *B*-verbs, the DP is interpreted as the source of some contextually provided proposition, as in (3); for *K*-verbs, no propositional content is inferred. Rather, the DP denotes an individual or situation, itself the theme of the event denoted by the verb—now denoting some type of acquaintance-relation:

- (4) a. I believe John. \approx I believe that what J. said is true/that J. is right about p .

- b. I know John. \approx I am acquainted with J.

(ii) (Non-)entailment from the DP to the CP-case (Uegaki 2015, Elliott 2016): (5-b)-*believe* entails (5-a)-*believe*, but (5-b)-*know* does not entail (5-a)-*know* (neither CP-case entails the DP-case):

- (5) a. Sue {believes, knows} [_{CP} that Anna is to blame].
 b. Sue {believes, knows} [_{DP} the rumor that Anna is to blame].

We further observe that this contrast tracks an apparent pragmatic difference: in “believe the rumor that p” (6-a), p is clearly the main point of what is believed, whereas in “know the rumor that p” (6-b), p serves as a description characterizing the rumor, with which the attitude holder is acquainted, along the lines of the following paraphrases:

- (6) a. I believe that p & (by the way) p has been rumored.
 b. I know a rumor & (by the way) the content of that rumor was p.

(iii) *B*-verbs may characterize a change of belief-state, indicating the attitude holder’s acceptance of p, given a previous claim that p (Sæbø 2009, Roberts T. 2019; (7) is adapted from Roberts):

- (7) Mildred and Horace are discussing their neighbor, Gertrude. Mildred doesn’t know that Gertrude is on vacation, but she is known to be an extensive world traveler.
 a. Horace: Gertrude is in Tahiti again this week.
 b. Mildred: I believe that./#I {think, know} that. \approx face-value acceptance of p

(iv) In German, which patterns like English with respect to (i)–(iii), there is a morphological contrast associated with the two DPs: *Source*-DPs must be dat (8-a) and *Content*-DPs acc (8-b). Moreover, German (unlike English) allows for both a *Source*-DP_{DAT}, and a *content*-DP_{ACC} (8-a):

- (8) a. Ich glaube ihm/*ihn, (die Behauptung), dass H. M. das Buch gab.
 I believe him.dat/acc, (the.acc claim), that H. M. the book gave.
 ‘I believe him (*the claim) that Hans gave Mary the book.’
 b. Ich glaube die/#dem Behauptung, dass Hans Maria das Buch gab.
 I believe the.acc/dat claim, that Hans Maria the book gave.
 ‘I believe the claim that Hans gave Mary the book.’

Proposal. To account for the case- and DP-licensing contrasts in (8), we propose that in German, unlike in English, the *Source*-DP is introduced in a Low Source Applicative (9) (Pylkkänen 2008) (on Source Applicatives in German, see e.g. McIntyre 2006, Schäfer 2008):

(9) $[[\text{AppI}_{\text{Source}}^o]] = \lambda x_e. \lambda y_e. \lambda f_{\langle e, st \rangle}. \lambda e_s. [f(e, x) \ \& \ \text{theme}(e, x) \ \& \ \text{from-the-possession}(x, y)]$

To combine with AppIP, *believe* must be of type $\langle e, st \rangle$ (s : state/event). We propose that *B*- and *K*-verbs are both of this type, but that they differ in terms of the *kind of individual* they select: *B*-verbs select individuals with propositional content (x_c) (10-a) (which may themselves be modified by content individuals, such as *the rumor* (10-b), along the lines of Moulton 2009, 2015):

(10) a. $[[\text{CP}_{\text{content}}]]^w = [\iota x_c. \text{cont}(x_c) = p]$

b. $[[\text{the rumor that } p]]^w = [\iota x_c. \text{rumor}(x_c) \ \& \ \text{cont}(x_c) = p]$

K-verbs, on the other hand, select for individuals that denote in the domain of *particulars* (x_r) (11). Adopting the situation-semantic perspective of Kratzer (2002), we take this to be the case for both CPs and DPs: while DPs denote concrete or abstract individuals like *Anna* or *the rumor*, particular-denoting CPs refer to situations that exemplify some proposition p :

(11) $[[\text{CP}_{\text{particular}}]]^w = [\iota x_r. \text{situ}(x_r) \ \& \ \text{exemplifies}(x_r)(p)]$

We achieve the x_c vs. x_r ambiguity through positing two different C-heads, which both select propositions (the semantic type of TP) and output (10-a) and (11), respectively. (10-a) is compatible with the selectional requirements of *B*-verbs, while (11) is compatible with those of *K*-verbs:

(12) a. $[[\text{believe}]] = \lambda x_c. \lambda s. \text{belief}(s)(\text{cont}(x_c))$

b. $[[\text{know}]] = \lambda x_r. \lambda s. \text{know}(s) \ \& \ \text{acquaintance}(s)(x_r)$

It is now clear why the contrasts in (ii) should hold: *belief*-states are fundamentally about propositions, whereas (extensional) *knowledge*-states characterize relations to situations/individuals. It is also clear that (in German) *believe*+AppIP yields the correct *Source-of-information* interpretation, whereas *know*+AppIP would yield a very odd meaning. In English, which lacks Source Applicatives, we propose that the *Source*-DP is introduced through an inchoative v^o (13), introducing an event causing the belief-state (following Levinson 2014 on change-of-state roots like *open*; see (iii)).

(13) $[[v_{\text{incho}}^o]] = \lambda f_{st}. \lambda e_s. \exists s. [f(s) \ \& \ \text{change-of-state}(e) \ \& \ \text{CAUSE}(s)(e)]$

Importantly, this approach has presented a unified semantics for ‘propositional’ and ‘acquaintance’ *know* (and other predicates that show this ambiguity), different from the meaning of *believe*, which we take be fundamentally a relation to propositions (as on the Hintikka approach). In the talk, we connect this account to factivity, question-selecting (intensional) *know*, and to the excluded middle presupposition of *believe* (that the attitude holder either believes p or $\neg p$; Gajewski 2007).

Selected references

- Elliott, P.D. 2016 Explaining DPs vs. CPs without syntax.
- Hintikka, J. 1969. Semantics for propositional attitudes.
- Kratzer, A. 2002. Facts: particulars or information units?
- Levinson, L. 2014. The ontology of roots and verbs.
- Moulton, K. 2009. Natural selection and the syntax of clausal complementation.
- Moulton, K. 2015. CPs: Copies and compositionality.
- Pylkkänen, L. 2002/2008. Introducing arguments.
- Uegaki, W. 2015. Content nouns and the semantics of question-embedding

Between Language and Reality There Is No Thing

David Kashtan

Hebrew University, Jerusalem, Israel (HUJI)

According to Tarski's Convention T, a correspondence theory of truth entails all T-sentences, i.e. sentences of the form

(T) *s* is true if and only if *p*,

where “*s*” is replaced by a name of an (object-language) sentence, called the *truth-bearer*, and “*p*” by the translation of it (into the metalanguage).¹ For example, for the sentence “the sea is blue”, the following is a T-sentence:

(1) “The sea is blue” is true if and only if the sea is blue.

Later writers deny that Tarski's work is an instance of the correspondence theory of truth, and some have gone so far as to label it a *rejection* of “full-blooded correspondence”.² For a theory of truth to be a genuine correspondence theory, it is claimed, the theory must specify a binary relation of correspondence between truth-bearer and some kind of extra-linguistic object, such as a fact or a state of affairs, called a *truth-maker*. In Wright's term, correspondence must be *seriously dyadic*.³ Tarski's T-sentences, however, do not mention any truth-makers, and therefore do not contain a seriously dyadic correspondence relation.

In this paper I claim, on the contrary, that Tarski's theory of truth is a genuine correspondence theory. I will: (a) argue that correspondence does not require serious dyadicity in the metalanguage; (b) show that, and why, serious dyadicity *is* required in the metametalinguistic characterization of correspondence truth; (c) show that Tarski's work fulfills this requirement without commitment to extra-linguistic truth-makers.

(a) The term “correspondence theory” is often associated with Russell and Wittgenstein, whose theories postulated facts and states of affairs for the purpose of explaining truth's dependence on the extra-linguistic. I argue that “correspondence” should refer to the purpose (extra-linguistic dependence), and not to the particular strategy (positing facts). I put forth an (informal) criterion: A theory is a correspondence theory if it makes truth out to depend on extra-linguistic circumstance (rather than, say, on further representations, as the coherence theory claims). Tarski's theory fulfills this criterion. In particular, in (1) it is stated that the truth of “the sea is blue” depends on the color of the sea, which is a physical and not a linguistic circumstance. Therefore Tarski's theory is a correspondence theory even though its truth-predicate is not seriously dyadic.

¹ This is not how Tarski presents it, but it can be shown that this presentation is harmonious with his.

² Mulligan et al. (1984, 288). See also Gupta and Belnap (1993, 25), Davidson (1996), Künne (2008, 93), Patterson (2012, 140ff). A related criticism from a slightly different direction is Field (1972).

³ See Wright (1992, 83), also Künne (2008, 93). It is the truth predicate, of course, which needs to be dyadic.

(b) It is straightforward to express T-sentences such as (1) individually, but since their right-hand side is a sentence, we can't generalize it using a quantifier. Thus though (1) is unproblematic, there is no simple way to state the correspondence theory in general. Call this the *generality problem*. Russell's solution was to posit a special kind of object – facts – which can be quantified over. The general statement is then along the lines of;

(R) x is true if and only if there is a fact to which x corresponds.

I submit that the serious dyadicity requirement, along with the call for extra-linguistic truthmakers, stems from the generality problem, and not from the nature of correspondence.

(c) Tarski solves the generality problem without extra-linguistic truth-makers. T-sentences such as (1) are generalized in schema (T) which, strictly speaking, is not formulated in the metalanguage (the language in which truth is defined for the object-language), but in the metametalanguage. Like (R), (T) does contain a seriously dyadic relation, namely the relation of translation between sentences mentioned on the left-hand side of T-sentences and sentences used on their right-hand side. But this relation holds between two domains of linguistic objects – object-language and metalanguage sentences. We call the metalanguage sentences *truth-makers*. The thought that truth-makers have to be extra-linguistic results from a conflation of the metalanguage (in which truth is expressed) and the metametalanguage (in which truth is discussed in general terms).

I conclude by sketching a nominalistic theory of *virtual facts* (on a par with Quine's *virtual classes*), which allows us to capture generalities such as (R) without ontological commitment to facts.

Splitting Situations

Nicky Kroll

Franklin & Marshall College

Overview: Certain versions of situation semantics have situation pronouns appearing inside of determiner phrases. According to the determiner view, situation pronouns appear as a sister of the determiner of the DP (e.g., Buring 2004, Schwartz 2012, Elbourne 2013). According to the predicate view, situation pronouns appear in the NP (e.g., Kratzer 2004, Keshet 2010). I argue here for a third approach in which two situation pronouns appear inside of DPs: one appears as a sister of the determiner and the other appears as a daughter of the highest NP.

- (1a) *The determiner view* (1b) *The predicate view* (1c) *The two-pronoun view*
 $[\text{DP}[\text{D}' \text{ every } s_1][\text{NP person}]]$ $[\text{DP}[\text{D every}][\text{NP person } s_1]]$ $[\text{DP}[\text{D}' \text{ every } s_1][\text{NP person } s_2]]$

The primary argument for the two-pronoun approach is that it provides a superior analysis of so-called *split readings* of DPs, i.e., readings where an intensional operator seems to split a determiner from its restrictor (cf. Szabó 2010, 2011). With this argument in place, I turn to some other virtues of the two-pronoun approach: namely, that it respects important situation-theoretic generalizations, and that it has interesting consequences for the treatment of implicit quantifier domain restriction.

Split Readings: Sara looks over the contestants of a race, points at three runners standing together, and says “Those three will place in the top three.” Little does Sara know that she pointed to Mirah, Willa, and Esme. Indeed, she doesn’t even believe that Mirah, Willa, and Esme are on the track team. But she does believe that they are the only girls in math club. Aware of all of this I turn in your direction and say:

- (2) Sara believes that every girl in math club will place.

I said something true. But the *de dicto* reading of (2) is obviously false. The *de re* reading is false too: neither Mirah, Willa, nor Esme are in math club.

The intended (and true) reading is easy enough to paraphrase with the help of some formal devices.

- (2') $\forall x \text{Bel}_{\text{Sara}}[\text{girl-in-math-club}(x) \rightarrow \text{will-place}(x)]$

This paraphrase suggests that the intended reading is one in which an intensional operator somehow splits the determiner of a DP from its restrictor. For this reason, Szabó (2011)

calls such readings *split readings*.¹ And he provides compelling evidence that split readings are available for a wide variety of intensional constructions.

The Proposal: I propose a “two-pronoun” situation semantics for split readings in which the DP remains a unit. Here is a sketch of the semantics, using the split reading of (2) as an example.

To begin, we assign the split reading of (2) an LF along the lines of (2a).

(2a) Sara believes Σ_4 [that $[_{DP}[_{D'}\text{every } s_3] [_{NP}[_{N'}\text{girl } [_{PP}\text{in math club}]] s_4]]$ will place]

Note that two situation pronouns appear in the DP, one as sister of ‘every’ and another as a daughter of the highest NP. Further note the presence of ‘ Σ_4 ’, which serves as situation binder.

Now for some simplified lexical entries and denotations:

- $\llbracket \text{Sara} \rrbracket = \text{Sara}$
- $\llbracket \text{believes} \rrbracket = \lambda p_{\langle s,t \rangle} . \lambda x . \lambda s . \text{every possible situation } s^* \text{ consistent with } x\text{'s beliefs in } s \text{ is such that } p(s^*) = 1$
- $\llbracket \text{every} \rrbracket = \lambda s' . \lambda f_{\langle e,st \rangle} . \lambda g_{\langle e,st \rangle} . \lambda s . \forall x \text{ in } s' : \text{if } f(x)(s) = 1, g(x)(s) = 1$
- $\llbracket \text{girl} \rrbracket = \lambda s' . \lambda x . \lambda s . x \text{ is in } s \text{ and } x \text{ is a girl in } s'$
- $\llbracket \text{in math club} \rrbracket = \lambda s' . \lambda x . \lambda s . x \text{ is in } s \text{ and } x \text{ is in math club in } s'$
- $\llbracket \text{will place} \rrbracket = \lambda x . \lambda s . x \text{ will place in } s$

In addition to Heim and Kratzer’s rules of composition, I also assume Buring (2004)’s situation binding rule and add a predicate modification rule:

Situation Binding (SB): If α is of type $\langle s,t \rangle$, then for all indices i and assignments g : $\llbracket \Sigma_i \alpha \rrbracket^g = \lambda s . \llbracket \alpha \rrbracket^{g^{s/i}}(s)$

Predicate Modification II (PMII): If α is a branching node and $\{\beta, \gamma\}$ the set of its daughters, then, for any assignment g , α is in the domain of $\llbracket \alpha \rrbracket^g$ if β and γ are, and both β and γ are of type $\langle s, \langle e, st \rangle \rangle$. In that case, $\llbracket \alpha \rrbracket^g = \lambda s' . \lambda x . \lambda s . \llbracket \beta \rrbracket^g(s')(x)(s) = 1 \text{ and } \llbracket \gamma \rrbracket^g(s')(x)(s) = 1$.

With these rules and denotations in hand, a longwinded but straightforward calculation yields the following as the denotation of (2a), relative to an assignment a such that $a(3) = s_r$, a resource situation.

We thus get truth conditions that capture the split reading of (2) without splitting the determiner from its restrictor. Furthermore, the *de dicto*, *de re*, and Fodor’s *nonspecific de re* readings of (2) can easily be derived in this framework.

(2b) Sara believes Σ_4 [that $\llbracket \text{every } s_4 \rrbracket \llbracket \text{girl in math club} \rrbracket s_4]]$ will place] *de dicto*

(2c) $\llbracket \text{every } s_3 \rrbracket \llbracket \text{girl in math club} \rrbracket s_3]] \lambda_1$ Sara believes that t_1 will place *de re*

(2d) Sara believes Σ_3 [that $\llbracket \text{every } s_3 \rrbracket \llbracket \text{girl in math club} \rrbracket s_4]]$ will place] nonspecific *de*

The Competition: I argue that the most promising way for proponents of the determiner view or the predicate view to try account for split readings is take on board Szabó’s novel

¹ Split readings are basically Fodor’s “speci€c yet opaque” readings (cf. Szabó 2010).

quantifier raising rules. These rules basically allow an intensional operator to split a DP. However, I show that even with these QR rules, the semantics leaves much to be desired, and that to fix these problems, a proponent of the either the determiner view or the predicate view has to help herself to the two-pronoun framework. The upshot is that the two pronoun approach is superior because it doesn't require the introduction of novel QR rules and the resources of the two-pronoun approach are needed regardless.

Other Virtues: I show that the two-pronoun framework respects Generalization X (Percus 2000) and the Intersective Predicate Generalization (Keshet 2010), two important situation theoretic generalizations. I also show that the framework has interesting consequences for understanding domain restriction.

References

- Bäuerle, R. (1983). Pragmatisch-semantische aspekte der np-interpretation. *Allgemeine Sprachwissenschaft, Sprachtypologie und Textlinguistik* 121, 121–131.
- Büring, D. (2004). Crossover situations. *Natural Language Semantics* 12(1), 23–62.
- Charlow, S. and Y. Sharvit (2014). Bound 'de re' pronouns and the LFs of attitude reports. *Semantics and Pragmatics* 7(3), 1–43.
- Elbourne, P. (2013). *Definite descriptions*. Oxford University Press.
- Fodor, J. D. (1970). *The Linguistic Description of Opaque Contexts*. Ph. D. thesis, Massachusetts Institute of Technology.
- Francez, I. (2015). Summative existentials.
- Heim, I. and A. Kratzer (1998). *Semantics in Generative Grammar*. Blackwell.
- Ioup, G. (1975). Some universals for quantifier scope. *Syntax and Semantics* 4, 37–58.
- Keshet, E. (2008). Good intensions: Paving Two Roads to a Theory of the de re/de dicto Distinction.
Ph. D. thesis, Massachusetts Institute of Technology.
- Keshet, E. (2010). Situation economy. *Natural Language Semantics* 18(4), 385–434.
- Kratzer, A. (2004). Covert quantifier restrictions in natural languages. Talk given at Palazzo Feltrenelli, Gargnano, Italy.
- Kratzer, A. (2016). Situations in natural language semantics. In E. N. Zalta (Ed.), *The Stanford Encyclopedia of Philosophy* (Spring ed.).
- Percus, O. (2000). Constraints on some other variables in syntax. *Natural Language Semantics* 8(3), 173–229.

- Quine, W. V. (1956). Quantifiers and propositional attitudes. *Journal of Philosophy* 53(5), 177–187.
- Santorio, P. (2013). Descriptions as variables. *Philosophical Studies* 164(1), 41–59.
- Schwarz, F. (2012). Situation pronouns in determiner phrases. *Natural Language Semantics* 20(4), 431–475.
- Schwarzschild, R. (2002). Singleton indefinites. *Journal of Semantics* 19(3), 289–314.
- Szabó, Z. G. (2010). Specific, yet opaque. In T. d. J. K. S. M. Aloni, H. Bastiaanse (Ed.), *Logic, Language, and Meaning: Proceedings of the 17th Amsterdam Colloquium*, pp. 32–41. Springer.
- Szabó, Z. G. (2011). Bare quantifiers. *Philosophical Review* 120(2), 247–283.
- von Fintel, K. and I. Heim (2011). *Lecture Notes on Intensional Semantics*. Massachusetts Institute of Technology.

Downward Monotonicity in Quantificational Situation Semantics

Adam Przepiórkowski

University of Warsaw / Polish Academy of Sciences / University of Oxford

Problem What is the right neo-Davidsonian (Davidson 1967, Castañeda 1967, Parsons 1990, Landman 2000) representation of sentences such as (1)–(2)?

- (1) John invited four girls.
 (2) John invited at most four girls.

In the framework of quantificational event semantics (QES), which combines compositional semantics and event semantics, the basic denotation of *four girls* is as in (3), and the resulting collective representation of (1) – as in (4) (Champollion 2015: 42–43):

- (3) $\lambda P_{(et,t)}. \exists X \subseteq \mathbf{girl}. |X| = 4 \wedge P(X)$
 (4) $\exists X \subseteq \mathbf{girl}. |X| = 4 \wedge \exists e. \mathbf{invite}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{th}(e) = X$

If so, the most natural representation of *at most four girls* would be as in (5), and the resulting collective representation of (2) – as in (6):

- (5) $\lambda P_{(et,t)}. \exists X \subseteq \mathbf{girl}. |X| \leq 4 \wedge P(X)$
 (6) $\exists X \subseteq \mathbf{girl}. |X| \leq 4 \wedge \exists e. \mathbf{invite}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{th}(e) = X$

The obvious problem with (6) is that it states the existence of an inviting-by-John event even though (2) may be truthfully uttered about a situation in which John did not invite any girls (*at most four* is compatible with *zero*) and possibly did not invite anybody at all. However, I argue that this kind of representation makes sense within the contemporary situation semantics framework.

Situation Semantics Barwise and Perry (1983) championed the view that utterances are about situations, i.e., that they express Austinian propositions. Here, I adopt the situation semantics (SS) framework of Kratzer (1989, 2002, 2019a,b), where the notion of *exemplifying situations* is crucial. This notion aims to capture the same intuitions as Kit Fine’s (2017b) *exact truthmakers*: these are the situations which are wholly relevant to the truth of a proposition. Technically, exemplifying situations are situations in which the proposition is true and they are either minimal in the sense that any proper subsituation would render the proposition false (think of *There are 3 cups on the shelf*) or they are homogeneous in the sense that the proposition is true in all its subsituations (think of *There is mud in this ditch*).

Events are understood in SS as special kinds of exemplifying situations. For example, according to Kratzer 2019b, the proposition expressed by (7) may be represented as in (8), i.e., as in the classical neo-Davidsonian approach. This differs from the approach of Kratzer 2019a, where the same sentence is taken to express the proposition in (9) – as describing situations which *contain* as their parts (\leq_p) an appropriate event (i.e., an appropriate exemplifying situation):

(7) Ewan swam for 10 hours.

(8) $\lambda s. \mathbf{past}(s) \wedge \mathbf{swim}(s) \wedge \mathbf{ag}(s) = \mathbf{ewan} \wedge \mathbf{f}_{\text{hour}}(s) = 10$

(9) $\lambda s. \mathbf{past}(s) \wedge \exists e. e \leq_p s \wedge \mathbf{swim}(e) \wedge \mathbf{ag}(e) = \mathbf{ewan} \wedge \mathbf{f}_{\text{hour}}(e) = 10$

I argue that an appropriate way of combining QES and SS requires representations such as (9).

Negation in QES + SS Champollion 2015: 45–50 demonstrates that QES makes available two representations of (10), paraphrased in (11)–(12):

(10) John didn't laugh for two hours.

(11) For two hours, it was not the case that John laughed.

(12) It is not the case that John laughed for two hours.

However, the derived representations (his (32c)–(33c)) require quantification over times and explicit mapping between events and their times. Simpler representations may be obtained on the QES + SS approach:

(13) $\lambda s. \mathbf{past}(s) \wedge \neg \exists e. e \leq_p s \wedge \mathbf{laugh}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{f}_{\text{hour}}(s) = 2$

(14) $\lambda s. \mathbf{past}(s) \wedge \neg \exists e. e \leq_p s \wedge \mathbf{laugh}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{f}_{\text{hour}}(e) = 2$

Both representations express properties of past situations in which there is no laughing-by-John event. (13) is concerned with 2-hour situations in which there is no such event, thus representing the reading in (11), while (14) describes situations in which there is no 2-hour laughing-by-John event, corresponding to the reading in (12). Note that these representations follow Kratzer 2019a (but not Kratzer 2019b) and, hence, the remainder of this abstract does, too.

Zero in QES + SS The natural QES + SS counterpart of the pure QES representations (4) is (15) (simplified in various respects):

(15) $\lambda s. \exists X. X = \{z \leq_p s_r : \mathbf{girl}(z)\} \wedge |X| = 4 \wedge \exists e. e \leq_p s \wedge \mathbf{invite}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{th}(e) = X$

Here, as common in SS (cf. e.g., apart from Angelika Kratzer’s work, Elbourne 2005, 2013 and references therein), I assume that quantifiers range over individuals present in resource situations (cf. s_r in (15)). Hence, the above representation should be read as pertaining to situations s such that there exists a set X – the set of all girls in some resource situation s_r – whose cardinality is exactly 4 and there exists an inviting event e within s whose agent is **john** and whose theme is the set of girls X . (I assume that if event e is a part of a situation s then so are the values of all its thematic roles.)

Bylinina and Nouwen 2018 convincingly argue that the numeral *zero* is not different from other numerals (it does not introduce negation, it is not quantificational in a different sense than, say, *four*, etc.). If so, example (16) should be represented in a way fully analogous to (15), i.e., as (17).

(16) John invited zero girls.

(17) $\lambda s. \exists X. X = \{z \leq_p s_r : \mathbf{girl}(z)\} \wedge |X| = 0 \wedge \exists e. e \leq_p s \wedge \mathbf{invite}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{th}(e) = X$

This brings back the problem we started with: (17) seems to require the existence of an inviting-of-girls-by-John event while stating that no girls were invited in this event.

The main claim of this abstract is that a representation such as (17) is the right representation of (16) on certain metaphysical assumptions. First, together with some SS literature (Kratzer 1989: 612, fn.2, Elbourne 2005: 204, fn.10, Elbourne 2013: 24, fn.12), I assume that situations are entities of Natural Language Metaphysics (NLM; Bach 1986) rather than Real World Metaphysics (RWM). While references to NLM are mostly made by semanticists (e.g., Asher 1993, Ludlow 1999, Pelletier 2011, Teichman 2015, etc.), sometimes under the term Natural Language Ontology (e.g., Moltmann 2017, 2018), this notion has clear affinities with Strawson’s (1959) Descriptive Metaphysics and Fine’s (2017a) Naïve Metaphysics in philosophy and with Cognitive Metaphysics in psychology (Decock 2018). Second, Goldman 2007 reviews evidence for the position that – just as there are two cognitive systems for individuating ordinary objects (Xu and Carey 1996, Rakoczy and Cacchione 2019) – there are two cognitive systems for individuating situations or events: one based on spatiotemporal continuities and another based on kinds or properties. Thus, typically, one spatiotemporal situation may be represented as different kinds of event: a certain movement of a finger against the trigger of a gun may be represented as finger-moving, gun-firing, killing, etc. I believe that this cognitive distinction justifies the metaphysical extravagance of having both (spatiotemporal) situations and (kind-based) events in NLM (not in RWM!) and I argue elsewhere that thus understood exemplifying situations are good candidates for Fine’s (2017b: 557) ‘immediate truthmakers’.

If so, then according to (17) the exemplifying situations for (16) are those spatiotemporal situations s that can be characterized as being of the inviting-of-zero-girls-by-john kind e . This

reflects the often expressed intuition that apparent negative events (Przepiórkowski 1999) are really “ordinary, positive event[s] [i.e., spatiotemporal situations] under a negative description [i.e., of a negative event-kind]” (Varzi 2008: 2–3). In the case of (16), a certain ‘positive’ spatiotemporal situation – perhaps an omission or a failure (of John to invite any girls) at a certain time and at a certain place – is described ‘negatively’ as an invitation of zero girls by John.

Downward Monotonicity in QES + SS Given the above treatment of (16), the following QES + SS representation of (2) is fully natural:

$$(18) \quad \lambda s. \exists X. X = \{z \leq_p s_r : \mathbf{girl}(z)\} \wedge |X| \leq 4 \wedge \exists e. e \leq_p s \wedge \mathbf{invite}(e) \wedge \mathbf{ag}(e) = \mathbf{john} \wedge \mathbf{th}(e) = X$$

According to (18), the exemplifying situations of (16) are those spatiotemporal situations that can be classified as inviting-of-girls-by-John events with between 0 and 4 girls invited.

On this view there is nothing special about the following example:

$$(19) \quad (\text{On each occasion,}) \text{ John invited at least 5 boys and at most 4 girls.}$$

Such examples are problematic on the only previous worked-out attempt at providing a compositional event semantics account of downward monotone quantifiers that I am aware of, i.e., Landman 2000: *Lecture Seven*. The current analysis also differs from Landman’s in treating *zero* as any other numeral (as postulated in Bylinina and Nouwen 2018) and it is *much* simpler.

Concluding remarks In this abstract, I show how combining quantificational event semantics with situation semantics and with some metaphysical assumptions receiving support from cognitive science makes it possible to make sense of simple and straightforward but at first sight counterintuitive meaning representations of sentences with the numeral *zero* and – by extension – with downward monotone quantifiers. This combination is also more generally advantageous for both SS and QES, as it makes SS more compositional and as it simplifies QES’s representation of negated sentences (recall (10)–(14)).

References

- Asher, N. (1993). *Reference to Abstract Objects in Discourse*. Kluwer
- Bach, E. (1986). Natural language metaphysics. In R. Barcan Marcus, G. J. W. Dorn, and P. Weingartner, eds., *Logic, Methodology and Philosophy of Science VII*, pp. 573–595. Elsevier
- Barwise, J. and Perry, J. (1983). *Situations and Attitudes*. The MIT Press.
- Bylinina, L. and Nouwen, R. (2018). On “zero” and semantic plurality. *Glossa: A Journal of General Linguistics*, 3(98), 1–23.

- Castañeda, H. N. (1967). Comment on D. Davidson's 'The logical form of action sentences'. In Rescher (1967), pp. 104–112.
- Champollion, L. (2015). The interaction of compositional semantics and event semantics. *Linguistics and Philosophy*, **38**, 31–66.
- Davidson, D. (1967). The logical form of action sentences. In Rescher (1967), pp. 81–95.
- Decock, L. (2018). Cognitive metaphysics. *Frontiers in Psychology*, **9**(1700), 1–11.
- Elbourne, P. (2005). *Situations and Individuals*. The MIT Press.
- Elbourne, P. (2013). *Definite Descriptions*. Oxford University Press.
- Fine, K. (2017a). Naive metaphysics. *Philosophical Issues*, **27**, 98–113.
- Fine, K. (2017b). Truthmaker semantics. In B. Hale, C. Wright, and A. Miller, eds., *A Companion to the Philosophy of Language*, chapter 22, pp. 556–577. John Wiley, 2nd edition.
- Goldman, A. I. (2007). A program for “naturalizing” metaphysics, with application to the ontology of events. *The Monist*, **90**(3), 457–479.
- Kratzer, A. (1989). An investigation of the lumps of thought. *Linguistics and Philosophy*, **12**, 608–653.
- Kratzer, A. (2002). Facts: Particulars or information units? *Linguistics and Philosophy*, **25**, 655–670.
- Kratzer, A. (2019a). Situations in natural language semantics. Stanford Encyclopedia of Philosophy, <https://plato.stanford.edu/entries/situations-semantics/>. First published Mon Feb 12, 2007; substantive revision Wed Feb 6, 2019.
- Kratzer, A. (2019b). Truthmakers for what we say. <https://umass.app.box.com/v/kratzer-leverhulme>. Leverhulme Lectures, UCL.
- Landman, F. (2000). *Events and Plurality: The Jerusalem Lectures*. Springer.
- Ludlow, P. (1999). *Semantics, Tense, and Time: An Essay in the Metaphysics of Natural Language*. The MIT Press.
- Moltmann, F. (2017). Natural language ontology. In *Oxford Research Encyclopedia of Linguistics*. Oxford University Press. Published online.
- Moltmann, F. (2018). Natural language and its ontology. In A. Goldman and B. P. McLaughlin, eds., *Metaphysics and Cognitive Science*. Oxford University Press. Forthcoming.
- Parsons, T. (1990). *Events in the Semantics of English: A Study in Subatomic Semantics*. The MIT Press.
- Pelletier, F. J. (2011). Descriptive metaphysics, natural language metaphysics, Sapir-Whorf, and all that stuff: Evidence from the mass-count distinction. In *The Baltic Interna-*

- tional Yearbook of Cognition, Logic and Communication (Volume 6: Formal Semantics and Pragmatics: Discourse, Context and Models)*, pp. 1–46. New Prairie Press.
- Przepiórkowski, A. (1999). On negative eventualities, negative concord, and negative *yes/no* questions. In T. Matthews and D. Strolovitch, eds., *Proceeding of Semantics and Linguistic Theory 9*, pp. 237–254. CLC Publications.
- Rakoczy, H. and Cacchione, T. (2019). Comparative metaphysics: Evolutionary and ontogenetic roots of essentialist thought about objects. *Wiley Interdisciplinary Reviews: Cognitive Science*, **e1497**, 1–9.
- Rescher, N., ed. (1967). *The Logic of Decision and Action*. University of Pittsburgh Press.
- Strawson, P.F. (1959). *Individuals: An Essay in Descriptive Metaphysics*. Methuen.
- Teichman, M. (2015). *Characterizing Kinds: A Semantics for Generic Sentences*. Ph.D. thesis, University of Chicago.
- Varzi, A. C. (2008). Failures, omissions, and negative descriptions. In K. Korta and J. Garmentia, eds., *Meaning, Intentions, and Argumentation*, pp. 61–75. CSLI Publications.
- Xu, F. and Carey, S. (1996). Infants' metaphysics: The case of numerical identity. *Cognitive Psychology*, **30**, 111–153.

Posters

Structuring a model for lexical causatives

Rebekah Baglini
Aarhus University

Elitzur Bar-Asher Siegal
Hebrew University of Jerusalem

Introduction: Causative constructions come in lexical and periphrastic variants, exemplified in English by *Sam killed Lee* and *Sam caused Lee to die*. While use of the former, the lexical causative, entails the truth of the latter, an entailment in the other direction does not hold. This difference is often ascribed to the lexical causative having an additional prerequisite of **direct causation**, such that the causative relation holds between a contiguous cause and effect, and no third event is allowed to intervene (Fodor 1970; Katz 1970; see Wolff 2003 for a summary of past approaches). However, capturing direct causation formally is a challenge (Dowty, 1979), especially in light of paradoxical empirical patterns. For example, the lexical causative in (1) involves a causal chain where cause and effect are not contiguous.

- (1) Opening bus lanes to motorcycles will redden the streets of London with cyclists' blood.

[*opening bus lanes* > *accidents increase* > *some cyclists die*] (Neeleman and Van de Koot, 2012)

Recent works by Bar-Asher Siegal and Boneh (2018) and Martin (2018) propose that lexical causatives presuppose that the cause was sufficient for the effect, while *cause* asserts that it was only necessary. Our paper builds on this insight and applies it to the problem of directness inferences, by enriching the notion of sufficiency through the use of Structural Equation Models (SEMs) (Pearl, 2000; Schulz, 2011) for causation. Such models have been applied previously in analyses of the verbs *cause*, *make*, and other periphrastic constructions (Baglini and Francez, 2016; Lauer and Nadathur, 2017).

Formal machinery: [Formal definitions are provided in the talk and full paper.] We assume that the truth conditions of causal statements rely on a structural causal model. Accordingly, semantic accounts provide a definition for when a causal statement is true, given such models. Dependencies between states of affairs are represented in a SEM by a set of propositions (variables) and truth values. To illustrate, consider the (partial) truth-table of the variables involved in opening an electric door (Table 1).

Table 1:
Automatic door
example

A. Button	1	1	1	1	0	0	0	u	u	u	u	u	u	u	u	u	1
B. Circuit	1	1	1	1	0	0	0	1	1	1	0	0	0	u	u	u	1
C. Electricity	1	1	0	0	1	1	0	1	1	0	0	0	1	1	0	1	u
D. Lock	1	0	1	0	1	0	0	1	0	0	0	1	0	1	1	0	0
E. Door-open	0	1	0	0	0	0	0	0	1	0	0	0	0	u	u	u	u

Dependent variables are associated with a function F , which takes the truth values of a set of variables, and returns the truth value of the dependent proposition whose value depends on the variables in that set, given a specific model. For our example, Table 1 reveals that a certain truth value of the “result” (E) depends on conjunctions of the values of sets of variables

(constituting a situation). Thus, we can identify sufficient sets of conditions, in which each member is a necessary condition within this set. We use the term **condition** for a variable and its value, that is causally necessary. Unlike previous analyses, then, sufficiency is not restricted to a single condition, but is rather a characteristic of a set of conditions (this is similar to the view of Mackie (1965)). Accordingly, there may be multiple sufficient sets in a given model which ensure the truth of the result. E.g. for our running example in Table 1, the sufficient sets for the result $\langle E, 1 \rangle$ are: $\{\langle A, 1 \rangle, \langle B, 1 \rangle, \langle C, 1 \rangle, \langle D, 0 \rangle\}$, $\{\langle B, 1 \rangle, \langle C, 1 \rangle, \langle D, 0 \rangle\}$, $\{\langle A, 1 \rangle, \langle C, 1 \rangle, \langle D, 0 \rangle\}$.

Analysis: We take linguistic expressions of causation to commonly presuppose SEMs, while adding construction-specific entailments and pragmatic inferences, including various parameters concerning the selection of a cause among a set of conditions. For example, periphrastic *cause* selects as its subject any condition in a SEM on which the value of the effect causally depends—i.e. any necessary condition (2) (Lauer and Nadathur, 2017).

(2) $\{ \textit{Electricity/John (pressing of the button)/the closed circuit} \}$ causes the door to open.

In contrast, lexical causatives select a subject from a set of conditions constituting a sufficient set. As a selection parameter, we propose that lexical causatives are sensitive to an event-related condition which “completes” a sufficient set, such that, given the model, the effect is entailed by the situation which obtains after the occurrence of the event, but would not be entailed by any situation prior to its occurrence. (Occurrence is defined in terms of interpretation of propositions, and involves changes of values $[0 > 1 \text{ or } 1 > 0]$ at the time of the associated event’s realization.) A lexical causative, then, asserts that its subject is a participant in this **completion event**. In the context of a normally functioning automatic door (Table 1), this event *usually* corresponds to the Button condition, so judgments favor the descriptions in (3-a) over (3-b), even though both conditions are within a sufficient set.

(3) a. $\{ \textit{Pressing the button/John’s pressing the button/the button/John} \}$ opened the door.
 b. Electricity opened the door.

The notion of a completion event is needed to explain why judgments favor (3-b) over (3-a) when the door scenario is changed such that the button is depressed beginning at time $t-1$, but a power outage prevents the door from opening until electricity is restored at time t . This alternative context involves two non-simultaneous event-related conditions as part of a sufficient set (Button and Electricity). When the temporal order of events is retrievable contextually, the lexical causative must express the completion event—i.e. Electricity ($\langle C, 1 \rangle$) as in (3-b). The causative component of a lexical causative verb is represented formally in (4). The function **suff(icient)** takes a situation and returns 1 if it is a sufficient set in the model for a specific result (R).

(4) $\exists e \exists t \exists S: \text{suff}(S)^{M,R} = 1 \ \& \ (Q \in S)^M \ \& \ S(e) \ \& \ \tau(e) \subseteq t \ \& \ \forall t' < t \ \forall e' : \tau(e') \subseteq t' \rightarrow [\neg Q(e')]$

The formula in (4) amounts to a description of a **completion event**: a condition Q is part of the set of conditions that constitutes a sufficient set. At the time t of the event affecting the value of Q (i.e. prior to it, for all events, $\neg Q$), the model determines that the occurrence of the effect must take place, as the sufficient set S holds at the time of the event. Since prior to t the sufficient set S did not hold (since Q is part of the sufficient set), the event at time t is the completion event.

Back to direct causation: Contrary to the directness hypothesis, lexical causatives do not require contiguity between cause and effect. The intuition of direct causation arises (epiphenomenally) from contrasting lexical causatives with periphrastic *cause*: the stronger selection pattern of the former may exclude more temporally distant conditions, while the latter admits any necessary condition (not only the last one). This gives the illusion of a stronger contiguity requirement for lexical causatives. Our analysis explains the acceptability of sentences like (1): since “opening bus lanes” constitutes a completion event for a set sufficient for the result, the truth of the effect is entailed regardless of intervening events (such as “increase of accidents”). Thus, this paper takes the longstanding problem of direct causation inferences and uses SEMs to explain the actual selection rules of lexical causatives.

References

- Baglini and Francez. 2016 *JoS* 33.
- Bar-Asher Siegal and Boneh. 2018. WCCFL 36;
- Dowty. 1979. *Word meaning and Montague grammar*.
- Fodor 1970. *LI* 1.
- Katz. 1970. *Foundations of Language* 6.
- Lauer and Nadathur. Under review.
- Mackie. 1965. *American Philosophical Quarterly* 2.
- Martin. 2018. Time in probabilistic causation: Direct vs. indirect uses of lexical causative verbs. In *Proceedings of Sinn und Bedeutung* Vol. 22.
- Neeleman and Van de Koot. 2012. In *The Theta System*;
- Pearl. 2000. *Causality*.
- Schultz. 2011. *Syntheses* 179.
- Wolff. 2003. *Cognition* 88.

Domain widening yet: German nur/bloß in extreme ignorance questions

Regine Eckardt
University of Konstanz

Qi Yu
University of Konstanz

German extreme ignorance questions. The German particles *nur/bloß* ('only') can be used in questions to express extreme ignorance questions (EIQ). The interpretation differs from the focus particle sense of *nur/bloß*, as the two readings of (1) illustrate.

- (1) Wer hat bloß den Kaffee bestellt?
who has *bloß* the coffee ordered
- a. 'Who ordered only the coffee?' (Focus particle reading)
- b. 'Who on earth ordered the coffee?' (EIQ reading)

The pragmatic effect of German EIQ is similar to English *wh-on-earth* questions (den Dikken&Giannakidou 2002, Rawlins 2009, Oguro 2017), *can't find the value* questions (Bayer&Obenauer 2011) or 'urgent questions' (Thurmair 1989). Crucially, EIQ *bloß* cannot be used in polar questions (2) or alternative questions (3).

- (2) Gibt es hier bloß ein Krankenhaus?
gives it here *bloß* a hospital
- a. Is there only a hospital (and nothing else)?
- b. *(I ask with urgency:) Is there a hospital?
- (3) *Kommt bloß_{EIQ} Anna L*H, Berta L*H oder Clara H%L?
comes *bloß* Anna Berta or Clara

Unavailable: Who *on earth* will come: Anna, Berta or Clara?

Earlier analyses.¹ Kwon (2005) proposes that *bloß* in (1b) operates at the discourse level, giving rise to an interpretation that can be paraphrased as *The only question I need an answer to is Q*. While the analysis allows to derive urgency as an implicature, it fails to predict that (2b) and (3) are impossible. Den Dikken&Giannakidou (2002) treat EIQ in English as an instance of domain widening and their approach resonates well with the *can't find a value* intuition for German data. Yet, their domain widening account for *bloß*_{EIQ} poses problems for the syntax-pragmatic interface in German, as *bloß*_{EIQ}, unlike *on earth*, is not a syntactic part of the *wh*-constituent.

Fixed-domain uses of EIQ. The analysis was challenged by Rawlins (2009) who argues that it fails for examples of EIQ with fixed domains at issue (4)/(5).

¹ For the sake of completeness, it should be pointed out that *bloß*-EIQ are not the same as EIQ with *even* (Iatridou & Tatevosov, 2016).

- (4) The jury of a game show has to decide the winner out of five candidates. Speaker A wonders: *Who on earth will they choose?*
- (5) We impatiently watch a specialist trying to determine the sex of a newborn chicken.²

A: Was hat das Tier bloß für ein Geschlecht?
 what has the animal *bloß* for a sex
 ‘What on earth is the bird’s sex?’

To account for fixed domain uses, Rawlins (2009) proposes a modal version of domain widening: the speaker in (4),(5) includes epistemic alternative worlds w that support unlikely but possible answers. This analysis extends to domains of size 2, as in (5), where Rawlins would predict that, without widening the domain of sexes, A allows for unlikely answers like *It’s male (even though it has features typical for females)*. If we, however, adopt Rawlins’ proposal for $bloß_{EIQ}$, we are in danger to predict that $bloß_{EIQ}$ is allowed in polar questions: The speaker in (2) could express that he allows for unlikely answers, like *There is a hospital, but it is located in a garage*. In actual fact, this reading does not exist and $bloß_{EIQ}$ is prohibited in (2). Therefore, a simple transfer of Rawlins to German $bloß_{EIQ}$ is inadequate.

Domain widening yet. We propose that $bloß_{EIQ}$ requires an integration of domain widening and the modal analysis of Rawlins: Uttering $bloß Q$, the speaker allows for an extended domain of possible worlds *and* indicates that the extension allows for at least one additional answer, compared to the non-widened interpretation of Q . We follow (Groendijk&Stokhof 1982) where the intension of question Q is a partition on D_s . Two worlds w, w' are in the same cell iff the answers to Q in w and w' are the same:

$$[[?x.Q]]^g = \{ \langle w, w' \rangle / \forall g' \text{ like } g, \text{ except on } x, [[Q(x)]]^{w,g'} = [[Q(x)]]^{w',g'} \}.$$

We use $dox(sp(c))$ for the set of doxastic alternatives of $sp(c)$ (as maintained in c) and define the speaker’s subjective content of question Q :

$$[[Q]]^{g,c} = \{ \langle w, w' \rangle / w, w' \in dox(sp(c)) \text{ and } \langle w, w' \rangle \text{ in } [[Q]]^g \}.$$

We can now define a notion of subjective domain widening.

- (6) A context c' is a domain widening context for question Q posed in c iff

$$sp(c) = sp(c') \text{ and } dox(sp(c)) \subset dox(sp(c')).$$

This states that the speaker $sp(c)$ is the same as in c' but takes more doxastic alternatives into consideration in c' than in c . — We propose that $bloß_{EIQ}$ makes two contributions. First, it indicates that the subjective content of question Q is computed relative to a domain widening

² Apparently, this is a very difficult task.

context c' . Second, it requires that $Q_{g,c'}$ includes at least one cell that is not in $Q_{g,c}$, the question denotation without domain widening.

- i. $[[\textit{blo}\beta Q]]^{g,c} = [[Q]]^{g,c'}$ where c' is a domain widening context for c (i.e., the speaker allows for more doxastic alternatives than in c).
- ii. $[[Q]]^{g,c}$ contains at least one partition cell that is not included in $[[Q]]^{g,c'}$.

Predictions. *Wh*-questions can always meet the presuppositions (i) and (ii) if the speaker allows for doxastic alternatives that include more answers—if only temporarily or fictitiously, like by assuming a third sex in (5). Polar questions, in contrast, can never meet (ii): They never have more than two answers for logical reasons. The analysis thus correctly predicts that $\textit{blo}\beta_{EIQ}$ is infelicitous in polar questions. **Implicatures of EIQ:** EIQ are typically uttered in a context where the speaker has already excluded one or more answers to Q . The speaker signals that s/he extends doxastic alternatives, perhaps even including fictional answers. This implicates that the more plausible answers to Q have been falsified (e.g. in (1)) or cast into doubt (e.g. in (6)). The analysis thus accounts for the intuition that the speaker “can’t find the value”. Thurmair’s intuition of “urgency” can be attributed to the same implicature: The speaker has considered several answers and is now forced to consider improbable answers to the limits of fiction.

Consequences for alternative questions. Our data support the view that alternative questions are semantically a series of polar questions (Uegaki 2014 on Japanese). The prohibition of $\textit{blo}\beta_{EIQ}$ in alternative questions suggests that $\textit{blo}\beta_{EIQ}$ takes scope below the disjunction of polar questions, thus leading to inconsistent presuppositions as in the case of (2). The case of $\textit{blo}\beta_{EIQ}$ thus offers further data for the analysis of alternative questions.

References

- Bayer, J. & H.-G. Obenauer. 2011. Discourse particles, clause structure, and question types. *The Linguistic Review* 28(4): 449-491.
- Biezma, M. and Rawlins, K. 2012. Responding to alternative and polar questions. *Ling & Phil* 35(5): 361-406.
- Den Dikken, M. & A. Giannakidou. 2002. From *Hell* to polarity. *Linguistic Inquiry* 33: 31-61.
- Groenendijk, J. & M. Stokhof. 1982. Semantic analysis of *wh*-complements. *Ling & Phil* 5:175-233.
- Iatridou, S. & S. Tatevosov. 2016. Our *even*. *Ling & Phil* 39: 295-331.
- Kwon, M.-J. 2005. *Modalpartikeln und Satzmodus*. Dissertation, Munich.
- Oguro, T. 2017. The true nature of *WH-the-hell* phrases. *Florida Linguistics Papers* 4(2).

Rawlins, K. 2009. Extreme Ignorance Questions. LSA 2009. online (15.3.2019).

Thurmair, M. 1989. *Modalpartikeln*.

Niemeyer. Uegaki, W. 2014. Japanese alternative questions are disjunctions of polar questions. *SALT* 24, 42-62.

Focused Counterfactuals

Da Fan

University of California, Davis

The objective of this paper is to explain why the truth value of a counterfactual is sensitive to the focus pattern of its antecedent. An example slightly adapted from Dretske (1972):

[Context: Clyde and his girlfriend Bertha don't like close relationships. They see each other only twice a year, and they don't want to get married, etc.. However, Clyde found that if he got married soon, he would inherit a great amount of money. Then he married Bertha and got the money, while expecting that their 'loose' relationship would continue.]

(1) If Clyde hadn't MARRIED Bertha, he wouldn't have inherited the money.

(2) # If Clyde hadn't married BERTHA, he wouldn't have inherited the money.

A tradition in the literature, e.g. Rooth (1992, 1999) and von Stechow (1994), explains examples like (1/2) in terms of the context sensitivity of counterfactuals together with some pragmatic constraints that warrant inferences from a focus pattern to a resolution of the contextual parameters to which counterfactuals are sensitive. However, in this paper, I will show that the pragmatic constraints proposed in these theories are *insufficient* for explaining examples in where the focus-involving antecedents are not negations:

[Context: Beer makes people burp but whisky does not. Clyde (only) had a glass of beer and a shot of whisky on his table. Liking the taste of beer and the odor of whisky, Clyde drank the beer but only *sniffed* at the whisky. After a while, he burped.]

(3) If Clyde had drunk the WHISKY, he wouldn't have burped.

(4) # If Clyde had DRUNK the whisky, he wouldn't have burped.

In (3/4), the focus patterns of the antecedents promote the prominence of a particular reading, according to which (3) counterfactually supposes that Clyde only drank the whisky but nothing else while (4) supposes that Clyde only drank the whisky did nothing else to it.

In this paper I propose an account that follows the aforementioned tradition of explaining focus sensitivity in terms of context sensitivity and some pragmatic constraints. However, it *differs* from the extant theories in this tradition in two aspects: i) what is assumed at the semantic level concerning the way in which counterfactuals are sensitive to contexts, and ii) what pragmatic constraints are to be posited in order to relate focus to the resolution of context. On the one hand, while the extant theories assume particular semantics for counterfactuals, the current account only has a minimal semantic assumption that is acceptable to many *different* semantic theories of counterfactuals.

SEMANTIC ASSUMPTION: A counterfactual *If ϕ , would ψ* is true iff all the relevant ϕ - worlds are ψ -worlds, i.e. $(\Gamma \cap \llbracket \phi \rrbracket) \subseteq \llbracket \psi \rrbracket$, where Γ is the set of all the “contextually relevant” worlds that is at least partially determined by the context of utterance.

Given that Γ is at least partially determined by the context, it can be constrained by pragmatic principles. There are two basic ideas in my account. First, the antecedent ϕ serves to select counterfactual worlds within Γ , and it accomplishes that goal by means of answering a question—that is, by picking out a proposition (i.e. a set of possible worlds) out of many alternatives. Second, in order for *If ϕ , would ψ* to be uttered felicitously in a context, the question (which is a set of alternative propositions) that ϕ answers and the answer ϕ itself should be a question-answer pair that is pragmatically adequate with respect to the contextually given set Γ of relevant worlds. What counts as an adequate question-answer pair will be elaborated in the paper, where several necessary conditions for good question/answer are formulated.

With the good question/answer constraint, there is a way that the focus pattern of the antecedent can influence the content of a counterfactual. First, focus is taken as a question-signaling device, so that the focus pattern of the antecedent is to determine what question the antecedent is meant to answer. Second, by using the good question/answer constraint, interlocutors are able to infer what the contextual set Γ must be like, based on the assumption that the counterfactual in question is felicitously uttered and thus the antecedent and its corresponding question constitute a pragmatically good question-answer pair with respect to Γ . In this way, different focus patterns may lead interlocutors to recover the contextual set Γ of relevant worlds differently, which in turn accounts for the focus effect on the content expressed by a counterfactual. Therefore, how focus can influence the truth value of a counterfactual is explained by this pragmatic approach.

Additionally, I shall also make a tentative proposal that the above pragmatic theory, together with some auxiliary assumptions, may be able to solve some puzzles about the semantic properties of counterfactual. In particular, the puzzles are about whether each of true-true counterfactual (TT, $\phi \wedge \psi \Rightarrow \phi > \psi$), simplification of disjunctive antecedent (SDA, $\phi \vee \psi > \chi \Rightarrow \phi/\psi > \chi$), and substitution of equivalent antecedents (SEA, $\phi > \psi \Leftrightarrow \phi^i > \psi$ provided $\phi \Leftrightarrow \psi$) is valid. According to the standard Kratzer-Lewis-Stalnaker semantics (with Strong Centering), both TT and SEA are valid, while SDA is not. But these claims are found contentious, in some cases conflicting with our intuition. In this paper, I will show that the above pragmatic theory designed for explaining the focus effect can also provide resources explaining the troublesome cases regarding the (in)validity of the three inference patterns. The expectation is that the pragmatic theory can serve as a ‘Grice’s razor’ that explains away the troublesome cases at the pragmatic level and thus resists the temptations to make complex changes to the semantics of counterfactuals.

References

- Dretske, F. I. (1972). Contrastive statements. *Philosophical Review*, 81(4):411–437.
- Rooth, M. (1992). A theory of focus interpretation. *Natural Language Semantics*, 1(1):75–116.
- Rooth, M. (1999). Association with focus or association with presupposition? focus: Linguistic, cognitive, and computational perspectives, ed. by peter bosch and rob van der sandt, 232– 246.
- von Stechow, P. (1994). *Restrictions on quantifier domains*. PhD thesis, University of Massachusetts.

Explanation as a speech act

Grzegorz Gaszczyk

University of Groningen / Jagiellonian University

My aim is to propose a speech act theoretic analysis of the linguistic practice of explanation. According to the presented view, the speech act of explanation is governed by the norm of understanding. More specifically, in order to properly perform a speech act of explanation, one must possess an understanding regarding the phenomenon in question and be able to express it in a comprehensible way to one's audience. I show that one can make a felicitous explanation without believing in what one says or saying something true. Finally, I show various applications on my proposal, including to the cases of lying.

Normative approaches to speech acts

The debate concerning the practice of explanation is focused on elucidating notions of explanation and understanding, and on establishing what is the relation between them. However, very little has been said regarding what we do when we engage in explaining something to someone. I provide an answer to this question by proposing a constitutive norm of explanation.

Nowadays, the most widespread way of elucidating speech acts is the normative account, according to which, a particular speech act is governed by a particular norm constitutive for this speech act. Most commonly, it is argued that the speech act of assertion is governed by the knowledge norm: one should assert that p only if one knows that p .¹ Recently, the normative account has been applied also to other assertives, i.e., speech acts having word-to-world direction of fit.² My goal is to add the speech act of explanation to this list.

An explanation without knowledge

Available accounts of explanation insist that each act of explanation is somehow connected to knowledge. Turri (2015) claims that one must know that p to explain something and Achinstein (1983) that the result of explanation is knowledge. I argue that these requirements are too strong. Consider the following case:

ATOM John is a physics teacher in a primary school and, during his classes, he explains various models of the atom to his pupils. John is well aware that these models simplify how an atom is built. However, he is also aware that his pupils are not able to grasp a scientifically biding model of the atom due to its mathematical sophistication and use of quantum mechanics. Instead, he draws the picture of the Bohr model of the atom which depicts the atom as a small, positively charged nucleus surrounded by electrons that

¹ See Williamson (2000), DeRose (2002), Hawthorne (2004).

² For a characteristic of assertives see Austin (1962), Searle (1969), Bach and Harnish (1979), Alston (2000). I can list here the following assertives: assuring (Lawlor 2013), fiction-making (García-Carpintero 2013), guaranteeing (Turri 2013), telling (Pelling 2014), retracting (MacFarlane 2014), or presenting (Milić 2017).

travel in circular orbits around the nucleus. Although John is aware that this is a crude simplification and strictly speaking false depiction of the atom, he explains how this model works. During his lesson, pointing at a picture of the Bohr model John says:

(BM) This is how an atom is built.

As a result, his pupils acquire an understanding of how an atom is built according to the Bohr model.

In ATOM John says something inaccurate ensuring his explanation is adjusted to his audience. The example shows that neither truth nor belief are necessary for performing a correct explanation. Thus, one does not need to know p to explain it.

The norm of explanation

I propose the following norm of explanation:

(UN) One performs a felicitous act of explanation why p only if one expresses understanding why p .

From UN follows that one performs a felicitous act of explanation why p only if one possesses understanding why p . There are cases when a speaker expresses understanding without possessing it (for instance, doing it by accident), but such cases are infelicitous instances of explanations.

In order to properly express understanding one must satisfy the following condition:

(EXPRESSION) One must present relevant information in the context at hand (i.e., address a proper question) which can be comprehended.

EXPRESSION contains two conditions, namely, one must present relevant information and do it in a way which can be comprehended by one's audience.

As an additional layer of my proposal, I also specify what is the perlocutionary effect of explanation. I propose that it is *generating understanding in the intended audience*. In other words, generating understanding is the desired outcome of an explanation. In normal conditions, it can be satisfied when a speaker fulfils EXPRESSION, i.e., performs an adequate presentation of the relevant information which can be comprehended.

An application of the proposal

Consider how this proposition works in the ATOM case. John performs a felicitous explanation because he possesses an understanding of BM. Further, during his lesson, he presents relevant information to his pupils and he does that in a way which can be grasped by them, i.e., he correctly chooses a model of the atom which can be understood by his audience. Finally, he answers the proper question at hand, namely, "How is an atom built?".

Regarding the perlocutionary effect of explanation: John can correctly perform his explanation, i.e., satisfy UN, but the perlocutionary effect may be not fulfilled. In other words, he can do his best in transferring relevant information to his pupils, but whether they listen and want to learn something is up to them.

Let us look at a different scenario. Imagine that John would start explaining a very sophisticated model of the atom, say, the Schrödinger model. Although he possesses an understanding regarding this topic, he would fail to satisfy EXPRESSION: the presented understanding would be incomprehensible for his pupils. His explanation would be correct only if his audience could understand the Schrödinger model.

Finally, I briefly show the consequences of my proposal to the debate about lying. The dominant view nowadays (so-called non-deceptive accounts) states that deception is not necessary to lie: saying something one believes to be false is sufficient.³ Consider ATOM. John is not lying since he does not intend to deceive his pupils. However, non-deceptive accounts incorrectly classify John's BM as a lie only because he says something that he does not believe in. This case, although preliminary, puts some pressure on the non-deceptive accounts of lying, and works in favour of the accounts which insist that intention to deceive is necessary to lie.

References

- Achinstein, P. 1983 *The Nature of Explanation*, Oxford, Oxford University Press.
- Alston, W. P. 2000 *Illocutionary Acts and Sentence Meaning*, Cornell University Press.
- Austin, J. L. 1962 *How to do Things with Words*, Clarendon Press.
- Bach, K. and Harnish, R. M. 1979 *Linguistic Communication and Speech Acts*, MIT Press.
- Carson, T.L. 2010 *Lying and Deception: Theory and Practice*, Oxford University Press.
- DeRose, K. 2002 "Assertion, Knowledge, and Context", *The Philosophical Review* 111: 167–203.
- Fallis, D. 2009 "What is lying?", *Journal of Philosophy* 106(1): 29–56.
- García-Carpintero, M. 2013 "Norms of fiction-making", *British Journal of Aesthetics* 53(3): 339–357.
- Hawthorne, J. 2004 *Knowledge and Lotteries*, Oxford.
- Lawlor, K. 2013 *Assurance. An Austinian View of Knowledge and Knowledge Claims*, Oxford University Press.
- MacFarlane, J. 2014 *Assessment Sensitivity. Relative Truth and its Applications*, Oxford University Press.
- Milić, I. 2017 "Against selfless assertions", *Philosophical Studies* 174(9): 2277– 2295.
- Pelling, C. 2014 "Assertion, telling, and epistemic norms", *AJP* 92(2): 335–348.

³ See among many: Sorensen (2007), Fallis (2009), Carson (2010), Stokke (2018).

- Searle, J. 1969 *Speech Acts: An Essay in the Philosophy of Language*, Cambridge University Press.
- Sorensen, R. 2007 "Bald-faced lies! Lying without the intent to deceive", *Pacific Philosophical Quarterly* 88(2): 251–264.
- Stokke, A. 2018 *Lying and Insincerity*, Oxford University Press.
- Turri, J. 2013, "Knowledge Guaranteed", *Noûs* 47(3): 602–612.
- Turri, J. 2015 "Understanding and the Norm of Explanation", *Philosophia* 43: 1171–1175.
- Williamson, T. 2000 *Knowledge and its limits*, Oxford.

Monsters and complex demonstratives

Joan Gimeno-Simó

University of València

Complex demonstratives are often seen as a source of trouble for the idea that demonstratives are directly referential. For instance, King (2001, 2008) and Nowak (2014) provide an array of cases in which complex demonstratives just can't be treated as devices of direct reference, since they could hardly be considered rigid designators. They argue for an alternative account in which they are treated as quantifiers. In this paper I argue that classical theories (i.e., inspired by Kaplan 1977, 1978, 1989) do indeed predict those non-referential uses of complex demonstratives, as that these are not essentially different from demonstratives of other types, contrary to King's claims.

The first kind of counterevidence comes from '*quantification in*' uses ('*QI*' for short), which occur when the complex demonstrative contains some pronoun bound by an external quantifier:

- (1) Every queen cherishes that cleric who crowned her

A second kind of counterevidence comes from what King calls '*narrow scope readings*' (from now on '*NS*'). In these uses, the complex demonstrative contains a quantifier, and if this quantifier takes wide scope over the demonstrative, then the latter becomes non-directly referential:

- (2) That professor who brought in the biggest grant in each division will be honored

The third kind of counterevidence are cases in which the speaker demonstrates nothing and intends to refer to no particular object, which is why King calls them '*no demonstration no speaker reference readings* (*NDNS*)'. Here, the complex demonstrative does not designate rigidly the same individual across possible worlds; i.e., it does not express a singular proposition:

- (3) That student who scored one hundred on the exam is a genius
 (4) If Simone had won the election, she would definitely have embraced that elector who cast the deciding vote

Another kind of counterevidence comes from variants of Bach-Peters sentences:

- (5) Every friend of yours who studied for it passed that exam she was dreading
 Finally, King (2008b) also cites evidence from anaphoric uses of complex demonstratives:
 (6) A student₁ was sitting in the library. Another student₂ who had an iPod was sitting across from her₁. That student₂ had a logic book.

I shall argue that none of these alleged counterexamples shows that complex demonstratives should be treated differently from simple demonstratives. Indeed, the alleged counterevidence actually underlines the close semantic similarities between these two kinds of expressions.

Counterevidence coming QI can be easily accommodated if we assume that natural language contains operators on character – what Kaplan (1977) called ‘*monsters*’. In (1), the character of ‘that cleric who crowned her’ is supposed to be given by the descriptive material appended to the demonstrative (‘cleric who crowned her’), and this material is being quantified on by an external operator (the binder of ‘her’). This means that this external quantifier is an operator on character. Monsters pose a threat to the idea that indexicals are directly referential, but this threat is no greater when it comes to complex demonstratives than it was for the simple ones: after all, variable binders are monsters (Rabern 2013, Rabern & Ball 2017), and they prevent simple demonstratives from being directly referential. The situation is not different when it comes to sentences like (1):

[Every queen] $\lambda 1$. t_1 cherishes *dthat* (cleric who crowned her₁)

The character of the complex demonstrative is supposed to be given by the descriptive content appended to it, and this descriptive content is being quantified on by a variable binder¹. NS uses can be handled similarly, the only difference being that in QI cases what is bound is a pronoun whereas in NS uses it is a trace:

NS reading: [Each division] $\lambda 1$. [the biggest grant in g_1] $\lambda 2$. *dthat* (professor who₃ g_3 brought in g_2) will be honored

The case is not different with sentences like (4), only that what we need in this case is quantification over possible worlds, as in a standard Lewis-Stalnaker semantics for subjunctive conditionals. This is made clear if we adopt an extensional system in which tense and mood are treated as indexicals:

(6) [Vw: w is among the closest to c_w in which Simone wins the election)] (w she₁ embraces *dthat* (w elector who₂ [the deciding vote] $\lambda 3$. g_2 casts g_3)

As for Bach-Peters sentences and anaphoric uses, they are easily accommodated once we admit the existence of E-type pronouns (Evans 1981), i.e., pronouns anaphoric on a quantifier that does not c-command them, and whose semantic value is retrieved by means of a definite description obtained from that very quantifier:

(6a) **A student** was sitting in the library. Another student who had an iPod was sitting across from **the student who was sitting in the library**. **The student who had an I-pod and was sitting across from the student who was sitting in the library** had

¹ For reason given in King (2008), monstrous quantification into the character of the complex demonstrative is not enough, for then the complex demonstrative is anchored to the actual world instead of being dependent on other worlds. However, this problem vanishes if we adopt an extensional system with full quantification over worlds and times.

a logic book.

(7a) [Every friend of yours who₁ g₁ studied for **the exam she₁ was dreading**] λ₂. g₂ passed that exam she₂ was dreading.

The existence of E-type anaphora could be seen as a threat to direct reference, but, again, this threat is no greater when it comes to complex demonstratives than it was for simple ones. Finally, cases like (3), in which the speaker employs a complex demonstrative without having any particular individual in mind, can be reproduced for simple demonstratives too. I shall argue that they are just variants of Frege's problem.

References

- Kaplan, D. (1977) "Demonstratives". Reprinted in Almog, J., Perry, J. & Wettstein (eds.) *Themes from Kaplan*, Oxford: Oxford University Press, 1989, 481-563.
- Kaplan, D. (1978) "Dthat", in Cole, P. (ed.) *Syntax and Semantics 9: Pragmatics*. Academic Press.
- Kaplan, D. (1989) "Afterthoughts", in Almog, J., Perry, J. & Wettstein (eds.) *Themes from Kaplan*, Oxford: Oxford University Press, 1989.
- King, J. (2001) "Complex demonstratives. A quantificational account". Cambridge: MIT Press.
- King, J. (2008) "Complex demonstratives, QI uses and direct reference". *The Philosophical review* 117 (1): 99-117.
- Nowak, E. (2014) "Demonstratives without rigidity or ambiguity"
- Rabern B (2013) Monsters in Kaplan's LD. *Philosophical Studies* 164: 393-404.
- Rabern B & Ball D (2017) Monsters and the theoretical role of context, forthcoming in *Philosophy and Phenomenological Research*.

Identity of words

Maciej Głowacki
University of Warsaw

Maciej Tarnowski
University of Warsaw

Herman Cappelen divides metaphysical theories of words into intentional and non-intentional. A theory of words is intentional, if it holds that for an entity (a material object, event etc.) to be a token of a word it is either necessary or sufficient that its producer was in a certain intentional state at the production time (Cappelen 1999: 92). Non-intentional theories would be those that deny such a condition. Among the most influential non-intentional theories are standard Peircean Type-Token Model (implicit in works e.g. Ramsey 1923, Quine 1982, also analyzed in Wetzell 2009: 53-72) and Cappelen's own „conventional” theory, while the main proponent of intentionalism is David Kaplan (1990, 2011). In our talk we want to argue in favor of intentionalism and present a form of it differing in a few key respect from Kaplan's account. We believe that this form has an independent philosophical motivation in widely shared views on the nature of communication, as well as is immune from the counterarguments presented against Kaplan's theory. As our first point, we will argue that non-intentional theories cannot be reconciled with a Standard Picture of Communication (SPC), which we take to be prevalent in philosophical analysis of language. According to this picture, communication is a process of production and interpretation of messages composed of sign tokens by linguistic agents in order to provide or gain access to each other's mental states. Interpretation of the message by the receiver rests, within this view, purely on the right recognition and understanding of the signs produced by the sender.

Consider, for example, the following sentence:

(*) „Yesterday I saw three beautiful cranes”.

Notice that this sentence has two different interpretations:

(*1) „Yesterday I saw three beautiful cranes [birds]”.

(*2) „Yesterday I saw three beautiful cranes [construction equipment]”

Suppose, that the external context of the utterance of (*) or a discourse in which it appears does not specify which of those interpretations is true (e.g. it may be the first sentence written via on-line communicator in the conversation of two strangers). Then the only way for the interpreter to specify the context in order to properly interpret this sentence is to ask the speaker: „Did you mean a bird or a construction equipment?”, which is a question about the speaker's intention. We believe that such question in fact concerns the syntactical properties of (*) in order to sustain the SPC. Under the non-intentionalist view, the question of which of the sentences – (*1) or (*2) – was uttered is not decidable. Hence, the interpretation of it cannot be determined according to SPC. Basing on Kaplan's

(1990) analysis of individual, historical or regional differences in spelling and pronunciation of words (especially on the matter of intrinsically indistinguishable, though intuitively essentially different articulations), we take this objection to be easily extendable on the variety of cases. Among others, this problem can be articulated within the discussion concerning proper names with several bearers (see: Fiengo & May 2006). We will argue that in order to keep the SPC, we need an appeal to intention of the word-producer in our theory of word individuation.

We notice, however, that the intentional theory of words proposed by David Kaplan is susceptible to strong counterarguments. Kaplan holds that words are natural structures composed of articulations (in broad sense of the term) connected by speaker's intentions. The necessary and sufficient condition for two articulations to be articulations of the same word is that they were produced with an intention of using the very same word. But, as showed by Cappelen (1999: 94-95) and Hawthorne & Lepore (2011: 15-17) this view forces us to accept unintelligible articulations as tokens of words. If only the articulation was produced with a certain intention, we cannot exclude it from the set of tokens of a word – even if it is impossible for it to be recognized as such. Also, such articulations are troubling for Kaplan's metaphysical stance, since unintelligible articulations may still give birth to 'deviant chains' of uses of a word. By 'deviant chain' we mean a chain of articulations, which are normally associated with separate words – though still possibly connected *via* speaker's intention. Existence of such chains (as articulations of *one word*) is strongly counterintuitive and inconsistent with the word typology provided in descriptive linguistics.

Moreover, Kaplan's theory seems to entail the existence of 'private words'. One can introduce the word without saying or writing it down. There are no external conditions that an articulation (even an inner articulation) must satisfy to become a token of a word – the intention of the utterer is the only thing that matters. We believe, that 'private words', like 'private languages', are sensitive to classical arguments presented in (Wittgenstein 1953) and (Kripke 1982). Both of these objections show, that Kaplan's theory cannot satisfy Bromberger's Desiderata (Bromberger 2011: 503) which expects a correct theory of words to explain what are the truth makers of linguistic facts, since it allows communicatively infertile articulations (which cannot be reasonably thought of as parts of natural language) to be word tokens.

In order to both give a plausible account of communication with accordance to SPC and maintain Kaplan's naturalistic metaphysical framework, we believe that Kaplan's account should be severely revised. To meet this condition, in our view, words ought to be seen as tools for communication (similarly to the treatment of (Irmak 2018)) and differentiated accordingly to their function in the communication process. We believe that this goal could be met by adding to the Kaplan's condition a possibility of truly ascribing to the sender by the receiver an intention to produce the very word. Such ascriptions should be

possible to make with the use of diverse criteria or heuristics concerning word differentiation and recognition studied in cognitive psychology, such as syntactical frequency, similarity in shape or use of semantic clues. This additional condition allows receivers to accurately recognize the word, which is crucial in fulfilling its proper function as a communicative tool.

Such conditions are immune to the presented counterarguments against intentional theories of words, since they don't recognize communicatively infertile articulations ('private words' or unintelligible articulations) as word tokens, as well as don't allow 'deviant chains' of uses. In our talk we will elaborate further on the question of how such conditions may be useful in bringing together widely accepted views on communication, Kaplan's metaphysical framework for linguistic entities and satisfaction of Bromberger's Desiderata, making use of the formalism proposed in (Epstein 2009).

References

- Bromberger S. (2011), *What are words? Comments on Kaplan (1990), on Hawthorne and Lepore, and on the issue*, "The Journal of Philosophy", Vol. 108, No. 9: 486-503
- Cappelen H. (1999), *Intentions in Words*, „Nous“, Vol. 33, No. 1, p. 92–102.
- Epstein B. (2009), *Grounds, Convention, and the Metaphysics of Linguistic Tokens*, "Croatian Journal of Philosophy" Vol. 9, No. 25, p. 1-33.
- Fiengo R., May R. (2006), *De Lingua Belief*, Cambridge: MIT Press.
- Hawthorne J., Lepore E. (2011), *On words*, „The Journal of Philosophy“, Vol. 108, No. 9, p. 447-485. Irmak N. (2018), *Ontology of words*, "Erkenntnis" (forthcoming).
- Kaplan D. (2011), *Words on words*, „The Journal of Philosophy“, Vol. 108, No. 9, p. 504-529
- Kaplan D. (1990), *Words*, „Proceedings of the Aristotelian Society“, Supplementary Volumes, Vol. 64 (1990), p. 93-119
- Kripke (1982), *Wittgenstein on Rules and Private Language: An Elementary Exposition*, Cambridge, M.A.: Harvard University Press.
- Quine W. V. O. (1982), *Mathematical Logic*, Cambridge M.A.: Harvard University Press.
- Ramsey F. (1923), *Critical Notice on Wittgenstein's Tractatus logico-philosophicus*, "Mind", 1923, p. 465-478
- Wetzel L. (2009), *Types and tokens: on abstract objects*, Cambridge, M.A.: MIT Press.
- Wittgenstein L. (1953), *Philosophical Investigations*, Oxford: Blackwell.

Opaque complements in German: Disentangling intensionality, unspecificity and higher types

Nina Haslinger

Georg-August-Universität Göttingen

Main points: On the basis of German data with the verb *suchen* ‘look for’, I investigate the question under which conditions DPs can express quantification over properties. Several semantic differences between what I call **higher-order DPs (hDPs)** like *etwas* ‘something’, *zwei Sachen* ‘two things’ or *dasselbe* ‘the same thing(s)’ and **ordinary DPs (oDPs)** like *jemand* ‘someone’, *zwei Gespenster* ‘two ghosts’ or *dieselben Leute* ‘the same people’ (cf. [2, 3, 1] a.o. for this distinction) show that the choice of a quantificational domain is less constrained for hDPs than for oDPs. While both classes of DPs can quantify over properties, only hDPs have readings involving quantification over *arbitrary* properties. I propose to reduce this to a type distinction: hDPs can quantify over properties of type $\langle s, et \rangle$ (cf. [7]), while oDPs can only quantify over properties that are treated as individuals for the purposes of semantic composition. **Background:** Unspecific indefinite objects of intensional transitive verbs (ITV) are often analyzed as denoting quantifiers [4] or properties [6] that directly serve as arguments of the verb. For instance, [6] argues that the ITV in (1) combines with the property $\llbracket ghost \rrbracket$. This yields a reading that is both intensional ((1) can be true if no ghosts exist, and is not equivalent to *Peter is looking for a unicorn*) and unspecific ((1) can be true even if any arbitrary ghost would meet Peter’s search criteria). As [7] a.o. notes, some indefinites can quantify over the goals of such unspecific searches: (2) can be true if Peter and Maria are both looking for an arbitrary ghost, and neither of them is aware of the other’s search. Since standard analyses of (1) do not extend to this reading, which requires an unspecific construal of the trace of the relative pronoun, the DP in (2) has been analyzed as a quantifier over properties.

(1) *Der Peter sucht ein Gespenst.*

The Peter seeks a ghost

‘Peter is looking for a ghost.’

(2) *Der Peter sucht etwas, das auch die Maria sucht.*

The Peter seeks something REL also the Maria seeks

‘Peter is looking for something that Maria is also looking for.’

[7] generalizes this higher-type semantics to all unspecific indefinite objects of ITV: In both (1) and (2), the DP denotes a quantifier over properties, which binds a variable of type $\langle s, et \rangle$ in the object position of the ITV. On this analysis, the indefinite in (1) quantifies over arbitrary subproperties of $\llbracket ghost \rrbracket$. **Contrasts between hDPs and oDPs:** Two new observations challenge the view that indefinite objects of *suchen* can generally quantify over properties. **A)**

Modifiers within an oDP do not express predicates of arbitrary properties: In (3-b), the numeral within the hDP can count the two salient subproperties of books, while this reading is unavailable in (3-a).

(3) a. SCENARIO: Hans wants to rearrange the window display in his bookshop. He is looking for three arbitrary large books with white covers and three arbitrary small books with black covers.

b. *Der Hans sucht nur zwei Sachen.*

The Hans seeks only two things

'Hans is looking for only two things.'

true in (3-a)

c. *Der Hans sucht nur zwei Bücher.* 'Hans is looking for only two books.'

false in (3-a)

Similarly, if *etwas* in (2) is replaced by *ein Gespenst* 'a ghost', the sentence is no longer true if Peter's and Maria's only goal is to find an arbitrary ghost, presumably because the relative clause in an oDP can not express a predicate that can be true of arbitrary properties. **B**) Indefinite oDPs seem to lose their property readings when they are interpreted in a derived syntactic position, as in (4), where scrambling makes a wide-scope reading of the indefinite salient. (4-b) seems to require the existence of a particular book that almost half of the customers looked for, while (4-c) can be true if almost half of the customers

were engaged in an unspecific search with the same search criteria.

(4) a. SCENARIO: Hans owns a bookstore. In the last few months, almost nobody came in to look for a particular book, but one topic was surprisingly popular: Almost half of the customers were looking for Austrian novels from the inter-war period, while the other customers had very varied interests.

b. *Es ist auffällig, dass /EIN Buch fast jeder \ZWEITE gesucht hat.*

it is striking that one book almost every second searched has

'It is striking that there was one book that almost every second person searched for.'

false

c. *Es ist auffällig, dass /EINE Sache fast jeder \ZWEITE gesucht hat.*

'It is striking that there was one thing that almost every second person searched for.'

true

Further observations: These data do not show that modifiers and *ex situ* interpretation block unspecific or intensional readings of oDPs: In scenario (5-a), both (4-b) and (4-c) are true, but there is no book matching the customers' search criteria. Hence, the relevant reading is not extensional. Further, the customers were not looking for any particular physical book, but for arbitrary copies of the literary works in question, so it is an 'unspecific' or 'property' reading. (5-b) makes the same point for (3-b,c).

(5) a.SCENARIO: A publisher claims to have discovered a previously unknown novel by Beckett. Half of the customers at the bookstore came to buy an arbitrary copy of that novel. However, the publisher's announcement was a hoax and the novel does not exist.

b.SCENARIO: A publisher claims to have discovered a previously unknown novel by Beckett and a lost diary by Kafka. Peter came to the bookstore to buy an arbitrary copy of each of these works. But in fact there was a hoax and neither of them exists.

Theoretical consequences: What explains the contrast between (4-a) and (5-a), or between (3-a) and (5-b), if not intensionality or specificity? I submit that the relevant reading of oDPs involves quantification over **individuating properties** – properties which, in certain contexts, may be treated as individuals for the purposes of semantic composition. The property of being a copy of Beckett's (actually inexistent) novel in (5-a) counts as individuating since in certain contexts, any two copies of that novel would count as 'the same book'. However, being an Austrian novel from the inter-war period in (4-a) is a non-individuating property since there is no context in which all such novels count as 'the same book'. Unspecific readings of oDPs are freely available wrt. individuating properties, but blocked wrt. nonindividuating properties; hDPs freely permit unspecific readings wrt. both classes of properties. I propose that the domain D_e of individuals should be extended to include individuating properties; the lexical meanings of nouns like *book* specify a set of methods of individuation, corresponding to different sets of individuating properties that may serve as the extension of the noun in a given context. The contrast between hDPs and oDPs is modeled as a type distinction: In ordinary indefinites, the NP denotes a type $\langle e, t \rangle$ predicate which may be true of individuating, but not of non-individuating properties, while the NP in higher-order DPs can have type $\langle \langle s, et \rangle, t \rangle$. Observation A follows from this: The indefinite in (3-b) may quantify over sums of two (not necessarily individuating) properties, while the indefinite in (3-c) must express a quantifier over sums of two elements of D_e , since the numeral must have type $\langle e, t \rangle$ to avoid a type mismatch with the noun. The fact that relative clauses may express predicates of arbitrary properties in hDPs, but not oDPs, has an analogous explanation. Finally, observation B is derived as follows: ITV require an argument of type $\langle s, et \rangle$. When they combine with an ordinary indefinite of type $\langle \langle e, t \rangle, t \rangle$, the mismatch may be resolved *in situ*: The type-shift BE proposed in [5] maps the intension of the indefinite to a property, which may be non-individuating, as is the case in (1). The wide-scope reading of (4-b), however, involves movement of the indefinite. It leaves a trace of type e , which combines with the verb via a shift mapping an individual x to the property $\lambda w.\lambda y.y = x$ [5]. This always yields a specific reading or an unspecific reading wrt. an individuating property. In contrast, movement of the higher-order DP in (4-c) leaves a trace of type $\langle s, et \rangle$ that combines directly with the ITV. Thus, (4-c) has the full range of unspecific readings. **In sum:** The German data provide new support for a type distinction between oDPs and hDPs and also provide an argument that the pre-theoretical notion of a property does not map neatly onto the type system relevant for semantic composition.

References

- P. D. Elliott. Explaining DPs vs. CPs without syntax. In *Proceedings of CLS 52*, pp. 171–185, 2017.
- F. Moltmann. Intensional verbs and their intentional objects. *Natural Language Semantics*, 16:239–270, 2008.
- F. Moltmann. *Abstract Objects and the Semantics of Natural Language*. Oxford University Press, Oxford, 2013.
- R. Montague. The proper treatment of quantification in ordinary English. In R. H. Thomason, ed., *Formal Philosophy*, pp. 247–270. Yale University Press, 1974.
- B. Partee. Noun phrase interpretation and type shifting principles. In J. Groenendijk, D. de Jongh, and M. Stokhof, eds., *Studies in discourse representation theory and the theory of generalized quantifiers*, pp. 115–141. Foris, Dordrecht, 1987.
- T. E. Zimmermann. On the proper treatment of opacity in certain verbs. *Natural Language Semantics*, 1:149–179, 1993.
- T. E. Zimmermann. Monotonicity in opaque verbs. *Linguistics and Philosophy*, 29:715–761, 2006.

Japanese-speaking children's interpretation of ka and ya 'or'

Masuyo Ito

Fukuoka University

Aim This study examines whether Japanese-speaking children are able to interpret the connectives *ka* and *ya* 'or' correctly depending on the context in which they are used. Two questions addressed are: does the fact that Japanese has the inclusive conjunction *ya* (meaning 'or') affect children's interpretations of the disjunction *ka* (also meaning 'or'), whose interpretations are reported to be logically inclusive or illicitly conjunctive (Tieu et al. 2017; cf. Singh et al. 2016 for English children); 2) are children (in)sensitive to ignorance implicatures involved in 'or' sentences.

Previous Studies Unlike adults, children are reported to interpret 'or' sentences (without a deontic modal verb) in non-downward-entailing (DE) contexts inclusively (Paris 1973; Boster and Crain 1993; Chierchia et al. 2001, 2004; Crain et al. 2002; Huang et al. 2019, among others) or conjunctively as well (Singh et al. 2016; Tieu et al. 2017) when adults assign exclusive interpretations. (As for the Japanese connectives, to my knowledge, the only study which investigates SI calculation of *ka* is Tieu et al. (2017), which reports children's illicit conjunctivity in prediction mode; children's interpretation of *ya* has not been studied. Goro and Akiba (2004) report children's illicit conjunctive interpretation assigned to *ka* in simple negative sentences.) Previous studies have attributed children's unsuccessful calculation of scalar implicature (SI) to: 1) their inability to calculate SI or 2) their inability to retrieve (lexical) alternatives such as 'and' despite their being able to compute SI (e.g. Chierchia et al. 2001; Singh et al. 2016). If children are able to calculate SI, then it is expected that SI arises in non-DE contexts, while it doesn't in DE contexts, as found in Chierchia et al. 2001, 2004, among others. When ignorance or uncertainty is involved, such as when disjunctive statements are used to make a prediction, SI tends not to arise. However, Hochstein et al. (2014; 4-year-olds) and Barner et al. (2018) point to children's insensitivity to ignorance implicatures involved in the use of 'or' sentences. A question arises as to whether account 2 and insensitivity to ignorance implicature are compatible. More data are necessary.

'Or' in Japanese The Japanese disjunction *ka* 'or' is interpreted inclusively or exclusively in the DE context, but only exclusively in the non-DE context. (*Ka*, unlike the English *or*, can be interpreted exclusively in the former context). Japanese has another connective *ya* 'or' (Kuno 1973), which is interpreted inclusively or conjunctively in the DE context (1a), but conjunctively in the non-DE context (1b) (see also Tables 1a,b below). I adopt Sudo's (2014) derived conjunctivity analysis of *ya* and assume that the interpretation of *ya* also involves SI, as shown in (1c).

- (1) a. [Mosi Taroo-ga [koohii ya kootya]-o nom-eba] yoru nemur-e-nai-darou (inclusive)
 [if Taro-nom [coffee YA tea]-acc drink-if] night sleep-can-neg will

‘If Taro drinks things like coffee and/or tea, he won’t be able to sleep at night.’

- b. Taroo-wa [koohee ya kootya]-o nonda (conjunctive)

Taro-nom [coffee YA tea]-acc drank

‘Taro drank things like coffee and/or tea.’

- c. (Taro drank coffee \vee Taro drank tea) \wedge \neg (Taro did not drink both) (Sudo 2014)

The experiment To see whether explanation 2 above (i.e. the alternative-based one) and insensitivity to ignorance implicature are true, an experiment was done by testing *ya* as well, and testing *ka* and *ya* in prediction mode (PM) and description mode (DM). The experiment investigated whether the availability of the inclusive conjunction *ya* in Japanese affects whether or not children assign illicit interpretations to *ka*: conjunctive (always illicit) or inclusive (illicit in DM). The use of *ya* allowed us to test alternative-based explanations proposed by Singh et al. (based on Fox 2007) because they would predict that despite the availability of *ya*, children should interpret both *ka* and *ya* inclusively or conjunctively, the latter resulting from SI based on available ‘domain’ alternatives. Two modes were given to test sensitivity to ignorance implicature.

Participants A TV (or felicity) JT (Crain and Thornton 1998) was used with two groups of Japanese-speaking children (‘PM’/‘DM’: 31/34 4-to-6-year-olds). 18 adults as controls.

Stimulus sentences Both *ka* and *ya* were tested when one or both of the disjuncts were true (1- vs. 2-item conditions; within-subject) in the story presented on the PC screen, with four replications for each sentence type. *Ya* was tested in 3-item conditions as well. (Item types are shown in Tables 1a,b, except for the 3-item *ya*.) The mode in which both connectives were used, PM vs. DM, was the between-subject factor. (*To* ‘and’ items and fillers were included.)

Table 1a. Interpretations of *ka* and *ya*: prediction-mode

<i>ka</i>	1 item	2item	<i>ya</i>	1 item	2 item
inclusive	OK	OK	inclusive	OK	OK
exclusive	OK	OUT	conjunctive	OUT	OK

Table 1b. Interpretations of *ka* and *ya*: description-mode

<i>ka</i>	1 item	2item	<i>ya</i>	1 item	2
item exclusive	OK/odd	OUT	conjunctive	OUT	OK

An example of test items given in each mode is given in (2) and (3), respectively:

- (2) 2-item *ka* given in PM (context: the Cat bought the apple and the orange)

Puppet: Neko-san-ga ringo ka mikan-o kau-to omotte-ta yo (correct: ‘T’, ‘F’)

Cat-Ms.-nom apple KA orange-acc buy-that thought particle

‘(I) thought (that) the Cat would buy the apple KA the orange.’

- (3) 1-item *ya* given in DM (context: the Pig only brought the Rabbit)

Puppet: Pig-san-ga Usagi-san ya Kuma-kun-o tureteki-ta yo (correct: 'F')

Pig-Ms.-nom Rabbit-Ms. YA Bear-Mr.-acc brought particle

'The Pig brought the Rabbit YA the Bear.'

Major results/Discussion 1) The children's non-adult-like interpretations were seen in their acceptance of 2-item *ka* in PM and DM and rejection of 1-item *ka* in PM (all at significantly higher frequencies than those of the adults, all $p < .001$; Cochran-Mantel-Haenszel test). The children were found to interpret *ka* used in both modes conjunctively or inclusively, which replicates Singh et al.'s and Tieu et al.'s findings. 2) For *ya*, inclusive interpretation was more frequent in the children's responses than it was in the adults' responses. 3) The children did not vary their interpretation of *ya* or *ka*, depending on the mode, which seems to suggest that they are not sensitive to ignorance implicature involved in the use of 'or' sentences. This supports Hochstein et al.'s and Barner et al.'s findings. 4) The individual data showed that children interpret both *ka* and *ya* conjunctively (illicitly for *ka*) or inclusively (licitly or illicitly) at higher frequencies than adults. The results seem to suggest that alternative-based proposals made by Singh et al. are plausible explanations for children's non-adult interpretation of 'or.'

A recent study, Huang et al. (2019) mention that for the felicitous use of disjunction, there is a need for more objects/individuals in the experimental discourse than those mentioned by disjuncts in test sentences. This paper focuses the way the children differ from the adults in their interpretation of *ka* or *ya*, leaving their idea for future study.

Selected references

- Barner, D. et al. 2018. Four-year-old children compute scalar implicatures in absence of epistemic reasoning. In K. Syrett and S. Arunachalam eds, *Semantics in Language Acquisition*, 325-349.
- Singh R. et al. 2016. Children interpret disjunction as conjunction: Consequences for the theory of scalar implicature and child development. *Natural Language Semantics* 24: 305-352.
- Sudo, Y. 2014. Higher-order scalar implicatures of 'ya' in Japanese. Handout, TEAL 9, University of Nantes.
- Tieu, L. et al. 2017. On the role of alternatives in the acquisition of simple and complex disjunctions in French and Japanese. *Journal of Semantics* 34: 127-152.

Fictional Realism, Negative Existentials, and External Discourse

Andreas de Jong

University of Manchester

The current orthodoxy in the philosophy of fiction seems to be fictional realism (henceforth FR): fictional characters are existent abstract objects. FR is motivated by being able to take data about practices of fiction at face value. Those data consist partly of forms of *prima facie* true discourse about fictional characters, for example:

- (1) Arya Stark is a well-developed character
- (2) According to *Harry Potter*, Hermione Granger is a wizard

According to FR, metafictional statements like (1) and parafictional statements like (2) are true and are about abstract fictional characters. The challenge is that FR also needs to account for true negative existentials employing names that are also used to refer to fictional characters. In this discussion, I assume Thomasson's conception of negative existentials for FR:

If N is a proper name that has been used in predicative statements with the intention to refer to some entity of ontological kind K, then 'N does not exist' is true if and only if the history of those uses does not meet the condition for referring to an entity of kind K (Thomasson 2003, p. 217)

Thomasson explains that whenever we say that Arya Stark does not exist, the value for K is *person*, not *fictional character*. This forces a conceptual distinction between what the fictional object is pretended to be (*the pretended object*) and the fictional character. According to FR, negative existentials N is intended to refer to the former, but external discourse is about the latter. However, I argue that external discourse and negative existentials are about fictional characters that do not exist.

There are two problems for Thomasson's account. The first problem is that this account is at odds with taking parafictional sentences at face value. Following Salmon (1998) and Von Solodkoff and Woodward (2017) in construing parafictional sentences as *de re* about abstract objects, the question arises what justifies interpreting them as not being about the pretended object. First, (2) does not express that the story alleges that an abstract object has the property of being a wizard. Rather, parafictional sentences are about the *pretended object*. Second, even if parafictional sentences would be about abstract objects, it is hard to justify why negative existentials would not be. Parafictional sentences and negative existentials have the same referential intention: the pretended object.

The second problem is generated by vignettes where multiple forms of external discourse are tied together by employing anaphoric pronouns. Assuming that anaphoric pronouns are co-

referential, all the occurrences of the anaphoric pronoun have to refer to the same object. If so, negative existentials and external discourse are about the same object. For example:

- (3) Hermione Granger is a well-developed character. According to *Harry Potter*, she is a wizard. However, she does not exist because she is a fictional character.

On the assumption mentioned, (3) is about a nonexistent fictional character. The fictional realist can avoid this conclusion by claiming that anaphors can work as pronouns of laziness for the referring expression in question, thus resisting the assumption that anaphors are co-referential, as is familiar in work on dot-objects in lexical semantics (cf. Recanati 2018, pp. 41-42). However, in order for this solution to work, “she” in (3) refers to a complex of the objects referred to. In the case of (3), this entails that there is a nonexistent pretended object: a result that FR desperately wanted to avoid.

Another issue is that (3) employs the personal pronoun “she”, which suggests that external discourse is about an object intended to be a person. However, because statements internal to the fiction false, what “she” refers to is not a person, but a pretended person, entailing that the pronoun is used connivingly. However, if “she” refers to an existent abstract object, we should be able to use the neuter pronoun “it”. However, such a use is not felicitous:

- (3) Hermione Granger is a well-developed character. According to *Harry Potter*, # it is a wizard. However, # it does not exist because # it is a fictional character.

So, it seems that external discourse is about a pretended yet nonexistent person, rather than an abstract existent fictional character. The absence of being able to refer to such an object nonconnivingly puts into question whether there is such an object at all. If external discourse is about anything, then it is about a pretended nonexistent object.

References

- Recanati, Francois (2018). “Fictional, Metafictional, Parafictional”. In: *Proceedings of the Aristotelian Society* 118, pp. 25–54.
- Salmon, Nathan (1998). “Nonexistence”. In: *Nous* 32.3, pp. 277–319.
- Thomasson, Amie Lynn (2003). “Speaking of Fictional Characters”. In: *Dialectica* 57.2, pp. 205–223.
- Von Solodkoff, Tatjana and Richard Woodward (2017). “To Have and to Hold”. In: *Philosophical Issues* 27.1, pp. 407–427.

‘Madagascar’ Argument - the Next Episode

Filip Kawczyński

University of Warsaw

In the paper I argue against arguments put forward by John Burgess who in his paper ‘Madagascar revisited’ (2014) tries to defend Kripke’s causal-chains theory from the notorious objection based on the historical reference-shifting of the proper name ‘Madagascar.’

The famous ‘Madagascar’ example originally discussed by Evans (1973) is usually considered to be the strongest argument against Kripke’s (1972) theory of proper names. The argument boils down to pointing out that even when the Kripkean condition of preserving the reference of a proper name is fulfilled, the reference still can change. The condition can be formulated as this:

(C) When person Y learns a proper name ‘N’ from person X, Y has to have the intention to use ‘N’ with the same reference as X does.

Regarding the historical case of ‘Madagascar’ Evans claims that although Marco Polo wanted to use the name with the same reference as the natives did, he failed and reference has shifted from a part of the African mainland to the great African island.

Burgess attempts to defend the causal-chains theory by explaining how the problematic cases of inadvertent reference-shifting are possible. His main idea is that they may occur when Y is acquainted with some object B and forms the *de re* intention to use ‘N’ as referring to B, whereas B in fact is not the original reference of ‘N’ for X. According to Burgess that explains the reference-shifting despite fulfilling condition (C).

In my paper, after presenting some exegetical remarks, in which I show that Burgess somehow misinterprets what is the crux of Evans’s argument, I am going to criticise Burgess’s account in two steps.

First, Burgess distinguishes three types of situation in which (C) is said to be fulfilled. One of them is the already mentioned when Y forms the *de re* intention to use ‘N’ as referring to B (hereafter ‘*de-re-situation*’). Burgess claims that this is the only case when inadvertent reference-shifting can occur. The other type of situation he mentions is when ‘Y forms the *de dicto* intention to use “N” to denote what X uses it to denote, *whatever it might be*’ (Burgess 2014, p. 198) (hereafter ‘*de-dicto-situation*’). Burgess does **not** consider this one as possible inadvertent reference-shifting which is wrong in my opinion. What requires explanation concerning the *de-dicto-situation* is what exactly is this *de dicto* intention. I think there are two options of what it could be:

(I) Y forms the belief of the form ‘the object that X refers to with “N”’ about the object the name of which she is learning;

- (II) Y forms the belief of the form: ‘the object having such-and-such properties, whichever it is, of which I believe that X refers to it with “N”’ about the object the name of which she is learning.

I will argue that (I) in fact does not involve the *de dicto* but rather *de re* intention and because of that it cannot be identified with Burgess’s *de-dicto-situation*. What should be identified with that is, on the other hand, option (II) which is also coherent with what Kripke most probably meant in his (C). My point is that (II) should be counted as a situation in which inadvertent reference-shifting can take place: Y may form the *de dicto* belief about some object B, which is not the object intended by X, and start using ‘N’ as referring to B. It seems that this is exactly what has happened in the case of ‘Madagascar’: according to the extended historical investigation (alleged by Burgess) Marco Polo formed the *de dicto* belief about ‘the mysterious island located north of Zanzibar’ and considered this island to be the one the natives call ‘Madagascar’. As we know now there is no island located north of Zanzibar so the description used by Marco Polo was just empty and thus he did not actually refer to anything with the name ‘Madagascar’. The reference has changed, or to put it precisely: has been lost.

Second, Burgess claims that what happened later with the name ‘Madagascar’ (i.e. how 16th-century cartographers started to use it) falls under his account of *de-re-situation*. I agree with that, however, I argue that what it reveals is that despite fulfilling (C) the inadvertent reference-shifting **is possible**, so in fact it only reinforces Evans’s point that ‘the intentions of the speakers to use the name to refer to something must be allowed [within Kripke’s theory] to count in determination of what it denotes’ (Evans 1973, p. 11). So it seems that to defend the causal-chains theory (C) should be somehow amended to be able to do what it was originally designed to do i.e. preserving the reference. The adjustment that harmonises with Burgess’s account could be formulated as:

(C*) When person Y learns a proper name ‘N’ from person X, Y has to have the *de dicto* intention to use ‘N’ with the same reference as X does and Y has to be able to form the *de re* belief about that object.

In my final word, I am going to argue that (C*) is either too strong or irrelevant and eventually it makes Kripke’s theory vulnerable to the objections presented by Dummett (1974).

References

- Burgess, John, (2014) ‘Madagascar Revisited’, *Analysis* 74, p. 201-209.
- Dummett, Michael, (1974) remarks in ‘Second general discussion session (Proceedings of a conference on language, intentionality, and translation-theory)’, *Synthese* 27, p. 509–21.
- Evans, Gareth, (1973) ‘The Causal Theory of Names’ [in:] *Collected Papers*, OUP, 1985, p. 1-24.
- Kripke, Saul, (1972) *Naming and Necessity*, Harvard University Press 2001.

Against intentionalism: experimental study on demonstrative reference

Wojciech Rostworowski
University of Warsaw

Bartosz Maćkiewicz
University of Warsaw

Katarzyna Kuś
University of Warsaw

Alicja Krasnowska
University of Warsaw

Aims and scope: In our talk, we are going to present some experimental findings on demonstrative reference. The goal of our experimental study was to investigate whether some of the factors claimed by the theorists to be semantically relevant are taken to be so by ordinary users of language in the process of assigning reference to (complex) demonstrative expressions. In particular, we focused on the question whether the speaker's intention — the factor claimed to be the most relevant by many philosophers of language — has indeed the dominant role and is indispensable for a successful referential act. Our results counted against this claim.

Theoretical overview: One of the controversies in the philosophical debates on the nature of reference concerns the demonstrative reference: namely, the relation which holds between a demonstrative expression (a simple one like “this” or “that”, or complex like “this table”, “that black dog”) and an object in the world.¹ It seems reasonable to think that this kind of reference is determined by the intentions of the speaker; namely, the semantic value of a demonstrative is the object which the speaker intends to be that value and which, optionally, satisfies some further conditions (see: Åkerman 2015, King 2014, Michaelson 2013, Speaks 2016, 2017, Stokke 2010). Let us call this view “intentionalism”. An alternative for intentionalism are the accounts on which reference is determined by some aspects of the “external” context. A general view of this sort says that the semantic value of a demonstrative is determined by a broadly construed salience in the sense that the value is the most salient object in the context (see: Gauker 2008, Mount 2008). Let us call this view “salientism”. A more specific view of this sort is that the semantic value is determined by a demonstration act accompanying the utterance of a demonstrative (cf. Kaplan 1979, Roberts 2002). With regards to complex demonstratives, there is a further question whether the descriptive content (namely, the content of “*F*” in a phrase “this/that *F*”) contributes to reference determination (see Braun 2017).

Experimental study design and details: Although the debate about demonstrative reference is active for some time, there is little empirical evidence on that matter in the

¹ Several theorists reject the thesis that complex demonstratives are referential expressions at all, treating them rather as devices of quantification (e.g., King 2001). Yet, it still makes sense of talking about the “semantic value” of a complex demonstrative and ask in virtue of what a demonstrative secures its value (cf. King 2014).

philosophical discussions. This is somehow surprising, given that many arguments directly appeal to linguistic intuitions² and thus call for validation in terms of what factual judgements are made by a wider group of linguistically competent people. Moreover, any semantic theory should have a role in explaining human communication, which means that an account of demonstrative reference needs to be compatible — in one way or the other — with the empirical facts about how people actually understand demonstratives. These observations motivated our experimental study, whose aim was to verify whether the factors identified by the two earlier-mentioned views — intentionalism and salientism — are relevant in the process of reference resolution by ordinary speakers of language. In addition to this, we investigated whether the descriptive content of an expression may alone determine the semantic value, in virtue of unique application to that object (for this reason, we focused on complex demonstratives). Our aim was not only to find out whether a given factor is somehow semantically relevant, but assess its relevance with respect to the other factors. In particular, we were interested in a comparison between the speaker's intentions and the other factors.

Technically, our study had a form of an online questionnaire with vignettes and a complex truth-value judgement task. We presented the participants with short scenarios describing natural situations where a person made a statement of the form “This *F* is *G*”. There were always two different objects — one determined by the speaker's intention, the second one determined by an alternative factor (like the descriptive content in the nominal “*F*”, or the speaker's gesture) — also differentiated in terms of satisfying predicate *G*. The prompt included two tasks: the first one was to evaluate the speaker's statement with using one of the three options: TRUE/CANNOT SAY/ FALSE; the second was to rate the level of confidence that the statement is TRUE/FALSE on a five-point pseudo-Likert-scale ranged from 1 (not confident at all) to 5 (very confident).

Hypotheses and Results: Our overall prediction was that in the scenarios where the object determined by a *non*-intention factor had the ascribed predicate, the speaker's statement will be judged as true (contra intentionalism); conversely, it will be judged as false when the object determined by the non-intention factor did not have the ascribed property

We conducted three types of analyses. Firstly, we filtered out “CANNOT SAY” responses and run binomial tests for each condition to establish whether frequency of responses compatible with salientism was higher than predicted by chance. All but one comparisons yield statistically significant results ($\alpha = 0.05$). Secondly, for each scenario presented to a participants we computed an index that combined their categorical judgment about truth-value of an utterance and their level of confidence by multiplying confidence rating by 1 in the case of TRUE or -1 in the case of FALSE and in the case of CANNOT SAY we subtracted

² For instance, consider Kaplan's “Carnap/Agnew” example (1979: 396), or Gauker's “tie” example (2008: 363) and some discussion of it (Montminy 2010: 2912, Åkerman 2015: 494-496).

two confidence ratings. Using these values, we ran mixed-design ANOVA. We observed statistically significant main effects of our between-subjects condition (object satisfies a vs object does not satisfy a predicate) ($F(1,197) = 38.16, p < 0.001$), within-subjects condition (type of determination: demonstration vs salience vs descriptive content) ($F(1, 394) = 8.3, p < 0.001$) and statistically significant interaction ($F(1,394) = 16.3, p < 0.001$). Thirdly, we re-ran our first analysis using one sample t-test ($H_0: \mu = 0$) and index values computed for a purpose of second analysis. All but two comparisons were statistically significant for $\alpha = 0.05$.

Discussion and conclusions: Generally speaking, our study provides a counter-evidence to intentionalism. In particular, we have seen that the object distinguished by demonstration is preferred as the referent by the study participants than the object which is merely intended by the speaker. Likewise, people tend to assign the object determined descriptively (i.e., by the nominal) as the referent to a complex demonstrative, rather than the object determined by the intention. In our talk, we will argue that these results cannot be easily explained away by introducing various kinds of competing intentions (cf. Speaks 2016) or by some pragmatic considerations. In the final part, we outline a theory of demonstrative reference suggested by our experimental findings. In short, we propose a hybrid approach to the semantics of complex demonstratives, set in the framework of salientism, on which the semantic value of a demonstrative is determined as the object best satisfying various “accessibility” criteria (cf. Gauker 2008, Rostworowski and Pietrulewicz 2018, sec. 7).

Keywords: demonstratives, experimental philosophy, reference, salience, speaker’s intentions

References

- Åkerman, J. (2015). The communication desideratum and theories of indexical reference. *Mind and Language* 30: 474–499.
- Braun, D., (2017) Indexicals. *The Stanford Encyclopedia of Philosophy* (Summer 2017 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2017/entries/indexicals/>.
- Gauker, C. (2008). Zero tolerance for pragmatics. *Synthese* 165: 359–371.
- Kaplan, D., (1979). Dthat. In P. French, T. Uehling, and H. Wettstein (eds.), *Contemporary Perspectives in the Philosophy of Language*, Minneapolis: University of Minnesota Press.
- King, J. C. (2001) *Complex Demonstratives — A Quantificational Account*. Cambridge, MA: MIT Press. King, J. C. (2014). Speaker intentions in context. *Noûs* 48: 219–237.
- Michaelson, E., (2013). This and That: a Theory of Reference for Names, Demonstratives, and Things in Between. PhD Dissertation, UCLA.

- Montminy, M. (2010). Context and communication: a defense of intentionalism. *Journal of Pragmatics* 42, 2910–18.
- Mount, A., (2008). Intentions, gestures, and salience in ordinary and deferred demonstrative reference. *Mind and Language* 23(2): 145–164.
- Roberts, C. (2002). Demonstratives as Definites. In K. van Deemter & R. Kibble (eds.), *Information Sharing: Reference and Presupposition in Language Generation and Interpretation*. CSLI Press. pp. 89-136
- Rostworowski, W., Pietrulewicz, N., (2018) Are descriptions really descriptive? An experimental study on misdescription and reference. *Review of Philosophy and Psychology*, online first: [https:// link.springer.com/article/10.1007/s13164-018-0418-z](https://link.springer.com/article/10.1007/s13164-018-0418-z)
- Speaks, J. (2016). The role of speaker and hearer in the character of demonstratives. *Mind* 125: 301–339. Speaks, J. (2017). A puzzle about demonstratives and semantic competence. *Philosophical Studies* 174: 709–734.
- Stokke, A. (2010). Intention-sensitive semantics. *Synthese* 175: 383–404.

Parafictional tense

Merel Semeijn

University of Groningen

Sofia Bimpikou

University of Groningen

Fictional truth and tense. Zucchi (2011) observes that ‘parafictional statements’ of the form ‘In fiction f , φ ’ show a preference for present tense (e.g. ‘In *The Lord of the Rings*, Frodo is a hobbit’) that is not shown by structurally similar statements about non-fiction (e.g. ‘According to my history book, Napoleon was 1.57m tall’). However, Lewis’ (1978) widely adopted analysis (0) of fictional truth doesn’t predict anything about parafictional tense: ‘In fiction f , φ ’ is true “iff φ is true at every world where f is told as known fact rather than fiction” (Lewis, 1978) (e.g. ‘In *The Lord of the Rings*, Frodo is a hobbit’ is true iff in worlds where *The Lord of the Rings* is told as known fact, Frodo is a hobbit). In fact, Lewis, but also for instance Currie (1990), uses both past tense and present tense in his examples of fictional truths. An analysis of parafictional statements that doesn’t take into account tense seems insufficient; It allows us to derive the apparent inconsistency that ‘In *The Lord of the Rings*, Frodo is a hobbit’ and that ‘In *The Lord of the Rings*, Frodo was a hobbit’. These ‘fictional truths’ exclude one another because whereas the first implies that Frodo is alive, the latter implies that he isn’t anymore.

Analyses (0’), (0’’) and (0’’’). We argue that if we want a Lewisian analysis of fictional truth to make predictions about tense use in parafictional statements, we need to decide on a time of evaluation t so that we can determine whether in a certain world w , at t Frodo is a hobbit or was a hobbit.¹ In other words, we have to switch from quantifying over worlds to quantifying over world-time pairs: $\langle w, t \rangle$. We consider three possible options for t that give three new analyses:

(0’) A statement of the form “In fiction f , φ ” is true at $\langle w_0, t_0 \rangle$ iff φ is true at every $\langle w, t \rangle$ where f has been/is/will be² told as known fact about events in w and t is the time of narration

(0’’) A statement of the form “In fiction f , φ ” is true at $\langle w_0, t_0 \rangle$ iff φ is true at every $\langle w, t \rangle$ where f has been/is/will be told as known fact about events in w and t is the time of the described events³

(0’’’) A statement of the form “In fiction f , φ ” is true at $\langle w_0, t_0 \rangle$ iff φ is true at every $\langle w, t \rangle$ where f has been/is/will be told as known fact about events in w and t is t_0 (i.e. the current time)

Predictions. There are two types of predicate and two types of fictional narrative that are relevant in teasing apart the predictions of these three analyses: First, we distinguish individual-level predicates (e.g. ‘know’, ‘be a detective’, ‘be blond’) from stage-level predicates (e.g. ‘kiss’, ‘sit’, ‘offer’). Second, we distinguish narratives about past events in which the time

¹ We thus assume that tense in parafictional statements works indexically (Cf. Zucchi, 2001).

² To avoid that tense use in the definition determines t we replace the phrase “is told as known fact” with “has been/is/will be told as known fact”.

³ See Zucchi (2001).

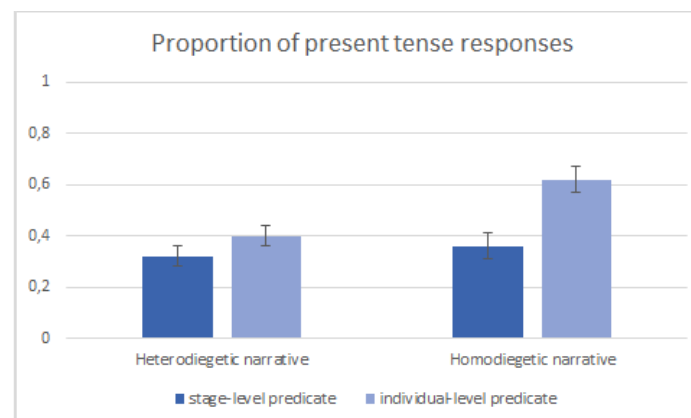
of narration roughly coincides with the time of the described events (e.g. the Holmes stories, which supposedly are narrated by Holmes' friend Watson) from narratives about past events in which the time of narration is obviously long after the time of the described events (e.g. *The Lord of the Rings*, which supposedly are records of events in a distant past). In this abstract we respectively use the terms 'homodiegetic' and 'heterodiegetic' to denote these particular types of narratives. Intuitively, at Watson's time of narration, Holmes *is* a detective and *lit* his pipe but at the time of narration of the narrator of *The Lord of the Rings*, Frodo *was* a hobbit and *climbed* Mount Doom. (Likewise, heterodiegetic narratives are in past tense, whereas in homodiegetic narratives stage-level predicates are in past tense and individual-level predicates are in present tense.) In contrast, at the time of the described events of the novels, Holmes *is* a detective and *lights* his pipe and Frodo *is* a hobbit and *climbs* Mount Doom. At the current time (i.e. now), Holmes *was* a detective and *lit* his pipe and Frodo *was* a hobbit and *climbed* Mount Doom. Table 1 summarizes the predictions made by the different analyses:

Table 1. Predictions of analyses (0'), (0'') and (0''')

	<i>Heterodiegetic narratives</i>		<i>Homodiegetic narratives</i>	
	<i>Individual-level</i>	<i>Stage-level</i>	<i>Individual-level</i>	<i>Stage-level</i>
(0')	Past	Past	Present	Past
(0'')	Present	Present	Present	Present
(0''')	Past	Past	Past	Past

Experiment. In order to test actual preferences for tense use in parafictional statements we conducted a questionnaire on Amazon Mechanical Turk. We used a 2×2 experimental design with 'type of narrative' (heterodiegetic/homodiegetic) and 'type of predicate' (individual-level/stage-level) as factors. Participants were shown 16 short stories (4 for every condition) followed by 2 pairs of parafictional sentences (2 targets, 2 controls) in simple present and simple past versions. The questionnaire consisted in a four-alternative forced-choice task and participants were given the instruction to "choose the sentence that best describes (part of) the content of the passage".

Table 2.



We thus measured participants preferences for past or present tense when they read a homodiegetic or heterodiegetic narrative followed by a parafictional statement that

contained either an individual-level or a stage-level predicate. The questionnaire collected responses from 32 participants that are summarized in table 2. Overall results show that participants chose mainly past tense, except in the homodiegetic/individual-level condition, where they preferred present tense.⁴ This supports analysis (0’).

Future research. A possible direction of further research is to consider homodiegetic and heterodiegetic versions of science fiction, i.e. narratives about *future* events in which the time of narration roughly coincides with or is obviously long after the time of narration. Analyses (0’) and (0’’) give the same predictions for these types of narratives but analysis (0’’’) predicts future tense in all conditions (e.g. ‘In *War on Mars*, Mars *will be* inhabited by 2050’). *Prima facie* such a statement seems unacceptable, i.e. it is not a correct report on the content of the fictional narrative. This would disqualify analysis (0’’’) for parafictional statements of the form ‘In fiction *f*, φ ’. However, the same statement prefixed by an ‘According to *f*,’-prefix seems more acceptable (i.e. ‘According to *War on Mars*, Mars *will be* inhabited by 2050’). This suggests that, although these two operators are usually treated on a par (e.g. Zucchi, 2018), unlike the ‘In fiction *f*,’-prefix, the ‘According to *f*,’-prefix does switch *t* to the current time because it presents the content of the narrative as pertaining to the real world.

References

- Currie, G. (1990) *The Nature of Fiction*, CUP
- Lewis, D. (1978) ‘Truth in Fiction’, *American Phil Quart*
- Zucchi, S. (2001) ‘Tense in Fiction’, *Semantic Interfaces*
- Zucchi, S. (2018) ‘Reporting on Content’, presentation at *Once upon a time: semantic approaches to fiction, literature, and narrative*, Groningen

⁴ A previous pilot experiment in which participants were asked to judge tense use in parafictional statements about well-known narratives did not show this effect.

Index of Authors

Aloni, Maria	m.d.aloni@uva.nl	14
Alxatib, Sam	alxatib@alum.mit.edu	79
Anderson, Curt	andersc@hhu.de	18
Baglini, Rebekah	rbkh@cc.au.dk	117
Balcerak Jackson, Brendan	bbalcerakjackson@gmail.com	22
Bar-Asher Siegal, Elitzur	ebas@mssc.huji.ac.il	117
Bimpikou, Sofia	s.bimpikou@rug.nl	152
Chemla, Emmanuel	chemla@ens.fr	10
Ciardelli, Ivano	ivano.ciardelli@lrz.uni-muenchen.de	25
Ciecierski, Tadeusz	taci@uw.edu.pl	28
Damschen, Gregor	gregor.damschen@uni-oldenburg.de	96
Dekker, Paul	p.j.e.dekker@uva.nl	89
Dinges, Alexander	alexander.dinges@uni-hamburg.de	92
Djäv, Kajsa	kdjarv@sas.upenn.edu	99
Eckardt, Regine	regine.eckardt@uni-konstanz.de	119
Fan, Da	dafan@ucdavis.edu	123
Feinmann, Diego	diegofeinmann@gmail.com	30
Fine, Kit	kit.fine@nyu.edu	12
Gaszczyk, Grzegorz	gaszczyk.grzegorz@gmail.com	126
Geddes, Alexander	a.geddes@soton.ac.uk	33
van Gessel, Thom	mail@thomvangessel.nl	37
Gimeno-Simó, Joan	joangs24@gmail.com	130
Głowacki, Maciej	glowackm96@gmail.com	133
Gotham, Matthew	matthew.gotham@ling-phil.ox.ac.uk	40
Grabarczyk, Paweł	pagrab@gmail.com	7
Härtl, Holden	holden.haertl@uni-kassel.de	47
Haslinger, Nina	ninamhaslinger@gmail.com	43, 136
Herburger, Elena	herburge@georgetown.edu	50
Incurvati, Luca	l.incurvati@uva.nl	13
Ito, Masuyo	mito@fukuoka-u.ac.jp	140
de Jong, Andreas	andreas.dejong@manchester.ac.uk	143
Kashtan, David	dkashtan@gmail.com	103
Kawczyński, Filip	f.kawczynski@uw.edu.pl	145
Kijania-Placek, Katarzyna	katarzyna.kijania-placek@uj.edu.pl	53
Kleczek, Maciej	aletheia93@gmail.com	55
Kneer, Markus	markus.kneer@gmail.com	58
Kocurek, Alexander	awk78@cornell.edu	62
Krasnowska, Alicja	a.krasnowska@student.uw.edu.pl	147
Krifka, Manfred	krifka@rz.hu-berlin.de	65
Kroll, Nicky	nkroll@fandm.edu	105
Kuś, Katarzyna	kkus@uw.edu.pl	147
Maćkiewicz, Bartosz	hprzech@gmail.com	147
Makowski, Piotr	pmakowski@wz.uw.edu.pl	27
Moltmann, Friederike	friederike.moltmann@univ-paris1.fr	7, 12
Müller, Kalle	kalle.mueller@uni-tuebingen.de	68
Panzirsch, Valentin	valentin.panzi@gmx.at	43
Phillips-Brown, Milo	milo.phillipsbrown@gmail.com	72
Przepiórkowski, Adam	adamp@ipipan.waw.pl	109

Posters

Ramchand, Gillian	gillian.ramchand@uit.no	12
Rosina, Eva	eva.rosina@univie.ac.at	43
Rostworowski, Wojciech	w.rostworowski@uw.edu.pl	147
Roszkowski, Magdalena	magdalena.roszkowski@univie.ac.at	43
Schlöder, Julian	julian.schloeder@gmail.com	13
Schmitt, Viola	vs.violaschmitt@gmail.com	43
Semeijn, Merel	m.semeijn@rug.nl	75, 151
Sharvit, Yael	ysharvit@gmail.com	78
Solt, Stephanie	solt@leibniz-zas.de	10
Stojanovic, Isidora	isidora.stojanovic.nicod@gmail.com	11
Tarnowski, Maciej	tarmaciej@gmail.com	133
Thuns, Antonin	athuns@ulb.ac.be	82
Wągiel, Marcin	marcin.wagiel@mail.muni.cz	85
Williamson, Timothy	timothy.williamson@philosophy.ox.ac.uk	9
Wurm, Valerie	valie.wurm@gmail.com	43
Yu, Qi	qi.yu@uni-konstanz.de	119
Zakkou, Julia	julia.zakkou@fu-berlin.de	92