

How do compositional semantics and conceptual structures interact? – A case-study on mental attitude adverbials

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Natural language interpretation is strikingly flexible in adhering to selectional restrictions. These phenomena challenge strict compositionality and thus raise intricate questions for the semantics-pragmatics interface. As a puzzling case in point, I will discuss German mental attitude adverbials (= MAAs) as *absichtlich* ('intentionally') and *freiwillig* ('voluntarily'). Roughly, MAAs describe the attitude (e.g. an intention) of the highest-ranked argument of the verbally introduced event (Wyner 1994, Frey 2003). In (1a) and (1b), the hiker is interpreted as the relevant attitude holder.

- (1) a. Der Wanderer liegt absichtlich / vorsorglich / versehentlich im Schatten.
 the hiker lies intentionally / preventively / inadvertently in the shadow
- b. Der Wanderer liegt freiwillig / bereitwillig / widerwillig im Schatten.
 the hiker lies voluntarily / willingly / reluctantly in the shadow
- (2) a. Die Picknickdecke liegt absichtlich / vorsorglich / versehentlich im Schatten.
 the picnic blanket lies intentionally / preventively / inadvertently in the shadow
- b. *Die Picknickdecke liegt freiwillig / bereitwillig / widerwillig im Schatten.
 the picnic blanket lies voluntarily / willingly / reluctantly in the shadow

In (2), the disjunct properties of artifacts and attitude holders undermine an analogous straightforward compositional integration of the explicit anchor argument: a picnic blanket cannot be interpreted as attitude holder. Strikingly, *absichtlich* (as *vorsorglich* 'preventively', *versehentlich* 'inadvertently', ...) allows for solving this compositional conflict by pragmatically inferring an adequate attitude holder, cf. (2a). In contrast, the interpretation of examples with *freiwillig* (and *widerwillig* 'reluctantly', *bereitwillig* 'willingly', ...) fails due to this conflict, cf. (2b). Taking this in consideration, this paper discusses the following question: What does allow the pragmatic identification of attitude holders in one group and disallow it in the other?

Notably, two further observations challenge the pragmatics-semantics interface in crucial ways. First, the interpolation of an attitude holder does not affect the denotation of the highest-ranked verbal argument, cf. (2a): the blanket is lying in the shadow, not the attitude holder. Therefore, explicit quantification targets blankets leaving the amount of attitude holders undetermined, cf. (3). These locality effects are not trivial; they contrast sharply with famous metonymic examples as *All ham sandwiches want to pay*, cf. Nunberg (1995). Here, quantification targets payors.

- (3) Alle Picknickdecken liegen absichtlich / vorsorglich / versehentlich im Schatten.
 the picnic blankets lie intentionally / preventively / inadvertently in the shadow

Second, the identification of attitude holders does not depend on static semantic information alone, but also on dynamic conceptual knowledge. This major challenge for an appropriate integration of conceptual knowledge into semantics is illustrated by (4). In (4a), the patient is interpreted as attitude holder. In (4b), however, a conceptual conflict renders a compositional identification of the attitude holder implausible: usually, patients do not decide on their medical treatment; thus, the attitude holder is identified pragmatically with the doctor.

- (4) a. Der Patient verschweigt absichtlich / vorsorglich / versehentlich ein Symptom.
 the patient conceals intentionally / preventively / inadvertently a symptom
- b. Der Patient liegt absichtlich / vorsorglich / versehentlich auf der Intensivstation.
 the patient lies intentionally / preventively / inadvertently in the intensive care

Based on German data including free datives, I argue that this interpretational flexibility is not

based on a lexically anchored underspecification of MAA's anchor argument. Moreover, there is clear evidence that it is not based on different syntactical positions of MAAs. Thus, I propose a coercion analysis using Type Composition Logic as developed by Asher (2011). According to Asher (2011), semantic terms come along with fine-grained typing information. This includes type presuppositions (captured by parameters π) that must be met by the terms' arguments during composition. If type conflicts arise, lexical information – i.e., polymorphic types that encode dependency relations between types – may license adaptive operations. For MAAs as *absichtlich*, I propose that the identification of attitude holders rests upon lexical entries as (5) (the highlighted bold part is the crucial part regarding the discussed problem of interpretational flexibility):

- (5) $\llbracket \text{absichtlich} \rrbracket = \lambda \mathfrak{P} \lambda \Psi \lambda e \lambda \pi. \mathfrak{P}(\pi)(e)(\Psi) \wedge \Psi(\pi * \text{ARG}_3^{\text{intention}}: \text{ENTITY} * \text{ARG}_2^{\text{bearing}}: \text{CAPABLE-OF-INTENTION} * \text{ARG}_2^{\text{initiation}}: \mathbf{\text{INITIATOR}} - \mathbf{\iota\tau(\text{HD}(\Psi))} * \text{ARG}_3^{\text{initiation}}: \text{CAN-BE-INITIATED}) (\lambda y \lambda \pi' \exists r: \text{ATTITUDINAL-OBJECT} \exists z: \text{K-STATE} \exists e': \text{EVENTUALITY}. \text{intention}(r, z, y, \wedge \mathfrak{P}, \pi') \wedge \text{bearing}(z, y, \pi') \wedge \text{initiation}(e', y, e, \pi')$

Roughly, *absichtlich* describes that the verbally introduced event e was initiated and the initiator y is the bearer of the intention r (building on Farkas 1988). The attitude is captured by a quasi-relational trope r (following the idea of *Attitudinal Objects* in Moltmann 2013) that is anchored in the bearer y via a K-state z (see Maienborn 2015). Most importantly, the restrictions on the second argument for the initiation predication state that this argument has to justify the type **INITIATOR**. Alternatively, this argument may justify a polymorphic initiator type $\iota\tau(\text{HD}(\Psi))$ that encodes a dependency relation between initiators and the head type of the compositionally assigned variable Ψ . In (1a), justification via Simple Type Accommodation succeeds: the hiker's type **ANIMATE** and the type **INITIATOR** required by *absichtlich* have a common meet. For (2a), Simple Type Accommodation fails since the blanket's type **ARTIFACT** and the type **INITIATOR** are incompatible. In this case, the integration of the polymorphic type allows justification via Type Accommodation with generalized polymorphic types δ (see Asher 2011: 225) yielding the revised logical form (6).

- (6) $\lambda e: \text{CAN-BE-INITIATED} \lambda \pi \exists ! d: \text{ARTIFACT} \exists i: \iota\tau(\text{ARTIFACT}) \exists r: \text{ATTITUDINAL-OBJECT} \exists z: \text{K-STATE} \exists e': \text{EVENTUALITY}. \text{picnic blanket}(d, \pi) \wedge \text{in the shadow lie}(e, d, \pi) \wedge \text{intention}(r, z, d, \wedge [\lambda v \lambda e''. \text{in the shadow lie}(e'', v)], \pi) \wedge \text{bearing}(z, i, \pi) \wedge \text{intention}(e', i, e, \pi) \wedge \mathbf{\phi_{\iota\tau(\text{ARTIFACT})}(i, d, \pi)}$

A new variable i for a mediating initiator is introduced that can make some relevant initiations involving the blanket d . The type conflict is resolved since now, the interpolated initiator must justify the relevant type presupposition, not the blanket: i can be interpreted as the bearer of the intention. The merits of the proposal are as follows: (i) The logical form assigns the interpolated initiator the underspecified value ϕ ; as desired, this renders its identification amenable to conceptual knowledge just in case a type conflict precludes a direct compositional identification with the subject. (ii) Confirming Asher's hypothesis that type clashes are resolved locally, the proposed resolution process rightly preserves the denotation of the highest-ranked verbal argument d . This captures the locality effects, namely: blankets are lying in the shadow, not initiators; the quantifier's domain is not affected by the repair. (iii) The lexicalist proposal is well-equipped to handle the contrast to *freiwillig*: in contradistinction to MAAs as *absichtlich*, MAAs as *freiwillig* must not justify a polymorphic initiator type and thus preclude the required repair mechanism. The distinction of two subtypes of MAAs is independently motivated, cf. Buscher (2013). (iv) Though rooted in the lexicon, typing information is also sensitive to dynamic conceptual knowledge. This feature paves the way for capturing examples as (4): conceptual knowledge assigns the type **INITIATOR** to the patient in (4a), but not in (4b). Therefore, (b) yields a type conflict that triggers the resolution process, analogously to (2a) above. To sum up: this paper provides a full-fledged compositional analysis of MAAs that captures the observed conceptual effects. The case study shows how recalcitrant data at the semantics-pragmatics interface comply with compositionality if conceptual knowledge is adequately integrated.

References

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