

## Stativity, supervenience, and sentential subjects\*

The paper explores how verbs like *helfen* 'help' should be treated within event semantics. These verbs allow both agentive NP-subjects and sentential CP-subjects. Their behavior with respect to adverbial modification reveals that in their agentive variant these verbs refer to events, while in their sentential variant they refer to states. The meaning that sentential *helfen* conveys is that the beneficiary is in a good disposition and that this state is brought about by what is expressed by the sentential subject. This involves a kind of subjective value statement about what is good for the beneficiary and what is not. The relation of "bringing about" involved here is not mainly one of causal dependence – lacking the typical denseness of causal chains – but one that involves supervenience. Supervenience, a notion widely used in moral theory and philosophy of the mind, allows accounting for the dependence of the rather subjective nature of the resultant state of *helfen* on particular events which occur in the world. The agentive variant of *helfen* is derived by embedding the meaning of sentential *helfen* into an event description.

### 1. Introduction

Events have been introduced into the ontology of semantic theories to deal with quantification data, to account for the semantics of adverbials by representing them as intersective modifiers, and to explain data in the aspecto-temporal domain. This has been a success story when dealing with verbs referring to concrete, perceptible events in particular. For verbs of a more abstract or stative nature, which behave differently with respect to the phenomena mentioned above, event semantics often doesn't have that much to offer. In other words, from a lexical point of view event semantics works best when 'somebody ate an apple in the kitchen'. Since we don't want to give up the advantages event semantics provides, more efforts have lately been made to deal with abstract and stative verbs in a way compatible with the event-based analyses of constructions involving concrete verbs. This is one of them.

At first sight, a verb like *helfen* 'help' doesn't seem to challenge the basic convictions of an event semanticist. Simplifying things a little bit, a sentence like (1a) might translate into something like (1b):<sup>1</sup>

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<sup>1</sup> I will employ Davidsonian instead of Neo-Davidsonian representations, i. e. representations in which verbal predicates have thematic arguments in addition to an event argument. In Engelberg (2000: 156ff, 2002) it is argued that Neo-Davidsonian predicates fail in sufficiently distinguishing the verb's arguments.

- (1) a. Rebecca half Jamaal in der Küche.  
 'Rebecca helped Jamaal in the kitchen'  
 b.  $\exists e[\text{HELP}(\text{rebecca}, \text{jamaal}, e) \ \& \ \text{AGENT}(\text{rebecca}, e) \ \& \ \text{BENEFICIARY}(\text{jamaal}, e) \ \& \ \text{IN}(\text{the-kitchen}, e)]$

That this account of the semantics of *helfen* might be too simple becomes evident when we look at sentences such as those in (2), where instead of an animate NP-subject we find sentential subjects which might (2a) or might not (2b) report events.<sup>2</sup> It is obvious that the meaning of the sentences in (2) cannot be accounted for in any way similar to (1b):<sup>3</sup>

- (2) a. Dass Rebecca sein Motorrad repariert hatte, half Jamaal sehr.  
 'That Rebecca had fixed his motorbike helped Jamaal a lot'  
 b. Dass Jamaal so gut aussah, half Rebecca sehr.  
 'That Jamaal was so good-looking helped Rebecca a lot'

The semantic analysis of verbs selecting sentential subjects and the relationship between their sentential and their agentive variant are the topic of this paper. At the end we will see that representations like (1b) are inappropriate for both the sentential and the agentive variant. The analysis will focus on *helfen* 'help' and partly on some other related verbs like *gefährden* 'endanger', *verbessern* 'improve', *erleichtern* 'facilitate', and *verschlechtern* 'make worse' (3). I will call these verbs 'dispositional verbs' since they convey that somebody is – in a wider sense – brought into some disposition.

- (3) a. Dass sie die Tribüne verlegt hatten, gefährdete die Zuschauer.  
 'That they had relocated the grandstand endangered the spectators'  
 b. Dass sie das Problem lösen konnte, verbesserte ihre Stellung in der Firma.  
 'That she could solve the problem improved her position in the company'  
 c. Dass sie seinen Computer repariert hatte, erleichterte ihm die Arbeit.  
 'That she had fixed his computer, facilitated his work'  
 d. Dass sie gefeuert wurde, hat ihre Lage noch verschlechtert.  
 'That she was fired, made her situation even worse'

The paper proceeds as follows: In section 2, I will discuss the behavior of the agentive and the sentential variants of dispositional verbs with respect to adverbial modification and thereby show that they differ in their referential properties. In section 3, the nature of the particular resultant state that is part of the meaning of dispositional verbs will be investigated. Section 4 discusses how this state is brought about. In particular, it will be argued that the relation between this state and what is expressed in the subject is an evaluative one that involves a relation of supervenience. Section 5 will deal with the semantic derivation of

<sup>2</sup> There is well-founded scepticism that these CPs really occur in subject position. For easy reference and because this syntactic issue does not really matter for what I have to say about these structures, I will still call them 'sentential subjects'.

<sup>3</sup> Though I will mainly discuss German examples, most claims hold for the corresponding English sentences, too.

sentences containing dispositional verbs and the question how the agentive and the sentential variant of these verbs are related. Section 6 presents the conclusion.

## 2. Stative versus eventive variants of dispositional verbs

The purpose of this section is to show that *helfen* in its agentive variant is an event verb while in its sentential variant it shows all properties of state verbs. Evidence for this assumption comes from four kinds of adverbials: agent-oriented adverbials, locative adverbials, temporal adverbials, and degree adverbials.<sup>4</sup>

### 2.1. Agent-oriented event adverbials

Instrumental, manner, and other agent-oriented event adverbials occur freely with agentive *helfen*, while they yield ungrammatical constructions with sentential *helfen*:

- (4) a. Rebecca hat Jamaal mit ihrem neuen Trockentuch / fröhlich geholfen.  
 'Rebecca helped Jamaal with her new dish towel / happily'  
 b. \*Dass Rebecca das Geschirr abgetrocknet hat, hat Jamaal mit dem neuen Trockentuch / fröhlich geholfen.  
 'That Rebecca dried off the dishes helped Jamaal with the new dish towel / happily'

One might want to explain the data in (4b) by the fact that both adverbials are agent-related and no agent surfaces as the subject of *helfen*. However, adverbials of this sort are usually also licensed when the agent remains implicit:<sup>5</sup>

- (5) a. Das Geschirr wurde mit dem neuen Trockentuch / fröhlich abgetrocknet.  
 'The dishes were being dried off with a new dish towel / happily'  
 b. Jamaal wurde mit einem neuen Trockentuch / fröhlich geholfen.  
 'Jamaal was being helped with a dish towel / happily'

<sup>4</sup> It might be more appropriate to speak of adverbs or adverb phrases instead of adverbials in some of the following cases (particularly with respect to degree modifiers). The relationship between these three terms is rather problematic (cf. Austin et al. 2004). In this paper I use 'adverbials' as a cover term.

<sup>5</sup> English differs from German in this respect. In German the adverbials express a relation between the event and the agent who is left implicit, while in English the adverbials are often more related to the overt subject referent whether this is the agent or not. That might be the reason why the corresponding English sentences sound rather odd. Even though it has to be admitted that not all instances of modification of implicit agents sound completely acceptable in German, there is a clear difference to the fully unacceptable (4b).

I will therefore assume that the ungrammaticality of (4b) arises mainly because *helfen* in its sentential variant does not refer to an event.

## 2.2. Locative and temporal adverbials

The situation presented by locative modifiers is different: both variants of *helfen* allow locative modifiers but these are not interpreted in the same way. Locative modifiers with agentive *helfen* as in (6a) localize the event the subject referent is involved in. (6a) says that whatever helpful action Rebecca performed happened in the kitchen. With sentential *helfen* the interpretation of locative modifiers is less simple. In (6b) the modifier certainly does not localize what Rebecca did – she might have fixed the pipes in the basement. It rather seems to convey that what Rebecca did helped Jamaal with whatever he was doing in the kitchen. However, the interpretation of locatives with sentential *helfen* is not confined to the localization of some additional implicit event. In (6c) the locative rather conveys the meaning that the scarf helped her (e. g., to not catch a cold) while she was on the grandstand.

- (6) a. Rebecca half Jamaal in der Küche.  
 ‘Rebecca helped Jamaal in the kitchen’  
 b. Dass Rebecca die Wasserrohre repariert hatte, half Jamaal in der Küche.  
 ‘That Rebecca had fixed the water pipes helped Jamaal in the kitchen’  
 c. Dass sie einen Schal mitgenommen hatte, half Rebecca auf der Stehtribüne.  
 ‘That she brought a scarf helped Rebecca on the grandstand’

Maienborn (2001, 2003) has argued that locatives with stative expressions do not localize an event-like entity but function as frame-setting modifiers which “provide a semantically underspecified domain restriction for the overall proposition” (Maienborn 2003). I assume that the locative adverbials in (6b,c) perform this frame-setting function, while the locative in (6a) simply predicates over an event argument. As frame-setting modifiers, locatives usually allow for a temporal interpretation involving the holder of the state. This is why in (6b) and (6c) the locative can be reinterpreted as ‘it helped him when he was in the kitchen / when she was on the grandstand’ while (6a) does not imply that she helped him when he was in the kitchen. He could have been somewhere else at that time.

Different interpretations with sentential vs. agentive *helfen* are also displayed by temporal adverbials, which are known to be compatible with activities and statives (Vendler 1957):

- (7) a. Rebecca half Jamaal eine Zeitlang.  
 ‘Rebecca helped Jamaal for some time’  
 b. Dass Rebecca so gut Gadakhisch gelernt hatte, half ihr eine Zeitlang.  
 ‘That Rebecca had learned Gadakhian so well helped her for some time’

As we would expect with event-referring verbs, in (7a) the adverbial relates to the time of the event Rebecca was engaged in, but it does not refer to the length of the helping effect. (7b), on the other hand, says that the helping effect of Rebecca having learned Gadakhian held for some time. This clearly points to a stative use of *helfen*.

## 2.3. Degree modifiers

Degree modifiers are usually found with statives and are also available for a number of activity verbs. Thus, it is no surprise that we find them with both variants of *helfen*:

- (8) a. Jamaal half Rebecca sehr / ein bisschen / nicht viel.  
 'Jamaal helped Rebecca very much / a little bit / not much'  
 b. Dass sie so gut Gadakhisch gelernt hatte, half ihr sehr / ein bisschen / nicht viel.  
 'That she had learned Gadakhian so well, helped her very much / a little bit / not much'

But degree modifiers can also be used to show the difference between agentive and sentential *helfen*. Using the diagnostics developed in Maienborn (2003) it can be shown that the modifier *ein bisschen* 'a little bit' can either serve as an event modifier indicating that the run time of the event was rather short or as a degree modifier indicating the degree to which a certain property holds.<sup>6</sup> With event predicates the modifier always has an eventive reading (9a) and sometimes, depending on the particular predicate, also a degree reading as in (9b) where it either indicates the duration of the event or the amount of sweat transpired. With statives, on the other hand, *ein bisschen* never predicates over the duration of the state, having only the degree reading (9c).

- (9) a. Sie joggte ein bisschen. (eventive reading)  
 'She jogged a little bit'  
 b. Sie schwitzte ein bisschen. (eventive and degree reading)  
 'She sweated a little bit'  
 c. Sie mochte ihn ein bisschen. (degree reading)  
 'She liked him a little bit'

Applying this procedure to the two variants of *helfen*, the results are clear. Combined with agentive *helfen*, *ein bisschen* is ambiguous. (10a) can either mean that she helped him for a little while (that seems to be the dominant reading) or that the effect of what she was doing was of a moderate degree of helpfulness. In (10b) only the degree reading is available.

- (10) a. Rebecca hat ihm ein bisschen geholfen.  
 'Rebecca (has) helped him a little bit'  
 b. Dass sie seinen Computer repariert hat, hat ihm ein bisschen geholfen.  
 'That she fixed his computer (has) helped him a little bit'

<sup>6</sup> Maienborn (2003) employs this test mainly in order to show that there are two kinds of state expressions, Davidsonian states (*sleep, sit, wait*) which behave like event predicates and Kimian states (*love, be hungry, be blond*) which yield negative results when subjected to the usual tests for determining event reference of predicates.

It should be noted that not all event predicates allow modification by *ein bisschen*. The phrase is restricted to certain kinds of homogenous event predicates.

### 3. The resultant state of sentential *helfen*

If whatever is conveyed by the sentential subject A helps the beneficiary B then A brings about a certain state which holds for B. This state – as has been shown in the preceding section – is what sentential *helfen* refers to.<sup>7</sup> Our investigation into the meaning of sentential *helfen* and other dispositional verbs will proceed in two parts. In this section I will give an account of the nature of this state and in section 4 I will discuss how it is brought about.

#### 3.1. Referential state arguments

Having established the stative nature of the sentential variant of *helfen*, the question arises as to how this observation can be dealt with in semantic terms. A solution favored by a number of semanticists is to enrich our ontology by state entities (cf. Asher 1993, Maienborn 2003). Although arguments in favor of state arguments are scarce they might suffice to defend this view.

There are some facts about temporal modification that provide support for state arguments. Not only do stative expressions allow durative adverbials, we also find them with event predicates where it is usually assumed that they are one-place first-order predicates functioning as intersective modifiers. If we don't want to be forced to adopt a completely different analysis for statives it would be handy to have an argument the durative adverbials can predicate over. Since all kinds of agent-related adverbials as well as locative ones do not predicate over states, the motivation for the assumption of state arguments coming from adverbial modification remains rather thin.

A further argument concerns anaphoric reference. In (11) *das* 'that' must pick up a more concrete entity than a fact or a proposition since it is modified by a temporal adverbial. States seem to be the right sort of entity here.

- (11) a. Sie war müde, und das einige Stunden lang.  
 'She was tired and that (lasted) for several hours'  
 b. Dass sie Gadakhisch konnte, half ihr, und das zumindest für die ersten Wochen.  
 'That she knew Gadakhian, helped her, and that at least for the first weeks'

That stative verbs can be nominalized is another hint that there are state arguments. At least, no other ontological sort seems to be appropriate for the referential argument of *his love of thimbleberries*, *the help with the homework* or *his everlasting tiredness*.

On the other hand, states are very restricted when it comes to quantification. Although examples like (12) might suggest countability of state entities, I'm doubtful that in uttering these sentences we are really quantifying over states. It rather seems that what we want to say is that on two occasions (another dubious ontological sort) Jamaal was tired and on

<sup>7</sup> This is clearly different from change-of-state verbs, which refer to events and imply a result state. In *she emptied the bottle* the state of the bottle being empty after the event can be inferred, but that doesn't make the verb a stative one.

several occasions it helped him that he was a good dancer. Thus, the quantificational adverbials are similar to the frame-setting locatives discussed in section 2.2.

- (12) a. Jamaal war zweimal müde. (from Maienborn 2003)  
 'Jamaal was tired twice'  
 b. Dass Jamaal so ein guter Tänzer war, hat ihm mehrmals geholfen.  
 'That Jamaal was such a good dancer, helped him several times'

This intuition is corroborated by the fact that state nominalizations (13a) are not prone to combine with numerical quantifiers, in contrast to event nominalizations (13b):

- (13) a. \*drei Lieben / Hilfen / Müdigkeiten<sup>8</sup>  
 'three loves / helps / tirednesses'  
 b. drei Sprünge / Küsse / Läufe  
 'three jumps / kisses / runs'

Thus, states are dubious entities: they have temporal properties, they can be referred to, but they can hardly be counted. For the time being and without particular enthusiasm, I will assume that states are what expressions containing sentential *helfen* predicate over. I assume though that states are not as concrete as objects and events but rather something of a partly concrete and partly abstract nature. Approaches like Asher (1993) and Maienborn (2003, forthcoming) are probably on the right track. Asher (1993:15ff) assumes that there are a number of entities of a more or less abstract nature that are construed for efficient cognitive and natural language processing while they might not play a role in the ontology of the world we are talking about. Maienborn (2003, forthcoming), following Asher (1993), makes use of Kim's (1969, 1976) approach to event ontology and conceives of a state as an abstract object for "the exemplification of a property  $P$  at a holder  $x$  and a time  $t$ ."<sup>9</sup> If this is understood in the spirit of Kim (1976: 161), two states characterized by  $[x, P, t]$  and  $[y, Q, t']$  should be identical iff  $x = y$ ,  $t = t'$  and  $P = Q$ . In extensionalizing over the holder of the state, I think, this approach accounts for the fact that different descriptions of a holder of a state do not influence our judgment about the identity of states. That is, (14a) and (14b) are different propositions but the state she was in described in (14a) is certainly the same as in (14b) if Rebecca is Jamaal's girlfriend. Therefore, if we extend (14a) as in (14c), i. e. pick up the state by *that* and introduce a durative adverbial as a predicate over states, (14c) implies (14d):

- (14) a. Rebecca was tired  
 b. Jamaal's girlfriend was tired  
 c. Rebecca was tired ... and that persisted for the whole afternoon  
 d. Jamaal's girlfriend was tired ... and that persisted for the whole afternoon

<sup>8</sup> The nouns can, of course, be reinterpreted, e. g. as 'three men/women I loved', 'three people who were engaged as helpers' and perhaps 'three different kinds of tiredness'.

<sup>9</sup> This was originally proposed as an event concept by Kim (1976), but as I have argued in Engelberg (2000: 235ff), for most linguistic purposes it is too fine-grained a concept for events.

The property *P* is constitutive for the state. If we assume TIRED to be the property being at stake in (14), then Rebecca's being TIRED is a different state from Rebecca's being EXHAUSTED at the same time since EXHAUSTED would be a property different from *P*. This renders states as more fine-grained entities than events, where we would not principally exclude that KICKING the ball over the line and HAMMERING the ball into the goal necessarily describe different events.<sup>10</sup>

### 3.2. States and domains

So far we have established that *helfen* 'help' refers to an event *e* in its agentive variant and to a state *s* in its sentential variant. What is it that *helfen* and other dispositional verbs actually say about this state? The effect state *s* embedded in the meaning of dispositional verbs is of a rather unspecific nature: if *a* helps *x*, *x*'s life becomes good in a certain sense, if *a* endangers *x*, *x* is in a certain sense at risk of experiencing something negative, if *a* improves *x*, *x* becomes better in a certain sense. The notion "in a certain sense" is crucial here and it has to be inferable from the context in which sense the effect state holds. E.g., having been asked *Have you heard anything about Rebecca lately?* it would be a rather strange thing to answer *Yes, she helped Jamaal* or *Yes, she endangered Jamaal*, at least in a situation where no previous knowledge on part of the hearer pertaining to the help and endangerment can be presupposed. The two most probable reactions to such an answer would be to ask *How?* or *In what sense?* The first of these reactions would require information about how this state has been brought about (more about this in section 4), the second reaction invites the specification of the just mentioned notion of helping or endangering "in a certain sense". Every evaluation of the truth of a sentence containing a dispositional verb requires a domain to be determined with respect to which the effect state holds. Imagine the following dialogue

- (15) a. Jamaal: "Our organization helps Gadakhs in rural communities by sending them used clothes and blankets."  
 b. Rebecca: "That's nonsense. It would help them if it would grant them loans to rebuild and modernize the local textile workshops."

In (15a), the domain might be determined by how much the Gadakhs will have to freeze during the next winter. In that sense, clothes and blankets will be of some help. If the domain is chosen differently, as in (15b), the truth of what has been said can be challenged. Choosing the long-term development of rural Gadakh economies as the domain of *help*, sending used clothes and blankets is not a help since it might devastate the local textile workshops.

Thus, the function of these domains is to restrict the application of the proposition. In this sense they are comparable to "frames" in the sense of Jacobs (2001: 655f) or "domains" as treated by Ernst (2004). The domains can of course be made completely or par-

<sup>10</sup> This at least is the most straightforward interpretation for the properties in Kim's approach. There are different possibilities of interpreting Kim's constitutive properties, though; cf. Engelberg (2000: 236).



tially explicit. Domain adverbials (16a), prepositional phrases (in German in particular those headed by *bei*, (16b)), or certain kinds of subordinate clauses (16c) can contribute to the establishment of a particular domain.

- (16) a. Dass Jamaal in der Lotterie gewonnen hat, hat ihm finanziell geholfen.  
 ‘That Jamaal won the lottery helped him financially’
- b. Dass Jamaal in der Lotterie gewonnen hat, das hat ihm bei der Finanzierung des Projekts geholfen.  
 ‘That Jamaal won the lottery, helped him in financing the project’
- c. Was das Finanzielle angeht, so hat es Jamaal geholfen, dass er in der Lotterie gewonnen hat.  
 ‘As far as financial matters are concerned, it helped Jamaal that he won the lottery’

I will further assume that some predicates are obligatorily interpreted with respect to domains. E. g. *help somebody* in contrast to *smell something* always has to be relativized to a domain.<sup>11</sup>

An interpretation of a sentence with respect to a domain has a number of consequences for the inferences we may draw. As should have become clear by now, a proposition which is true with respect to one domain might be false with respect to another. If winning the lottery helped Jamaal financially (he could settle all his open bills) it still might not have helped him healthwise (he died as the consequence of heavy partying after having cashed in his win). It has sometimes been claimed that a proposition relativized to a domain does not entail the same unrelativized proposition (cf. Jacobs 2001: 656). This would mean that from (17a) we cannot infer (17b):

- (17) a. That they stopped sending used blankets helped the Gadakhs economically.  
 b. That they stopped sending used blankets helped the Gadakhs.

I assume that words like *helfen* are always interpreted with respect to a domain, i. e. there is no unrelativized interpretation for (17b). Instead, there is always the urge to construct a domain from the context. The unwillingness to infer (17b) from (17a) is obviously due to the fact that it is difficult to establish any specific domain here. This makes the sentence hard to interpret. We might be less reserved in accepting the inference from (18a) to (18b), though, which is probably due to the fact that the relevant domain suggests itself rather easily. But since even (18b) can be interpreted with respect to other domains, e. g. with respect to environmental issues, there is indeed no inference from a proposition with an explicitly given domain to the same proposition without an explicit domain.

- (18) a. That they attracted companies which provided many new jobs helped the region economically.  
 b. That they attracted companies which provided many new jobs helped the region.

<sup>11</sup> Alternatively, we might assume that for predicates like *smell something* a domain like ‘with respect to sensory perception’ / ‘olfactorily’ is lexically pre-installed by default.

Furthermore, a sentence with respect to a domain *dom* doesn't entail the same sentence with respect to a domain that "includes" *dom* or is included by *dom*. If a financial allocation by the ministry helps the linguistic department with respect to its finances (its budget is balanced now) it neither follows that it helps the department in financing a new lecturer position (the money might be restricted to the acquisition of technical equipment) nor does it follow that it helps the department in its general structural development (the allocation is tied to the department's commitment to develop a new program in applied linguistics that nobody wants).

### 3.3. Parameters involved in the effect state of *helfen*

We are now able to sum up the ingredients that go into the characterization of the state a dispositional verb like *helfen* 'help' refers to:

- a holder of the state: *x*
- the degree to which the effect state holds: *d*
- a time  $\tau(s)$  at which the state holds and which overlaps with the reference time of the finite verb: *t*
- a property that describes the state: **GOOD (for *x*)**
- a domain with respect to which the holding of the state is evaluated: *dom*

Equipped with these basics about the nature of the effect state *s* of dispositional verbs, we can describe *s* for some of the dispositional verbs (where *A* stands for whatever is expressed by the subject):

- (19) a. *helfen* 'help': [*A* brings about something such that ...] with respect to a domain *dom*, *x* is in a state *s* at time *t* characterized as GOOD to a degree *d*.<sup>12</sup>
- b. *verschlechtern* 'make worse' [*A* brings about something such that ...] with respect to a domain *dom*, *x* is in a state *s* characterized as BAD to a degree *d* at time *t*.
- c. *gefährden* 'endanger': [*A* brings about something such that ...] with respect to a domain *dom*, *x* is in a state *s* characterized as BEING AT RISK TO EXPERIENCE SOMETHING NEGATIVE to a degree *d* at time *t*.

I won't claim to have presented here a satisfying account of all that could be said about the resultant state of dispositional verbs, but I assume, I have identified the parameters that are crucial for its semantics, in particular the stative argument *s*, the domain *dom* with respect to which sentences containing the verb have to be evaluated, and the degree *d* to which the state holds.

<sup>12</sup> In section 4 I will argue that it is actually the comparative form of this predicate that characterizes the state, and not the positive form.

4. Supervenience and the sentential subject of *helfen*

4.1. Causal dependency and evaluative dependency

Having established that *helfen*-type verbs in their sentential variant refer to a state *s* which is somehow brought about by what is expressed by the subject, it remains to be seen (i) what kind of entity is denoted by the subject and (ii) what kind of relation connects this entity and the state. As to (i), restricting myself to sentential subjects, the entity in question is a proposition or – more precisely – a fact, since its truth is presupposed. In the following, I want to address the second question by showing that the relation between *p* and *s* involves different forms of complex reasoning.

- (20) a. Dass die Organisation gebrauchte Decken und Kleider geschickt hat, hilft den Gadakhen.  
‘That the organization has sent used blankets and clothes, helps the Gadakhs’
- b. Dass Rebecca zu Hause geblieben ist, hat Jamaal geholfen.  
‘That Rebecca stayed at home, helped Jamaal’
- c. Dass Rebecca die Bretter hochgehalten hat, hat Jamaal beim Aufstellen des Bücherregals geholfen.  
‘That Rebecca held the boards up helped Jamaal with putting up the bookshelf’
- d. Dass es ein warmer, trockener Abend war, half den Organisatoren des Festivals  
‘That it was a warm, dry evening helped the organizers of the festival’

If we evaluate the truth of sentence (20a) with respect to the domain of how much the Gadakhs freeze, the following reasoning seems to be triggered:

- (21) a. The organization sent used clothes and blankets. (= *p*) ← dep ←
- b. The Gadakhs froze to a certain degree for a particular time at a particular place. ← dep ←
- c. The Gadakhs are in a state that is better than the state they were in had *p* not been the case (with respect to the domain).

“A ← dep ← B” is to be read as “B depends on A” which should indicate an asymmetric relation involving counterfactuality. It is intended as a cover term for more specific relations. In particular, I want to suggest that the two dependency relations in (21) are different: the relation between (21a) and (21b) is one of causal dependency while the one between (21b) and (21c) is one of evaluative dependency.

The intuition behind this differentiation is that the relation between (21a) and (21b) is one that is established between entities in – so to speak – the same “sphere of reality”, while the one between (21b) and (21c) mediates between two different “spheres” in relating a subjective evaluation to whatever fact is being evaluated. I will not try to give an explicit semantics here for different dependency relations, but I will at least sketch what the difference between typical cases of causal and evaluative dependency are:

- (i) Causal relations hold between events. This at least conforms to a majority view among linguists and philosophers. Thus, the relation between (21a) and (21b) can be constructed as involving a causal dependency between a sending and a freezing event. The relation involved between (21b) and (21c), on the other hand, does not seem to be one between events since (21c) does not contain any event predicates.<sup>13</sup>
- (ii) Causal relations are based on generalizations about certain types of event co-occurrence. Whether we accept a causal statement as true depends on how we think the world works. We know that putting on clothes has a certain effect on the regulation of our body temperature and, moreover, we assume that this relation does not depend on some subjective view about the world. It is rather based on generalizations about how the occurrence of an event of one type leads to the occurrence of an event of another type. Furthermore, in typical cases of causation we are even inclined to say that it inevitably leads to the occurrence of this second event. There are no generalizations of this sort involved in the way we link (21b) to (21c) since the assertion that the world is good for the participant expressed by the dative NP, which is part of any *helfen*-statement, involves a rather subjective judgement based on the values of the speaker. Even if we have already fixed the domain *dom* to 'freezing' as we did in (21), it is still a matter of judgement whether freezing is good or not. Putting on clothes when it is cold outside will reduce feelings of freezing, but whether less freezing is good – such that providing people with warm clothes can count as a help – depends on a very subjective view. Benjamin Franklin is said to have spent cold winter mornings outside undressed because he considered that beneficial for his health. Him you wouldn't have helped with a blanket.
- (iii) Causal relations typically correlate with temporal sequence. I. e., if we assume that  $e^1$  causes  $e^2$  then the run time of  $e^1$  precedes the run time of  $e^2$  (at least partially). This implication doesn't seem to hold for the evaluative relation underlying dispositional verbs, i. e., the time (21b) pertains to does not seem to precede the time (21c) pertains to. In fact, a temporal relation does not even seem to be at stake here.
- (iv) Causal relations form chains. The most important difference between causal and evaluative dependency is that causal dependency may lead to an unfolding of a chain of temporally and spatially connected events, e. g.:
- (22) a. The organization sent used clothes and blankets. (=  $p$ )      ← caus. depends on ←  
 b. Somebody transported the blankets to Gadakhia.      ← caus. depends on ←  
     ...      ← caus. depends on ←  
 c. The Gadakhs put the clothes on and used the blankets.      ← caus. depends on ←  
 d. The Gadakhs froze to a certain degree for a particular time at a particular place.      ← eval. depends on ←  
 e. The Gadakhs are in a state that is better than the state they were in had  $p$  not been the case (with respect to the domain).

<sup>13</sup> This at least would conform to the argumentation by Maienborn (2003, forthcoming) that predicates like *good* do not refer to Davidsonian events, but rather to Kimian states of the kind presented in section 3.1.

For two causally dependent events  $e$  and  $e'$  either an event  $e''$  can be easily found which depends on  $e$  and on which  $e'$  depends or  $e$  can be split up in two subevents  $e^1$  and  $e^2$  such that  $e^2$  causally depends on  $e^1$ . That is to say, causal dependency shows a large degree of density in that a causal chain can usually be easily split up into a chain of more and smaller events. While the relation between (21a) and (21b) can be expanded as in (22a) through (22d), the relation between (22d) and (22e) is not dense in any way. That is, it seems impossible to construct any link that fills the gap between the last link of the causal chain and the “goodness” of the helping effect. We seem to enter a different sphere here, one that is in some sense more abstract than the one that is made out of causally linked entities. It is a qualitative leap, a “jump to conclusions”. This last step of the reasoning, which is decisive for the semantics of *helfen*, obviously differs from prototypical causal relations. I will call it evaluative dependency and say more about it in the course of the next sections.

Let me add some remarks about what I have said so far about the dependency relations involved. First, what – if not on generalizations about how the world works – are statements about evaluative dependency based on? I will assume that they are based on generic value statements expressed by propositions of the sort: (i) “It is nice for people if they freeze as little as possible”, (ii) “It is good not to upset your boss”, (iii) “There are parts of putting up a book shelf which are no fun, in particular if you do them alone”, (iv) “It is good for organizers of festivals if a large crowd gathers”. Statement (i) is the one sentence (20a) is based on; statement (ii) underlies (20b) if we assume that Jamaal has invited his boss, who likes well-organized cocktail parties with unobtrusive, well-mannered guests, while Rebecca – however much we appreciate her lively nature – is well known for singing songs from the Sex Pistols repertoire after her first Manhattan; statement (iii) pertains to sentence (20c), and (iv), finally, to sentence (20d), assuming that the attendance of open-air festivals depends on the weather. Generic value statements like these are not necessarily true. Otherwise the truth of *help*-statements could not vary with respect to the incorporated value statement. We can argue about the truth of these statements. But I assume that in evaluating particular state of affairs, we fall back on value statements without scrutinizing them all the time. The events on which evaluative predicates depend (e. g. (22d)) are instantiations of the type of events which are described in these value statements.

Second, causal dependency is to be understood in a weak sense. Within the causal chain we constructed in (22) it is not true for any pair  $e$  and  $e'$  of immediately succeeding events that  $e$  causes  $e'$ . While this might be so for the relation between (22c) and (22d) it is not for the one between (22b) and (22c). The transportation of the clothes and blankets did not cause the Gadakhs to put them on. (22b) is rather a precondition or a causal factor for the events to follow. Causal dependency is to be understood in this weak sense here.<sup>14</sup> Furthermore, the chain that leads to what is evaluated might as well start with statements about states (20d) or statements about the non-occurrence of events (20b). In the last case the chain of events does not unfold in the actual world but in the world we consult in order to interpret this sentence and in which Rebecca actually goes to the party, drinks a Manhattan, etc. Thus, although causal reasoning is involved, no chain of events linked by causal dependencies occurs in the actual world. For the time being, I will just assume that with

<sup>14</sup> For a more thorough discussion of different types of causal dependency cf. Dowty (1979) and Eckardt (2000).

*helfen* sentences some form of causal reasoning relates the proposition  $p$  in subject position and another  $p'$  that is being evaluated. Although I will not argue any further about how causal reasoning can relate two statements like *The organization sent used clothes and blankets* and *The Gadakhs froze comparatively less* or *Rebecca stayed at home* and *Jamaal's boss wasn't upset* I will assume that the construction of dense chains of events plays a major role in it.

Third, I assume that the choice of the domain guides us with respect to the question which of the unfolding paths given by the course of events we are supposed to follow in order to judge whether what is expressed by the subject was really good for the beneficiary. With respect to how much the Gadakhs freeze this winter, the path leads from the sending off of the clothes and blankets and their transportation to Gadakhia to their distribution among the Gadakhs which put them on such that they didn't freeze that much. This might be our reasoning with respect to (23a):

- (23) a. (With respect to how much the Gadakhs freeze:) It helped the Gadakhs that the organization sent the clothes and blankets.  
 b. (With respect to economic development in rural Aghanistan:) It helped the Gadakhs that the organization sent the clothes and blankets.

The sentence in (23b) leads us along a different path through the unfolding chain of events: the organization sends the clothes and blankets, which are transported to Gadakhia and distributed among the people such that they don't have to buy clothes and blankets from the local textile workshops which in course suffer a drop in sales with the consequence that many of them have to shut down. This reasoning renders (23b) false.

Fourth, why is (22e) formulated the way it is? Shouldn't it just say that the Gadakhs are in a good state (according to some standard of goodness with respect to freezing)? I think this is not required in order to make (20a) true. They might still freeze quite a bit and thus be in a pretty bad state with respect to freezing. But even if this is true, one might ask why (22e) doesn't just require that the Gadakhs are in better state than before. But assume that the organizations sent the clothes and blankets and the Gadakhs actually used them but a cotermporal sudden drop in temperature thwarted the warming effect of the clothes and blankets such that the Gadakhs now even freeze a little more than before. Yet, (20a) would still be true as long as the sending of the clothes and blankets helped to prevent the worst. It seems that we simply compare the state in (22e) with a situation in which (22a) is not the case and in this respect they are in a better condition now.

Fifth, *helfen* is gradable. Thus, I will assume that there is a function that maps the beneficiary onto a degree on a scale of "goodness". This degree has to be higher than the degree that would obtain had the fact that is expressed by the sentential subject not obtained. I will further assume that this function of "goodness" is relative to the generic value statement that determines our judgement. If you think that the less you freeze the better, you link the highest degree on the goodness scale to non-freezing and the lower degrees on the evaluation scale correspondingly to higher degrees of freezing. Since other judgments are possible, this linking procedure can yield different results. If you follow Benjamin Franklin and think that a little freezing is a great thing, you might link this to the highest degree on the evaluation scale and non-freezing and freezing quite a bit to lower degrees on the evaluation scale, etc. Thus, (24) represents the state  $s$  of  $x$  being of a HIGHER degree on the scale

of goodness (constructed on the basis of a generic value statement) than the degree of goodness would have been had  $p$  not been the case.<sup>15</sup>

- (24) For a function  $\delta^{\text{GOOD/val}}$  which maps individuals onto degrees, and  $w'$  as a world where  $p$  is not the case:  
 HIGHER( $\delta^{\text{GOOD/val}}(x)$ ,  $\delta^{\text{GOOD/val}}(x)^{w'}$ ,  $s$ )

The interpretation of degree modifiers like *sehr* 'very (much)' with *helfen* would then require the difference between  $\delta^{\text{GOOD/val}}(x)$  and  $\delta^{\text{GOOD/val}}(x)^w$  to be relatively great.

Sixth, I would like to emphasize again that *helfen* cannot be interpreted without constructing some evaluative dependency. If somebody denied that (20a) is true, that could of course be due to different reasons. Maybe the ship on which the clothes and blankets had been transported sank. Or the Gadakhs refused to put on the ugly clothes. But one of the reasons to deny (20a) could be that one values freezing rather high maybe because one belongs to a spiritual community that believes that freezing clears your mind. The existence of the causal chain alone can never make a *helfen*-statement true.

#### 4.2. Supervenience and evaluation

So far we have seen that the last link in the dependency chain from what is expressed in subject position to the state the verb refers to does not submit to generalizations on causal dependency, does not imply temporal precedence, and is not dense but rather looks like a "jump to conclusions". In shopping around for dependency relations different from causation, one comes across the concept of "supervenience", which has been used in different branches of philosophy, particularly in philosophy of the mind and moral theory (cf. Kim 1990, 1994).

The problem mind-body theories face is that there is a gap between objective, causally linked neurophysiological states and processes on the one hand, and subjective mental states and processes on the other. This gap, it is argued, cannot be bridged by causal relationships since there is no law-based, dense causal link between the objective and the subjective. In addition to that, the mental domain is in some sense coarser than the physical domain. This last point pertains to the observation that whenever we have two different mental states, there must be two different neurophysiological ones that brought them about. But this does not hold the other way around: two different neurophysiological states/processes can be correlated with the same subjective mental state/process. E. g., a certain visual percept can be brought about by transferring the signals via two different routes from the eye to the visual cortex.

This kind of relationship is often expressed by the counterfactual relationship of supervenience. Supervenience has been discussed in a number of different versions, at the core of which is the following idea: If  $\alpha$  supervenes on  $\beta$ , then any change in  $\alpha$  correlates with a change in  $\beta$ , but not vice versa.

<sup>15</sup> Cf. Kennedy (1999) for a treatment of degrees in terms of measure functions.

Moral theory is faced with a similar question, namely how moral predicates like *good* or *bad* depend on other facts in the world. If it is assumed that Jamaal is a good guy, then it is not possible to imagine another world where Jamaal is a bad guy, but everything else is equal. Something else about Jamaal must have been different, too. Maybe instead of donating money to the home for senior citizens he robbed his grandmother. But similar to the mind-body problem, not every difference in non-moral properties of Jamaal must result in a difference of moral properties. Instead of donating his money to the senior citizen home, he could have written a check to amnesty international and would still be a good guy.

I want to argue that the relation involved in the meaning of *helfen* is a similar one, namely a non-dense, non-causal, and non-temporal dependency relation. Assume again that it helped the Gadakhs that the organization has sent clothes and blankets and it did so because it led to the Gadakhs freezing (only) to a certain degree which again meant that they were in a comparatively better condition. In this case, had the evaluating state been any different, namely the state of goodness holding to a larger or lesser degree or for a longer or shorter time, then some property of the freezing event must have been different, too. The Gadakhs might have frozen more or less or for a longer or shorter time than in the actual world. But not every difference in the freezing event must have had an influence on the evaluating state. They might have been cold in the kitchen instead of the living room without this having an effect on the evaluative state. Thus, I will assume that the evaluative state of *helfen* supervenes on the freezing event.

I will not dive into the intricacies of the different concepts of supervenience employed in philosophy. It should be noted, though, that supervenience is usually conceived of as a relation between a predicate (or a set of predicates) and a set of predicates (c. f. Kim 1990). E. g., it is assumed that a mental property (or the set of mental properties respectively) supervenes on the set of neurophysiological properties. I will conceive of "Lexical Supervenience", LSV, as a relation between a state  $s$  and an event  $e$  which involves a certain counterfactual relation between properties of  $s$  and  $e$ :

(25) LEXICAL SUPERVENIENCE

For any state  $s$  and event  $e$ :

$s$  lexically supervenes on  $e$  in the actual world  $w^0$ , LSV( $s, e$ ), iff in every world  $w^i$ , which is minimally different from  $w^0$  and where  $s$  has different properties than in  $w^0$  some property of  $e$  is different, too.

As rather fine-grained objects, I conceive of states as relatively stable across worlds. That is to say, if a certain state  $s$  holds in the actual world, in any other world where  $s$  holds it has to look almost the same. In accordance with what has been said in section 3.1, a state has a constitutive property which I conceive of as essential for the identity of the state. E. g., the state  $s$  which holds for the beneficiary  $x$  in the sense that  $x$  gets assigned a certain degree of "goodness relative to a generic value statement about freezing" is essentially a state of this sort. Any statement of the sort "had this state been different ..." might either pertain to a different degree of "goodness" or a different duration of the state. Replacing "goodness relative to a generic value statement about freezing" by "goodness relative to a generic value statement about economic development" or any other function would not maintain the cross-world identity of  $s$ . Thus, what is meant by properties of states in (25) pertains to the duration and degree to which a state holds.



The interpretation of evaluative statements like those induced by *helfen* uses this supervenience relation to relate the evaluative state to the event at the end of the chain of causal reasoning. Such a "Lexical Evaluation" shall be understood in the following sense:

(26) LEXICAL EVALUATION

For any state  $s$ , proposition  $p$ , and a contextually given domain  $dom$ :

$s$  is a lexical evaluation of  $p$ ,  $EVAL(s,p)$ , iff

- (i) there is a proposition  $p'$  about some event  $e$  which is the result of causal reasoning starting with  $p$  and which can be reconstructed with the help of  $dom$ ,
- (ii) the constitutive property of  $s$  is a function based on some generic value statement, and (iii)  $s$  lexically supervenes on  $e$ .<sup>16</sup>

It should be noted that  $s$  does not supervene on the event reported in  $p$ , e. g. the organization sending clothes and blankets, but on the event that is construed from that by causal reasoning, e. g. the Gadakhs freezing to a particular degree. Of course, had the helping effect been less, something about the event reported in  $p$  might have been different, e. g. the organization sent too few blankets (=  $w^1$ ). But the helping effect might also have been less even if  $p$  was as in the actual world  $w^0$ , but the Gadakhs just used the blankets without putting on the clothes (=  $w^2$ ). And since we usually look for most similar worlds in interpreting dependency statements, a difference in  $s$  would rather be connected to what happened in the world  $w^2$  than what happened in  $w^1$  which is less similar to  $w^0$  since not only hadn't the clothes been put on, but they had not even been sent. Thus,  $p$  is just "too far away" for  $s$  to supervene on.

#### 4.3. Dispositional and psych-verbs

The discussion so far has mainly centered on *helfen*. I would like to finish this section by briefly considering a number of other verbs. As with *helfen*, uttering something like (27a) requires the identification of a domain. In this case the domain could be restricted to heart attacks or to freeway accidents. In the first case we could follow a causal chain from fast driving to getting tensed up, this leading to high blood pressure which in turn facilitates heart attacks. With respect to this domain, what *gefährden* 'endanger' tells us about this constellation is, firstly, that to get a heart attack was a lot more likely for Jamaal because he drove so fast. This might be guided by general considerations about Jamaal's proneness for

<sup>16</sup> In talking about "the result of causal reasoning starting with  $p$ " I am being admittedly and intentionally vague. More dispositional verbs in different contexts would have to be analyzed to specify this relation more precisely.

Furthermore, one might want to consider that at least with adjectival evaluative predicates as in *that they didn't freeze was good* the chain of causal dependencies has just one link, i. e.  $s$  supervenes directly on the event reported in  $p$ . That is to say, the event reported by the fact in subject position itself gets evaluated and not something that is caused by it.

Finally, as has been mentioned above, the idea that these chains consist of propositions which report only on events might be too strict. If propositions about states are taken into consideration, note that it is these states that are what get evaluated.

heart problems and generalizations about the relation between stress and heart attacks. Secondly, *gefährden* implies that whatever *p* (the expression in subject position) is likely to lead to is something negative. This makes *gefährden* an evaluative statement.<sup>17</sup> The likelihood that *x* telling *y* something funny will lead to *x* laughing does not license the use of *gefährden* since laughing is usually not considered to be something negative. Thus, (27b) will usually be interpreted as being ironic.

- (27) a. Dass Jamaal so schnell fuhr, gefährdete seine Gesundheit.  
 'That Jamaal drove so fast endangered his health'  
 b. Diese Show gefährdet ihre Lachmuskeln.  
 'This show endangers your laughing muscles'

Besides *gefährden* 'endanger', other dispositional verbs like *verbessern* 'improve', *erleichtern* 'facilitate', and *verschlechtern* 'worsen' also show an evaluative component which licenses a supervenience-based evaluation relation EVAL(*s,p*) in their lexical representation.

Another large group of verbs that often allow sentential subjects are psych-verbs. Although they do not involve an evaluative component, a requirement that they share with dispositional verbs is a form of complex reasoning which involves not only causal dependencies, but also dependencies that might be better captured by an analysis based on supervenience.

- (28) a. Dass Peter zugesagt hatte, freute Jamaal.  
 'That Peter had accepted (the invitation) pleased Jamaal / made Jamaal happy'  
 b. Dass sie den Antrag abgelehnt hatten, ärgerte Rebecca.  
 'That they had turned down the application angered Rebecca'

Talking about a big party and if it might become a success, the reasoning behind (28a) might involve a chain of events like the following: Peter will come to the party and might be the DJ which usually causes people to dance a lot. Again, while this reasoning might stretch to a dense chain of events, the relation between Peter's accepting the invitation and Jamaal's being pleased also involves an immediate step between two spheres of our conception of the world, namely between what happens on the level of perceptible events and the psychological states that relate to it. This again looks rather more like supervenience than causation.

If we look at different classes of verbs implying dependency relations of one sort or another, one might ask what actually licenses sentential subjects with these verbs. While on the one hand, dispositional and psych-verbs often allow sentential subjects, prototypical causative verbs as in *to dry a shirt*, *to empty a bottle*, or *to clean the table* don't. It seems that verbs allow sentential subjects if they involve (i) dependency relations that require complex reasoning and (ii) a step between two different "spheres of reality". Standard verbs of causation don't involve either.

<sup>17</sup> It should be noted that the causal reasoning with *gefährden* 'endanger' is different from the one with *helfen*. With *helfen*, the proposition *p* 'to be evaluated as 'good' is a fact causally related to *p* (the proposition in subject position), while with *gefährden*, the proposition *p*, which is evaluated as 'bad', is just said to be likely to occur because of a causal relation to *p*.

## 5. The relation between the sentential and agentive variant of dispositional verbs

5.1. The meaning of sentential *helfen*

The sentential variant of *helfen* translates into the representation in (29), i. e. *helfen* is a 3-place relation between a proposition  $p$  a beneficiary  $x$  and a state  $s$ , which holds with respect to a domain  $dom$ , such that (i)  $s$  is the state of  $x$  having the property of “goodness relative to some generic value statement”<sup>18</sup> to a degree that is higher than it is in a world  $w'$  in which  $p$  is not the case, and (ii)  $s$  is an evaluation of  $p$  in the sense of (25) and (26).

$$(29) \quad \lambda x \lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(x), \delta^{\text{GOOD/val}}(x)^{w'}, s) \ \& \ \text{EVAL}(s, p)]^{\text{dom}}$$

In a sentence like (30a) the semantic derivation consists of a successive combination of *helfen* with the object, the temporal adverbial and the sentential subject. The head of CP, as I will furthermore assume, can bind state or event arguments. Thus the CP of the matrix sentence will turn the state predicate into the proposition rendered in (30b).

- (30) a. Dass Rebecca Gadakhisch gelernt hatte, half Jamaal eine Zeitlang.  
 ‘That Rebecca had learned Gadakhian helped Jamaal for a while’  
 b.  $[\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^{w'}, s) \ \& \ \text{EVAL}(s, \text{rebecca-had-learned-gadakhian}) \ \& \ \text{FOR-SOME-TIME}(s)]^{\text{dom}}$

I furthermore assume that the adjective *hilfreich* ‘helpful’ gets exactly the same interpretation, the only difference being that the holder of the state is left implicit in most cases and can be contextually or generically bound.<sup>19</sup> That is to say *hilfreich* translates into (31b), such that (31a) is interpreted as (31c):

- (31) a. Dass Rebecca Gadakhisch gelernt hatte, war hilfreich.  
 ‘That Rebecca had learned Gadakhian was helpful’  
 b. *hilfreich*:  $\lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(x), \delta^{\text{GOOD/val}}(x)^{w'}, s) \ \& \ \text{EVAL}(s, p)]^{\text{dom}}$   
 c.  $[\text{HIGHER}(\delta^{\text{GOOD/val}}(x), \delta^{\text{GOOD/val}}(x)^{w'}, s) \ \& \ \text{EVAL}(s, \text{rebecca-had-learned-gadakhian}) \ \& \ \text{FOR-SOME-TIME}(s)]^{\text{dom}}$

5.2. The meaning of agentive *helfen*

What has been said so far, of course, does not yet account for the agentive variant of *helfen*, which refers to an event, not to a state, and which does not immediately provide the propo-

<sup>18</sup> It should be clear from the examples that in talking about value statements we are not talking about moral values. Moral values might be captured as a particular sort of such value statements but in general the value statements at stake with *helfen* and related verbs are a lot more mundane.

<sup>19</sup> The holder of the state can be realized using the preposition *für* ‘for’: *das war hilfreich für ihn* ‘that was helpful for him’. In this case we would have to assume a three-place variant of the predicate *hilfreich* identical to sentential *helfen*.

sition which constitutes the first relatum of the evaluation relation. I propose maintaining the assumption that the evaluation relation is central to the meaning of *helfen* and that all other variants of *helfen*, including the agentive one, recur to this relation. Thus, I will assume that (32a) can be paraphrased as (32b), where “*e* occurred with Rebecca as agent” is the additional information contributed by the agentive variant of the verb, *this* refers to “AGENT(x,e)”, and “this helped Jamaal” corresponds to the meaning of sentential *helfen*.

- (32) a. Rebecca half Jamaal.  
           ‘Rebecca helped Jamaal’  
       b. ‘*e* occurred with Rebecca as agent and this helped Jamaal’

Now, how can this interpretation be derived? Firstly, it can be observed that *helfen* is very generous as far as its valency pattern is concerned. Besides NPs referring to a human (33a) and fact-denoting CPs (33b), it allows NPs referring to things (33c), NPs referring to events (33d), NPs referring to facts (33e), and even infinitival clauses (33f) in subject position.

- (33) a. Rebecca half Jamaal. (NP ref. to a person)  
           ‘Rebecca helped Jamaal’  
       b. Dass Rebecca das Manuskript gelesen hatte, half Jamaal. (CP)  
           ‘That Rebecca had read the manuscript helped Jamaal’  
       c. Der Brief half Jamaal. (NP, ref. to a thing)  
           ‘The letter helped Jamaal’  
       d. Das Korrekturlesen half Jamaal. (NP, ref. to an event)  
           ‘The proof reading helped Jamaal’  
       e. Diese Tatsache half Jamaal. (NP, ref. to a fact)  
           ‘This fact helped Jamaal’  
       f. Das Manuskript gelesen zu haben half Jamaal. (infinitival clause)  
           ‘Having read the manuscript helped Jamaal’

It is obvious that the semantic range of subject referents is as broad as the syntactic options. In particular, the verb does not require an agent in subject position. I will discuss two options in dealing with this observation: a grammatical and a lexical one.

The grammatical solution would start from the observation that the semantic distribution with respect to the subject is widespread among dispositional and similar verbs and therefore assume the agentive reading is not primarily lexically driven. Taking into account what we know about the close relationship between agentivity and subject position, one could assume the following:<sup>20</sup>

(34) AGENT BY DEFAULT

If an NP in subject position has a human being as a referent and this referent is not assigned any particular role by the governing verb, it is by default interpreted as the agent of an event referred to by the governing verb.

<sup>20</sup> Cf. also Foley & Van Valin (1984:32) who assume with respect to verbs like *roll*, which allow volitional and non-volitional NP-referents in subject position, that volitional acting, i. e. agentivity, is inferred from the animacy of the subject referent.

This agent-by-default condition in combination with the assumption that the evaluation relation is at the heart of the semantics of all variants of *helfen* characterizes the agentive variant of *helfen*. I will assume that the following function is applied to sentential *helfen* to yield the agentive variant:

$$(35) \text{ agent-by-default: } \lambda P \lambda y \lambda e \exists s' [P(\text{AGENT}(e, y))(s') \ \& \ \text{AGENT}(e, y)]$$

This function achieves the following: (i) it turns the sentential state predicate into an event predicate, (ii) it marks the subject referent as the agent of this event, and (iii) it says that the proposition evaluated is “Rebecca does something”.

The derivation of (36a) now proceeds as follows: after *helfen* has combined with its object (and a possible temporal modifier), it expects a proposition (36b). The subject does not fulfill this expectation, though, thereby leading to a type clash. Thus, the subject cannot be assigned a role from the verb and since it is furthermore realized by an NP referring to a human, both conditions of AGENT-BY-DEFAULT are fulfilled. The AGENT-BY-DEFAULT function (as a type-shifting function) turns *helfen* into a predicate denoting a set of agent-event pairs (36c). This in turn combines with the subject yielding an event predicate (36d), whose event argument later gets bound by C.

$$(36) \text{ a. Rebecca half Jamaal.}$$

$$\text{'Rebecca helped Jamaal'}$$

$$\text{b. } \textit{helfen} \text{ Jamaal: } \lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s) \ \& \ \text{EVAL}(s, p)]^{\text{dom}}$$

$$\text{c. agent-by-default: } \lambda P \lambda y \lambda e \exists s' [P(\text{AGENT}(e, y))(s') \ \& \ \text{AGENT}(e, y)]$$

$$(\lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s) \ \& \ \text{EVAL}(s, p)]^{\text{dom}})$$

$$= \lambda y \lambda e \exists s' [\lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s) \ \& \ \text{EVAL}(s, p)]$$

$$(\text{AGENT}(e, y))(s') \ \& \ \text{AGENT}(e, y)]^{\text{dom}}$$

$$= \lambda y \lambda e \exists s' [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s') \ \& \ \text{EVAL}(s', \text{AGENT}(e, y))$$

$$\ \& \ \text{AGENT}(e, y)]^{\text{dom}}$$

$$\text{d. } \textit{Rebecca helfen} \text{ Jamaal: } \lambda y \lambda e \exists s' [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s')$$

$$\ \& \ \text{EVAL}(s', \text{AGENT}(e, y)) \ \& \ \text{AGENT}(e, y)]^{\text{dom}} (\text{rebecca})$$

$$= \lambda e \exists s' [\text{HIGHER}(\delta^{\text{GOOD/val}}(\text{jamaal}), \delta^{\text{GOOD/val}}(\text{jamaal})^w, s')$$

$$\ \& \ \text{EVAL}(s', \text{AGENT}(e, \text{rebecca})) \ \& \ \text{AGENT}(e, \text{rebecca})]^{\text{dom}}$$

The lexical solution to the variability in subject position would assume that the agentive variant is derived by a lexical rule before the verb enters the syntactic and semantic derivation. The semantic effect on the verb would be the same. The agentivization function in (37a) would turn stative *helfen* into its agentive variant:

$$(37) \text{ a. } \lambda P \lambda x' \lambda y \lambda e \exists s' [P(x')(\text{AGENT}(e, y))(s') \ \& \ \text{AGENT}(e, y)]$$

$$\text{b. } \lambda P \lambda x' \lambda y \lambda e \exists s' [P(x')(\text{AGENT}(e, y))(s') \ \& \ \text{AGENT}(e, y)]$$

$$(\lambda x \lambda p \lambda s [\text{HIGHER}(\delta^{\text{GOOD/val}}(x), \delta^{\text{GOOD/val}}(x)^w, s) \ \& \ \text{EVAL}(s, p)]^{\text{dom}})$$

$$= \lambda x' \lambda y \lambda e \exists s' [\text{HIGHER}(\delta^{\text{GOOD/val}}(x'), \delta^{\text{GOOD/val}}(x')^w, s') \ \& \ \text{EVAL}(s', \text{AGENT}(e, y))]$$

$$\ \& \ \text{AGENT}(e, y)]^{\text{dom}}$$

The grammatical solution might be preferable because the distribution pattern in (33) is very widespread among verbs that allow sentential subjects. It can also be found with *gefährden* 'endanger', *erleichtern* 'facilitate' and many others. But it is still subject to idiosyncrasies, which point to the lexical solution. E. g., the verb *freuen* 'please' does not allow agentive NPs, the verb *überraschen* 'surprise' is not acceptable with infinitival clauses, and so on. I am not aware of any solid generalization about this distribution.

Another argument might point in favor of the lexical solution. The derivation in (36) would lead us to expect that temporal modifiers, which appear below the subject, can attach to the state argument before the agent-by-default operation turns the stative into an event predicate. But with agentive *helfen* temporal modifiers like *for two hours* can only relate to the event and not to the evaluative state (cf. section 2.2).

Finally, there might be another lexical idiosyncrasy of the agentive variant of *helfen*. The agentive variant often carries an overtone that the improvement in Jamaal's life is due to the fact that whatever Rebecca did reduces the effort Jamaal has to put in for the attainment of some goal. That is to say that sentences like (36a) often carry the flavor of a comitative meaning. If that turns out to be right, it would clearly be a lexical peculiarity of this variant of *helfen* not shared with other dispositional verbs.

Thus, the agentivization of *helfen* looks more like a lexical than a grammatical process. But this still would have to hold against analyses of more verbs which show this alternation.

Before concluding this paper, I want to make some short remarks about the variants of *helfen* represented in (33c) to (33f). If a thing is referred to by the subject-NP instead of a person ((38b) vs. (38a)) we are still inclined to infer that an event occurred, in the case of (38b) for example an event in which the ointment got applied to wherever it was supposed to have a helping effect.

- (38) a. [Rebecca helped Jamaal → There is an event involving Rebecca]  
 b. [The ointment helped Jamaal → There is an event involving the ointment]

Example (39) reveals the difference between the two inferences by showing that the inference of the occurrence of an event is retained under negation in the second but not in the first sentence.

- (39) a. ¬[Rebecca didn't help Jamaal → There is an event involving Rebecca]  
 b. [The ointment didn't help Jamaal → There is an event involving the ointment]

Thus, while the agentive variant clearly refers to an event which is in the scope of negation in (39a), with the non-agentive variant of *helfen* in (39b), the occurrence of the event is just presupposed. A similar event presupposition is carried by the eventive variant of *helfen* in (33d); here it is the determiner that triggers the existence presupposition.

In summary, in neither the non-agentive variant (33c), the eventive variant (33d), the factive variant (33e), nor in the infinitival variant (33f) does *helfen* show any signs of event reference. In all these cases, the subject referent has to be reinterpreted with respect to an evaluation relation and the verb refers to a state.

## 6. Conclusion

The topic of this paper is one that looked rather easily manageable at first glance, but turned out to provide a number of hard nuts to crack. The major findings of this paper are: (i) the agentive variants of dispositional verbs refer to events while the sentential ones refer to states; (ii) the resultant evaluative state as part of the meaning of dispositional verbs involves relativization to a domain and a value-based mapping of individuals onto degrees; (iii) the relationship between this state and the fact expressed by the subject is not merely a causal one, but is also an evaluative one involving a relation of supervenience; (iv) the sentential variant of dispositional verbs is semantically basic and the agentive variant is derived by some agentivization function.

The scope of this paper was restricted to an analysis of *helfen* and a few related verbs. There are several reasons why the analysis adopted here holds promise for a broader based investigation of the semantic contribution of sentential subjects. Firstly, the analysis can be carried out within a framework that adheres to the basic assumptions of event semantics. Furthermore, it easily carries over from verbs with sentential subjects to adjectives that select CPs, which to my knowledge haven't been subject to an event-semantic analysis so far. Finally, the paper might be considered an invitation to think more about supervenience – which in philosophy has lately been given almost as much attention as causality – as a concept of some use in lexical semantics.

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