Capturing the interpretational possibilities of weak free adjuncts

Sarah Zobel, University of Tuebingen

The aim of this talk is to provide a unified analysis of the interpretational possibilities of weak free adjuncts adjoined to functional clausal projections (s. Stump 1985, Fabricius-Hansen & Haug 2012), as exemplified by the nominal *as*-phrases in (1).

(1) a. **As a child**, Peter had a cat. (temporal)
≈ When Peter was a child, he had ...

b. **As a blond woman**, Peter would look like his sister. (conditional)
≈ If Peter were a blond woman, he would ...

c. **As a mother**, Mary is competent with children. (causal)
≈ Because Mary is a mother, she is ...

To do so, we need to account for two interpretational aspects. First, the *as*-phrase provides additional information on an individual denoted by a verbal argument (predominantly the external argument), its associated constituent (= AC; underlined in (1)). Second, the *as*-phrase is able to function like a temporal, conditional, or causal adverbial clause without additional lexical marking. I argue that we can capture these two aspects with a **uniform semantics for *as*-phrases**. The different functions arise from **different adjunction sites**, where *as*-phrases combine with different expressions to yield different interpretations.

The *as*-phrase. *As* will be assumed to take a Small Clause (SC) as its argument – i.e., it behaves like a non-verbal copula (s. Stump 1985, Jäger 2003). This is motivated by the fact that the adverbial clauses in the paraphrases are nominal copular clauses. The subject of SC is a covert pronoun (*PRO*) which is controlled by the *as*-phrase's AC (captured by coindexation).

(2) $[_{asP}$ as $[_{SC}$ *PRO*$_i$ [Op$_{pred}$ XP]]] (XP is predominantly an indefinite DP)

Control into high-attaching adjuncts is discourse-governed control (≈ non-obligatory control, see Adler 2006) – the AC does not c-command *PRO* and we find strict readings in ellipsis and arbitrary control. The dependency is modelled via the assignment function. The indefinite article in XP is the same as found in nominal copular clauses and is semantically vacuous (see e.g., Heim & Kratzer 1998). The predication operator, Op_{pred}, denotes a function of type $\langle\langle e, \langle i, st\rangle\rangle, \langle e, \langle v, \langle i, st\rangle\rangle\rangle\rangle$: $Op_{pred}(XP)$ describes states of having the property denoted by XP at a time t in a world w. If we combine these ingredients, (2) receives the denotation in (3).

(3) $[\![(2)]\!]^{g,w,t} = \lambda t_i.\lambda w_s.\exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t \ \& \ [s : [\![\text{XP}]\!]^{g,w,t}(g(i))(t)(w)]]$

IN PROSE: $[\![(2)]\!]^{g,w,t}$ holds for a world w and a time t iff there is a state s in w for which the runtime of s includes t and s is a state of $g(i)$ having the property denoted by the XP in w at t.

Temporal interpretation (=(1-a)). Like cotemporal temporal adverbials, the *as*-phrase situates the topic time of the matrix verb as simultaneous to the runtime of the state that it describes. In (1-a), we learn that at a past time t', Peter was a child and had a cat. This is derived by adjunction of the *as*-phrase to AspP (for the hierarchy of functional phrases in a clause, I follow Beck & von Stechow 2015). There, it is able to access the topic time t' that is contributed by aspect (Asp). The sentence-initial position is derived via movement that is reconstructed at LF:

(4) $[_{TP}$ [PAST] $[_{AspP_2}$ $[_{asP}$ as PRO$_i$ Op$_{pred}$ a child] $[_{AspP_1}$ Asp $[_{vP}$ Peter$_i$ has a cat]]]]

The denotations of AspP$_1$ and the *as*-phrase in (4) are given in (5) & (6).

(5) $[\![\text{AspP}_1]\!]^{g,w,t} = \lambda t_i.\lambda w_s.\exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t \ \& \ \exists y[\text{has'}(y)(\text{Peter})(s)(t)(w) \ \& \ \text{cat'}(y)(t)(w)]]$

(6) $[\![\text{asP}]\!]^{g,w,t} = \lambda t_i.\lambda w_s.\exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t \ \& \ [s : \text{child'}(g(i))(t)(w)]] \qquad (g(i) = \text{Peter})$

I apply generalized Predicate Modification (PM) to conjoin (5) and (6). After applying [PAST] to the result (=AspP$_2$), we obtain the denotation in (7) for (1-a).

(7) $\lambda t_i.\lambda w_s.\exists t'[t' \leq t \ \& \ \exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t' \ \& \ \exists y[\text{has'}(y)(\text{Peter})(s)(t')(w) \ \& \ \text{cat'}(y)(t')(w)]]$
$\& \ \exists s'[s' \text{ in } w \ \& \ \tau(s') \supseteq t' \ \& \ [s' : \text{child'}(g(i))(t')(w)]]]$

IN PROSE: (7) holds for a world w and a time t iff there is time t' preceding t such that t' is included in the runtime of a state s of Peter having a cat in w and of a state s' of Peter being a child in w.

Conditional interpretation (=(1-b)). Like *if*-clauses, *as*-phrases can restrict the set of accessible worlds of an overt/covert modal operator (see i.a. Kratzer 1991). In (1-b), we learn that in all w-closest worlds w' in which Peter is a blond woman, he looks like his sister. I assume the syntax of conditionals in von Stechow 2004: the *as*-phrase adjoins to the free variable f_{cb} that contributes the conversational background (CB) for the modal. The modal WOLL is spelled out as *would* in the scope of [PAST] (e.g., Ippolito 2013). The LF for (1-b) is given in (8).

(8) $[_{TP}$ [PAST]$[_{IP}[[_X \ \text{f}_{cb} \ [_{asP}$ as PRO$_i$ Op a blond woman]] WOLL]$[_{AspP_1}$ Asp Peter$_i$ ...]]]

The variable f_{cb} contributes the accessible worlds relative to a given time. Like the *as*-phrase, it is of type $\langle i, st\rangle$. Hence, f_{cb} and the *as*-phrase can conjoin via generalized PM. The result of this operation is (9), the modified CB for WOLL ($g(i) =$ Peter). In all, (1-b) denotes (10).

(9) $[\![\text{X}]\!]^{g,w,t} = \lambda t_i.\lambda w_s.f_{cb}(t)(w) \ \& \ \exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t \ \& \ [s : \text{blond-woman'}(g(i))(t)(w)]$

(10) $\lambda t_i.\lambda w_s.\exists t'[t' \leq t \ \& \ \forall w''s.t.[\![\text{X}]\!]^{g,w,t'}(w'')(t') = 1$
$\exists s[s \text{ in } w'' \ \& \ \tau(s) \supseteq t' \ \& \ \text{looks-like'}(\text{Peter's-sister})(\text{Peter})(s)(t')(w'')]]$

IN PROSE: (10) holds for w and t iff there is time t' preceding t such that for all worlds w'' in which f_{cb} holds and there is a state s' of Peter being a blond woman at t', there is a state s in w'' at t' of Peter looking like his sister.

Causal interpretation (=(1-c)). In the causal cases, the *as*-phrases do not interact with operators that change either the evaluation time or world. For instance in (1-c), the topic time is identical with the utterance time (i.e., present tense) and there is no modal operator. I assume that causal *as*-phrases adjoin to TP, as in (11) – i.e., higher than IP or AspP and, hence, outside the scope of temporal and modal operators.

(11) $[_{TP_2} \ [_{asP}$ as PRO$_i$ Op$_{pred}$ a mother] $[_{TP_1}$ [PRES] $[_{AspP_1}$ Asp $[_{vP}$ Mary$_i$ is ...]]]]

The contribution of the *as*-phrase ($g(i) =$ Mary) in (11) conjoins with the denotation of TP$_1$ via generalized PM to yield (12) for (1-c): Mary is a mother and she is competent with children.

(12) $\lambda t_i.\lambda w_s.\exists s'[s' \text{ in } w \ \& \ \tau(s') \supseteq t \ \& \ [s' : \text{mother'}(g(i))(t)(w)]] \ \&$
$\exists t'[t' \circ t \ \& \ \exists s[s \text{ in } w \ \& \ \tau(s) \supseteq t' \ \& \ [s : \text{comp-w-children'}(\text{Mary})(t')(w)]]]$

IN PROSE: (12) holds for w and t iff there is a state s' of Mary being a mother at t and there is a time t' overlapping with t such that there is a state s in w at t' of Mary being competent with children.

The causal connection between the two conjuncts in (12) is inferred pragmatically: the proposition denoted by the *as*-phrase is linked to the proposition of its host sentence through the discourse relations *Explanation* or *Elaboration* (see Lascarides & Asher 1993).

Combined cases. The analysis given above straightforwardly captures the fact that in combined cases, like (13), the higher, sentence-initial *as*-phrase can only be interpreted causally while the lower, sentence-final *as*-phrase receives a temporal or conditional interpretation. It also captures the fact that co-occurring *as*-phrases cannot perform the same function.

(13) a. **As a shy person**, Peter was quiet **as a child**. (causal+temp)
b. **As a runner**, Peter would be successful **as a personal trainer**. (causal+cond)

Previous analyses. The behavior of weak adjuncts (incl. *as*-phrases) is discussed in Stump 1985 and Jäger 2003. While Stump (1985) assumes a unified analysis for *as*-phrases, he introduces special purpose rules to capture the temporal and conditional interpretations. In addition, the *as*-phrase subject is assumed to be existentially closed, i.e., the connection to the AC is not enforced (too weak!). Jäger (2003) briefly discusses cases like (1) but (like Stump) stipulates that the *as*-phrases in (1-a) and (1-b) are interpreted inside the restrictor of a temporal or conditional operator. Giving a unified semantics for *as*, using an established combination rule, and capitalizing the correspondence between syntax and semantics, the analysis presented above, therefore, improves on both previous analyses.

References:

Adler, Allison. 2006. *Syntax and Discourse in the Acquisition of Adjunct Control*. PhD Thesis: MIT, Cambridge MA. • Asher, Nicholas, and Alex Lascarides. 2003. *Logics of Conversation*. Cambridge University Press. • Beck, Sigrid & Arnim von Stechow. 2015. Events, Times and Worlds – An LF Architecture. In: Christian Fortmann & Irene Rapp (eds.), *Situationsargumente im Nominalbereich* [*Situational Arguments in the Nominal Realm*], de Gruyter. • Fabricius-Hansen, Cathrine & Dag Haug. 2012. *Big events, small clauses. The Grammar of Elaboration*. de Gruyter. • Heim, Irene & Angelika Kratzer. 1998. *Semantics in Generative Grammar*. Blackwell. • Ippolito, Michela. 2013. *Subjunctive Conditionals. A Linguistic Analysis*. MIT Press • Kratzer, Angelika. 1991. Conditionals. In: Arnim von Stechow and Dieter Wunderlich (eds.), *Semantik/Semantics. An International Handbook of Contemporary Research*, de Gruyter. 639–650. • Jäger, Gerhard. 2003. Towards an explanation of copula effects. *Linguistics and Philosophy* 26: 557–593. • von Stechow, Arnim. 2004. *Modale und Konditionale*. Lecture given in Vienna, Mai 2004. • Stump, Gregory. 1985. *The Semantic Variability of Absolute Constructions*. Dordrecht: Reidel.