Comments on Wagner's Paper

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1 Introduction

This is a commentary on Michael Wagner's paper 'Contrastive Topics Decomposed' (ms. Cornell/McGill 2008), which formed the basis for the second half of his UCL workshop presentation.

1.1 Three main claims of Wagner's paper

1. Contrastive Topic (CT) is an instance of *recursive focus*, or *nested focus operators*.

   Explains a lot of cross-linguistic distributional facts about CT.

2. The operator FOCUS, when used recursively, yields presupposition frames appropriate to model CT/F, e.g. for *on fityNINTH St. I bought SHOES*:

   - On 59th St. I bought x (focus frame)
   - At location l I bought x (CT frame)

   Required to make the first claim work.

3. Part of the pragmatics of CT is independently contributed by properties of the intonational tune (rather than the nesting of foci).

1.2 Goal of this Commentary

- Show some limitations of the FOCUS operator.
- Sketch an alternative implementation that yields the basic semantics proposed in Wagner's paper.

- Sketch a more radical alternative that yields more complex objects, namely sets of question meanings or *topic semantic values* as used in Büring (1997, 2003), but still does so by recursively embedding foci.

1.3 The FOCUS Operator in Action

(1) $\forall\sigma [\![\text{FOCUS}^C_\sigma]\!]^g = \lambda x_\sigma.\lambda P_{\sigma,st}.$there is an alternative $a \in g(C)$ s.t. $P(a)$ is salient and not entailed by $P(x) : P(x)$

(2) Q: What did you buy on 59th St.?
A: On /59th St. I bought SHOES\

(3) $[\lambda P1.\text{FOCUS}(\text{on 59th St.})(P1)]([\lambda x.(\text{FOCUS}(\text{shoes})(\lambda y.\text{I bought } y \text{ at } x)])$.

1.4 Alternative Implementation

Original:

(4) $\forall\sigma [\![\text{FOCUS}^C_\sigma]\!]^g = \lambda x_\sigma.\lambda P_{\sigma,st}.$there is an alternative $a \in g(C)$ s.t. $P(a)$ is salient and not entailed by $P(x) : P(x)$

Alternative I:

(5) for any type τ, any expression A of type `<τ,st>`, $[\![\text{FOC}^C \text{ A}]\!]^g_{\mathcal{O}} = \lambda\psi_\tau.$

a. there is some $a, a \in g(C)$ and $\boxed{a \in [\![\text{A}]\!]^g_{\mathcal{F}}}$ s.t. $a(\psi)$ is salient but doesn't follow from $[\![\text{A}]\!]^g_{\mathcal{O}}(\psi)$: (presupposition)

b. $[\![\text{A}]\!]^g_{\mathcal{O}}(\psi)$ (assertion)

c. $[\![\text{FOCUS}^C \text{ A}]\!]^g_{\mathcal{F}} = [\![\text{A}]\!]^g_{\mathcal{F}}$ (alternative projection)

Example:

(6) FOC [[On Fifty NINTH street]$_F$ [FOC [I bought [the SHOES]$_F$]]]

a. $[\![\text{I bought the shoes } t]\!]_{\mathcal{O}} = \lambda l.$I bought the shoes at l

b. $[\![\text{I bought the shoes } t]\!]_{\mathcal{F}} = \{\lambda l.\text{I bought } x \text{ at } l \mid x \in \text{ALT(the shoes)}\}$

c. $[\![\text{FOC [I bought the shoes } t]]\!]_{\mathcal{O}} = \lambda l.\exists a \in [\![\text{I bought the shoes } t]\!]_{\mathcal{F}}$, $a(l)$ is salient but not entailed by I bought the shoes at l.I bought the shoes at l

d. $[\![\text{on 59th St I bought the shoes}]\!]_{\mathcal{O}} = \lambda w.\exists a \in [\![\text{I bought the shoes } t]\!]_{\mathcal{F}}$, a(on 59th St) is salient but not entailed by I bought the shoes on 59th St.I bought the shoes on 59th St in w

e. $[\![$on 59th St I bought the shoes$]\!]_{\mathcal{F}} = \{\lambda w.$I bought x at l in $w \mid l \in ALT($on 59th St$)$, $x \in ALT($the shoes$)\}$

f. $[\![$FOC [on 59th St I bought the shoes$]\!]_{\mathcal{O}} = \lambda w.\exists a \in$ (6e)[a is salient and is not entailed by (6d).(6d)(w)

2 Limitation of the FOCUS Operator

2.1 Problem: Symmetrical Presuppositions

[$\lambda P1$.FOCUS(on 59th St.)($P1$)]([λx.(FOCUS(shoes)(λy.I bought y at x)]).

- Higher FOCUS says of $P1$ that it is true of 'on 59th St', and that it is salient for some other location $l*$
- Lower FOCUS says of x of that I bought the shoes there, and that for some other $z*$, it is salient that I bought $z*$ there.
- About 'on 59th St.' (assertion of higher FOCUS)
  - it is salient that I bought some other z' there (presup. of lower FOC)

    focus frame: *I bought $z*$ on 59th St.* GOOD!
  - it is true that I bought the shoes there (assertion of lower FOC)

    assertion: *I bought the shoes on 59th St.* GOOD!
- About some other location $l*$ (presup. of higher FOCUS)
  - it is salient that I bought some other $z*$ at $l*$ (pres. of lower FOC)

    CT frame: *I bought $z*$ at $l*$* GOOD!
  - it is salient that I bought the shoes at $l*$ (ass. of lower FOC)

    I bought the shoes at $l*$ NOT GOOD

2.2 Problem 2: Scope v. Focus of FOCUS

FOCUS plays a double role (well, triple, see below)

- marker of the focus (analogous to F-feature)
- operator introducing focus related meaning (analogous to focus sensitive particle)

(7) The RED shoes I bought in LONDON.

- FOCUS(the red shoes)(λx.FOCUS(in London)(λl.I bought x at l))
- the(λy.FOCUS(red)(λa.shoes(y) and $a(y)$))(λx.FOCUS(in London)(λl.I bought x at l))

(8) FOC [[the RED_{F} shoes] FOC [I bought $[\text{in LONDON}]_{\text{F}}$]]

2.3 Problem 3: Nested vs. Double Foci

Since FOCUS is its own focus operator, it obligatorily triggers the embedding (its third role). So whenever one focus c-commands the other, we get CT+F pragmatics.

(9) (In the end he married Kim,) but he had also PROPOSED to the YOUNGER sister.

(10) (I heard he married KIM?! — No,) he PROPOSED to the YOUNGER sister.

(11) FOC [he $\text{PROPOSED}_{\text{F}}$ to the $\text{YOUNGER}_{\text{F}}$ sister]

2.4 Problem 4: Distance

CT+F pragmatics only arises if the lower FOCUS operator has scope over the variable 'bound' by the higher one:

(12) [$\lambda P1$.FOCUS(on 59th St.)($P1$)]([λx.(FOCUS(shoes)(λy.I bought y at x)]).

(13) JOHN said that MARY won.

(14) FOCUS(JOHN)($\lambda x.x$ said that FOCUS(Mary)(won))

(15) P $\exists y[y$ said that Mary won is salient and not entailed by John said that Mary won
  P_{e} there is some x and that x won is salient and not entailed by that Mary won
A John said that Mary won
  P_{e} same as above

(16) FOC [John_{F} [FOC said that MARY_{F} won]]

3 Alternative II

3.1 The Idea

- F-marking introduces focus semantic values, as before, i.e. sets of ordinary values.
- An operator, NEST, turns a focus semantic value into a 'proto-CT-value', i.e. a singleton containing the FSV
- Subsequent (i.e. higher) foci now 'quantify into' this proto-CT-value to yield *bona fide* CT-values, i.e. sets of focus semantic values (sets of sets of ordinary values)

3.2 Implementation

STEP 1: Generalize function application to do pointwise combination of arbitrary depth (just to be safe, but see below):

(17) APP(a,b) is defined iff

a. a(b) is, or

b. if a,b are sets and APP(a',b') is defined, for some $a' \in a, b' \in b$

If defined, APP(a,b) =

a. a(b) if $b \in dom(a)$, else

b. $\{APP(a', b') \mid a' \in a, b' \in b\}$

STEP 2: NEST-operator, turns focus semantic values into 'proto-CT-values':

(18) NEST

a. $[\![\text{NEST A}]\!]_{\mathcal{O}} = [\![\text{A}]\!]_{\mathcal{O}}$

b. $[\![\text{NEST A}]\!]_{\mathcal{F}} = \{[\![\text{A}]\!]_{\mathcal{F}}\}$

STEP 3: Define LIFT operation that will serve to match a focus in a function expression with a proto-CT-value as its argument

(19) LIFT(A) = $\{\{a\} \mid a \in A\}$

a. e.g.: LIFT({a,b,c}) = {{a},{b},{c}}

STEP 4: Further generalize function application (APP from above) to lift the function where necessary to 'match' the argument:

(20) LAPP(A,B) =

a. APP(A,B) if defined, else
b. LAPP(LIFT(A),B)

(21) If A has daughters B, C, and $[\![A]\!]_{\mathcal{O}} = [\![B]\!]_{\mathcal{O}}([\![C]\!]_{\mathcal{O}})$, then $[\![A]\!]_{\mathcal{F}} =$ LAPP($[\![B]\!]_{\mathcal{F}}$,$[\![C]\!]_{\mathcal{F}}$)

3.3 An Example

(22) a. $[\![$I bought [the shoes]$_{\text{F}}$ $t]\!]_{\mathcal{F}}$ = $\{\lambda l.$I bought x at l | $x \in ALT$(the shoes)$\}$ = $\{\lambda l.$I bought the shoes at l, $\lambda l.$I bought the hat at l,...$\}$
b. $[\![$NEST [I bought...$]]\!]_{\mathcal{F}}$ = $\{\{\lambda l.$I bought x at l | $x \in ALT$(the shoes)$\}\}$ = $\{\{\lambda l.$I bought the shoes at l, $\lambda l.$I bought the hat at l,...$\}\}$

(23) $[\![$on 59TH St.$_{\text{F}}]\!]_{\mathcal{F}}$ = {on 59th St,. on 45th St, on Broadway,...}

NB: Before NEST applied to *I bought the shoes*, these two could have combined by APP, in particular (17b), to yield a 'flat' focus structure. But now, *on 59th St.* will have to go through LIFT:

(24) LAPP((23),(22b)) = LAPP(LIFT((23)),(22b))
a. LIFT({on 59th St,. on 45th St, on Broadway,...}) = {{on 59th St.}, {on 45th St.}, {on Broadway}, {...}}

APP(LIFT((23)),(22b)) is actually defined, so (24) = APP(LIFT((23)),(22b)):

(25) {{on 59th St I bought the shoes, on 59th St I bought the hat,...},{ on Broadway, I bought the shoes, on Broadway I bought a hat,...}, { on 45th St..., on 45th St...,...},...}

3.4 Some more properties of this system

- without a focus, one can apply NEST to add layers of {}, yieling singletons of singletons,...; LIFT does the same thing, so we simply create a set containing a singleton set
- LAPP is defined in such a way that only the scope taking element will be the 'higher' focus (the contrastive topic); this mimicks Wagner's system, though, like it, may on occasion not correspond to linear order. Details to be ironed out.
- Applying NEST within a functor expression yields no CT. In fact it only yields a result if the argument then also contains a NEST operator (a

singleton containing a 'flat' focus value). Otherwise it is undefined. Unclear whether that's good, bad, or doesn't matter.

- In principle, focus values can get infinitely 'deep', i.e. sets of sets of sets…; not too worried about this, since there's probably a limit to how deep a strategy the pragmatics can make use of.
- If more than one focused element operates on a constituent that contains NEST, but no additional NEST intervenes, the result is a 'flat' CT-structure, just like in my earlier work.

References

Büring, Daniel (1997). *The Meaning of Topic and Focus — The 59th Street Bridge Accent*. London: Routledge.

Büring, Daniel (2003). "On D-Trees, Beans, and B-Accents." *Linguistics & Philosophy* 26(5):511–545.