Vice versa as constrastive focus[*]
Matthew Wolf
University of Massachusetts Amherst
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1. Introduction

•Standard intuition about the meaning of *and vice versa*[1]:

(1)   *Examples of 'transposition'-based definitions for* vice versa
"With a reversal or transposition of the main items in the statement just made; contrariwise, conversely."
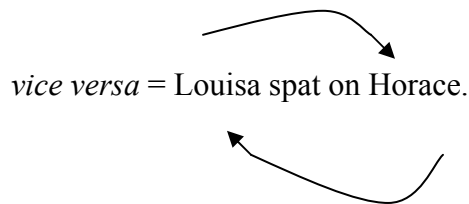(The *OED*: Simpson & Wiener 1989)

"The second sentence [which has been replaced by *vice versa*] must differ from the first in that two, and only two, noun phrases may have been interchanged."
(Fraser 1970: 277)

•The most accessible readings for *vice versa* do work this way:

(2)   Horace spat on Louisa, and vice versa.

vice versa = Louisa spat on Horace.

•Today's talk:

§2: Attested readings for *vice versa* go beyond those that can be modeled with an operation of 'transposition'

§3: The range of possible and preferred readings for *vice versa* can be accounted for using a Rooth (1985)-style analysis in terms of contrastive focus

[1] *Vice versa* has received relatively scant attention in generative linguistics; the only literature I know that deals primarily with *vice versa* are three squibs in the first two volumes of *Linguistic Inquiry* (Fraser 1970, McCawley 1970, Cantrall 1971). Discussion of *vice versa* also appears in Fillmore, Kay & O'Connor (1988) and Potts (2005).

§4: Experimental investigations of the '*vice versa*=contrastive focus' hypothesis (work in progress)

2. Beyond transposition

•Replacement of items by their 'opposite':

(3)   (a) The **larger** he [the pike] is, the **coarser** the food, and so *vice versa*.[2]
        […and the **smaller** the pike is, the **less coarse** the food.]

        (b) Generally, speakers seem to **raise** the larynx when **raising** F_0, and vice-versa.
        […and to **lower** the larynx when **lowering** F_0.][3]

        (c) If a **thicker** coat is desired, use **more** chocolate and vice versa.
        […and if a **thinner** coat is desired, use **less** chocolate.][4]

•Replacement of items by an alternative supplied by world-knowledge, but not syntactically present:

(4)   Just after the tsunami happened, remarkable stories emerged of cooperation between both sides. They described how **government soldiers**, who are mostly ethnic Sinhalese, went to the aid of the minority **Tamils** and vice versa.
        […and they described how **Tamil Tigers** went to the aid of **Sinhalese**.][5]

•Replacement of more than two items (also involving access to world-knowledge):

(5)   a. However, on an organizational level the parties are separate entitites - the **Bloc** is not simply the **federal** wing of the **Parti Québécois**, or vice-versa.
        […nor is the **Parti Québécois** the **provincial** wing of the **Bloc Québécois**.][6]

        b. **Chavez** will visit **Ahmadinejad** in **Tehran**, and vice versa.
        […and **Ahmadinejad** will visit **Chavez** in **Caracas**.]

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[2] From Best's *Angling* (1787), ed. 2, p. 42. Cited in the *OED* (Simpson & Weiner 1989), vol. XIX, p. 603. Brackets are the dictionary's.
[3] From my answer to question 10, take-home exam #1, Linguistics 614: Introduction to Phonetic Theory, Spring 2004, UMass. It should be noted that I produced this example prior to beginning work on this project and so this may be legitimately regarded as an example 'from nature.'
[4] From a recipe for chocolate-covered cherries by Jacques Torres, available online at http://www.foodnetwork.com/food/recipes/recipe/0,1977,FOOD_9936_18326,00.html. Thanks to Kristen Syrett for the example.
[5] All Things Considered, NPR, Jan. 14 2005. Transcript accessed via Lexis-Nexis Academic Universe.
[6] From a previous version of the English-language Wikipedia article on the Bloc Québécois: http://en.wikipedia.org/w/index.php?title=Bloc_Qu%C3%A9b%C3%A9cois&oldid=63911220. The sentence in question has since been edited to eliminate the use of *vice-versa*, indicating that at least one Wikipedia user was less than happy with this example of the construction.

•Summary:

> ➢An intuitive operation of 'transposing' two constituents can't handle all attested readings for *vice versa*.

> ➢But all attested readings involve taking two or more constituents of the clause coordinated with *vice versa,* and replacing them with some alternative.

•However: transposition readings are intuitively easier, and some speakers report that this is the only kind of reading that they can get for *vice versa*.

3. An alternative semantics for *vice versa*

•It looks like just about any alternative can be substituted for a given constituent of the clause coordinated with *vice versa*—but a reading where two of the replaced constituents replace one another is easier.

•Proposal:

> ➢The wide range of potential alternatives is made available by assuming that *vice versa* accesses the contrast sets of focused constituents within the clause it's coordinated with.

> ➢The preference for 'transposition' readings conforms to patterns that can be observed with contrastive focus in other situations.

•Specifically:

(6)   a. *Vice versa* denotes a free variable ranging over the members of the contrast set of the clause with which it is coordinated.
   b. *Vice versa* must be coordinated with a clause containing at least two contrastive foci.

•This generalizes to both 'opposites' and 'transpositon' readings:

(7)   a. i. Speakers [raise]$_F$ the larynx to [raise]$_F$ F_0, and vice versa.
      ii. $[\![$vice versa$]\!]$ = $[\![$Speakers lower the larynx to lower $F_0]\!]$.
   b. i. [Mary]$_F$ kissed [Susan]$_F$, and vice versa.
      ii. $[\![$vice versa$]\!]$ = $[\![$Susan kissed Mary$]\!]$

•Whence the preference for transposition readings?

•Other uses of focus involve ready accessibility of some notion of contrastiveness between two focused items which each appear in the contrast set of the other. Classic example from Rooth (1992), which "is to be thought of as the beginning of a joke":

(8)   An [American]$_F$ farmer was talking to a [Canadian]$_F$ farmer…

•No punchline given, but the humor of the joke would almost certainly have to rest on some observation about differences between Americans and Canadians.

•Rooth's explanation:

(9)   **Contrasting phrases.** Construe a phrase $α$ as contrasting with a phrase $β$, if $⟦β⟧^O$ ε $⟦α⟧^f$.

•*American* and *Canadian* both denote one-place properties, so each is in the contrast set of the other when it is focused.

•In *[Horace]$_F$ spat on [Louisa]$_F$ and vice versa*, the most accessible member of the contrast set is the preferred 'transposition' reading *Louisa spat on Horace*.

•Claim: this is because *Horace* and *Louisa*, since they are both focused, are each the most salient members of one another's contrast sets.

(10)
⟦Horace⟧^{f}={Rutherford, Victoria, **Louisa**, Ernest, Vivian…}

⟦Louisa⟧^{f}={Rutherford, Victoria, Ernest, **Horace**, Vivian…}

⟦Horace spat on Louisa⟧^{f}= {Rutherford spat on Vivian, Victoria spat on Ernest, Ernst spat on Rutherford, **Louisa spat on Horace**…}
                                        ↑
                                  vice versa

•Just as in (8), there is a pragmatic link between two focused constituents that are in the contrast set of the other.

•The same thing goes on in focus contexts other than ones with *vice versa*. Example from Ladd (1980):

(11)   Jóhn hit Bíll and then hé hit hím.

•Ladd: "one specific use of 'parallel' is 'reciprocal' or 'vice-versa'".

(12)

$[[\text{John}]]^f=\{$Mary, Eric, George, **Bill**, Alice, Andrea…$\}$

$[[\text{Bill}]]^f=\{$ Mary, Eric, George, Alice, **John**, Andrea…$\}$

$[[\text{John hit Bill}]]^f=\{$Mary hit Eric, Eric hit George, **Bill hit John**, Alice hit Bill …$\}$

↑
he hit him

•*Vice versa* and *he hit him* are both ambiguous, but the contrast relation between pairs of focused constituents renders particular members of the preceding clause's contrast set prominent, and these readings are assigned to the ambiguous item.

•However, conflicting pragmatic concerns can make other members of the contrast sets more prominent, as in non-transposition readings like (3)-(5).

4. Experimental evidence for thinking *vice versa* involves focus

3.1 The Co-arguments Preference Hypothesis

•Question: what will people do when confronted with a sentence like this?:

(13)   Timothy found out how Beatrice tricked Arthur, and vice versa.

•Which pair of names will people find it easiest to 'transpose'?

(14)   Beatrice found out how Timothy tricked Arthur.
        Timothy found out how Arthur tricked Beatrice.
        Arthur found out how Beatrice tricked Timothy.

•And that's to say nothing of readings that replace more than two names:

(15)   Arthur found out how Beatrice tricked Timothy.
        Beatrice found out how Arthur tricked Timothy.

•¿Intuition: *Timothy found out how Arthur tricked Beatrice* is the easiest reading to get when (13) is presented as text, where there are no phonetic cues to the placement of foci.

•Hypothesis:

(16)   *Co-arguments Preference Hypothesis*

        a. In the absence of prosodic cues to the location of focus in a clause coordinated with *vice versa*, speakers will preferentially assume a reading in which contrastive

foci are placed on co-arguments of a relation that forms a constituent in the semantic parse.

b. When presented with prosodic cues that place the foci elsewhere, speakers will readily access a reading for vice versa which 'transposes' the constituents that bear the foci.

3.2 Questionnaire evidence in favor of the Co-arguments Preference Hypothesis

•Subjects: 13 UMass-Amherst undergrads who received course credit for participating; all native speakers of English with no reported language-related disorders.

•24 *vice versa* stimuli, which were used as fillers surrounding questions being used in a study on the interpretation of 'each' and 'each other'. Each *vice versa* stimulus had the following form:

(17)
'Please read the following sentence.
[stimulus sentence]

Think about the sentence until the meaning of "and vice versa" in the context of this sentence is fixed in your mind.

Below are two meanings for "and vice versa" If one of them is the one you fixed upon just now, please circle it. If neither is, please write the meaning you fixed upon in the space provided. Also, for the given meaning(s) that you didn't circle, please circle Yes or No as to whether you think this would be a possible meaning for the "and vice versa."

[Paraphrase One]
Yes No

[Paraphrase Two]
Yes No

I got a different meaning:_____ '

•Stimuli were of three kinds:

➢Six sentences with three proper names, e.g.:

(18)   Bruce wondered what Sheila said about Keith, and vice versa.

➢Twelve sentences with a pair of co-argument DPs, one of which contained an embedded DP, e.g:

(19)   Mary liked John's neighbor, and vice-versa.

➢A third group of 6 *vice versa* stimuli was not analyzed because it consisted of an unbalanced group of items intended to test an earlier hypothesis.

•For embedded-DP stimuli (18), two kinds of readings were expected to be possible:

➢'Maximal' reading, which reverses the co-argument DPs:

(20)   **Mary** *liked* **John's neighbor***, and vice-versa.*
                →*…and* **John's neighbor** *liked* **Mary***.*

➢'Parallel' reading, which reversed the simple DP with the embedded DP:

(21)   **Mary** *liked* **John***'s neighbor, and vice versa.*
                →*…and* **John** *liked* **Mary***'s neighbor.*

•Results for embedded-DP stimuli: 108 observations (9 subjects X 12 stimuli).

•Subjects indicated the maximal reading as their preferred reading 102 times, and the parallel reading 6 times. None of the 9 subjects ever indicated that the meaning that came to them first for any of these stimuli was a different one from the two offered.

•Thus: a near-uniform preference for reversing co-arguments.

•For three-names sentences, two types of readings were offered:

➢*2,1,3* reversal, 'swapping' the first two names:

(22)   **Bruce** *wondered what* **Sheila** *said about Keith, and vice versa.*
                →*…and* **Sheila** *wondered what* **Bruce** *said about Keith.*

➢*1,3,2* reversal, 'swapping' the second two names:

(23)   *Bruce wondered what* **Sheila** *said about* **Keith***, and vice versa.*
                →*…and Bruce wondered what* **Keith** *said about* **Sheila***.*

•54 observations (9 subjects X 6 stimuli):

(24)

Response		# of subjects	% of subjects
Offered readings	1,3,2	13/54	0.240
	2,1,3	33/54	0.611
Readings volunteered by subjects	3,2,1	7/54	0.129
	2,3,1	1/54	0.018

•A two-tailed *t*-test reveals a highly significant preference for *2,1,3* readings ($t = -4.41$,

p < 0.001)

•For all stimuli (except one—the last one listed in the Appendix) of the type in (18), a preference for a *2,1,3* reversal corresponds to a preference for reversing names that are co-arguments of a constituent-forming relation.

•Tentative intermediate conclusion: with *vice versa* sentences presented as text (with no phonetic cues to focus location), in isolation (with no discourse context to create a preference for a particular reading), subjects prefer readings that 'swap' DPs which are co-arguments of a constituent-forming relation.

3.3. Can manipulating accent placement override the co-arguments preference?

•Contrastive focus in English is typically associated with a pitch accent.

•If *vice versa* involves contrastive focus on the items that participate in the 'swapping', then with auditorially-presented stimuli, we might expect a preference for readings which swap a pair of accented items.

•Goal: show that accent placement can override the preference for reversing co-arguments.

> ➢Accenting a pair of DPs that aren't co-arguments should result in a preference for 'swapping' those two DPs.

> ➢Manipulating pitch-accent placement is known to override default preferences in other focus-sensitive configurations (e.g. Frazier & Clifton 1998 on sluicing)

•*Subjects*: 35 UMass-Amherst undergrads who participated in exchange for course credit; one had been in speech therapy as a child but none reported any adult hearing- or language comprehension-related disorders.

> ➢7 subjects were excluded from analysis (3 non-native speakers; 2 reported in debriefing that they ignored audio and attended only to text; 2 had data spoiled due to software problems)

•*Stimuli*: Two groups of 8 sentences each. All sentences contained three names. In one group the first two names were co-arguments, e.g.:

(25)   At the conference Christopher told Yvonne his opinion of Ricardo, and vice versa.

•…and in the other group, the second two names were co-arguments, e.g.:

(26)   It seems that Ophelia wants to know why Martin insulted Gregory.

•Two versions of each sentence were recorded: one with accents on the first two names and one with accents on the second two names.

(27)   *Consistent intonation*:
               It seems that Ophelia wants to know why **Martin** insulted **Gregory**.
         Inconsistent intonation:
               It seems that **Ophelia** wants to know why **Martin** insulted Gregory.

•That is: for each sentence there was one version where the reversal preferences expected on the basis of accentuation matched those based on structure (=co-arguments preference), and one where accent and structure exerted different preferences.

•*Conditions*: Two conditions. In each, subjects heard half of the items in each group of 8 sentences with consistent accentuation (accent matched structure) and the other half with inconsistent accentuation (accent and structure predict different preferences).

•Sentences heard in the consistent version in condition 1 were heard in inconsistent version in condition 2, and vice versa.

•*Method*:
   ➢16 items and 32 fillers, divided into four blocks with a break between each.

   ➢Randomized order of presentation within blocks.

   ➢Each item began with the experimenter speaking the sentence, simultaneous with presentation of the sentence as text.

   ➢1000ms after the conclusion of the audio, a prompt appeared asking the subject to 'Please fix in your mind a paraphrase for […]' with an ambiguous portion of the sentence occupying the place of the ellipsis.

   ➢3000ms later: 'Which of the following sentences best fits the paraphrase you arrived at?'

   ➢Two sample paraphrases and 'neither' presented on screen, in colored text; subjects responded by pressing matching-colored key.

   ➢Offered paraphrases for *vice versa* stimuli were always *2,1,3* and *1,3,2* reversals

•Results:

(28)   *Proportion of 2,1,3 responses for accent/structure combinations*

		Accent (=which names are accented)	
		1,2	**2,3**
Structure (=which names are co-arguments)	**1,2**	58/112 = 0.517	60/112 = 0.535
	2,3	27/112 = 0.241	17/112 = 0.151

•A mixed-design ANOVA on *2,1,3*-responses was performed, with the order-of-presentation condition as the between-subject independent variable and accent-location and structure as within-subject independent variables.

•No significant effect of condition ($F(1,26) = 0.759$, $p = 0.392$)

•No significant 2-way interactions with the within-subject variables:

> ➤ For structure X condition: $F(1,26) = 0.357$, $p = 0.550$;
> ➤ For structure X accent: $F(1,26) = 0.280$, $p = 0.601$).

•However, there was a marginally significant 3-way structure X accent X condition interaction ($F(1,26) = 3.545$, $p = 0.071$).

•There was a highly significant effect of structure ($F(1,26) = 55.790$, $p < 0.001$)—consistent with questionnaire evidence for CAH from previous subsection.

•But no significant effect of accent location ($F(1,26) = 1.118$, $p = 0.300$).

•So is the '*vice versa* = focus' hypothesis disconfirmed?

•The structure X accent interaction was marginally significant ($F(1,26) = 3.545$, $p = 0.071$).

•This conforms with impressionistic observations that can be made from table (28):

> ➤ For stimuli with *1,2* structure, the placement of accent has little effect on the proportion of *2,1,3* responses given (0.517 with *1,2* accent vs. 0.535 with *2,3* accent)

> ➤ For stimuli with *2,3* structure, there are more *2,1,3* responses when there is *1,2* accent (0.241) than when there is *2,3* accent (0.151)

•Is there any reason to think that accent-location might be able to overcome the co-arguments preference in *2,3* structures only?

•Speculation (to be tested in future experiments): late material is often new information, hence likely to carry informational focus.

•When a *2,3* accent pattern appears on a *1,2* structure, hearers interpret these late pitch accents as reflexes of informational focus, rather than of the contrastive focus associated with the *vice versa* construction.

•Subjects then posit (phonetically unrealized) contrastive foci on names 1 and 2, yielding the *1,2* reading preferred on structural grounds.

•Hence, for *1,2* structures, manipulation of accent placement has little effect on the preferred interpretation.

•For *1,2* accents placed on a *2,3* structure, this interpretation of the focal accents as informational rather than contrastive focus is unavailable.

•Hence subjects may posit contrastive foci on the first and second names, yielding a *2,1,3* reading.

•Where to go from here: see if the hypothesized strategy of reinterpreting the *2,3* accents as informational focus can be suppressed by placing stimulus sentences within a discourse that makes the second two names old information.

•Related concern: Selkirk & Katz (2005) argue that there phonetic differences between the reflexes of contrastive vs. informational focus in (American) English.

  ➢This may sully the plausibility of the accent-reinterpretation hypothesis.

5. Summary

•When *vice versa* is coordinated with another clause, *vice versa* always denotes a member of the focus constrast-set of the overtly-present clause.

•The range of potential readings for *vice versa* is arguably at least as large as that contrast set; the (singleton) set of alternatives yielded by an intuitive operation of 'swapping' is definitely insufficient.

•The experimental results reported here provide tentative support to the idea that the semantics of *vice versa* involve contrastive focus.

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Appendix: Stimuli

a. Questionnaire

•Embedded-DP sentences:

(29)   Mary liked John's neighbor, and vice-versa.
The barber's assistant fills in when the masseur is on vacation, and vice versa.
The judge's secretary dislikes the coroner, and vice versa.
Norman wrote about Francine's cousin, and vice versa.
Bianca's advisor doesn't trust Frank, and vice versa.
Bill enjoys hearing about Laura's co-worker, and vice-versa.
Jerry's sister admires Samantha, and vice versa.
Carrie's neighbor saw Dave on TV, and vice versa.
The colonel is tired of lunching with the admiral's accountant, and vice versa.
The pitcher's trainer isn't very nice to the shortstop, and vice versa.
The Frenchman is eager to meet the Swede's hairdresser, and vice versa.
The chemist proofreads for the astronomer's student, and vice versa.

•Three-names sentences:

(30)   Bruce wondered what Sheila said about Keith, and vice versa.
         Bill told Yvonne his opinion of Carl, and vice versa.
         Peter mentioned Erica when talking with Lucy, and vice versa.
         Floyd wants to discuss Rebecca with Liam, and vice versa.
         Robin criticized Henry in front of Anna, and vice versa.
         Alice prefers that Ryan do the review on Dorothy, and vice versa.

b. Experiment

•Expected 2,1,3 preference:

(31)   a. At the conference Christopher told Yvonne his opinion of Ricardo, and vice versa.
         b. Last week Annabel mentioned Erica when talking with Lucy, and vice versa.
         c. Between meetings Madeline criticized Henry in front of Anna, and vice versa.
         d. Last month Isidore described Jonathan for Heather, and vice versa.
         e. On Tuesday, Victoria waved to Rosalyn while waiting for Jeffrey.
         f. Recently Benjamin paged Rebecca while speaking with Larry, and vice versa.
         g. Over break Dorothy looked up Morris for Brenda, and vice versa.
         h. At the annual meeting Suzanne applauded Veronica at Norman's behest, and vice versa.

•Expected 1,3,2 preference:

(32)   a. Last Friday Timothy found out how Beatrice tricked Arthur, and vice versa.
         b. It seems that Ophelia wants to know why Martin insulted Gregory, and vice versa.
         c. According to rumor Geraldine suspects that Meredith will yell at Phillip, and vice versa.
         d. Two days ago Xavier proposed that Francesca evaluate Elizabeth, and vice versa.
         e. This month Zachary wonders what Sheila said about Kevin, and vice versa.
         f. Yesterday Anthony asked whether Maria met with Thomas, and vice versa.
         g. Last week Cassandra expected that Jillian would rebut Nathaniel, and vice versa.
         h. Increasingly Jennifer wishes that Kathleen would praise Albert, and vice versa.

Department of Linguistics
226 South College
University of Massachusetts
Amherst, MA 01003
mwolf AT linguist DOT umass DOT edu