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The Strategic Formulation of Abductive Arguments In Everyday Reasoning

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Abstract: Everyday abductive arguments often exhibit a weak relation between the premise and the conclusion, i.e., when the inference conveys the arguer's individual interpretation of reality. After all, what seems obvious to the arguer may look far-fetched to an opponent. In this paper some presentational devices are examined that contribute to an arguer's rhetorical goal of presenting the argument in such a way that the conclusion is suggested to follow logically from the premise(s).

Key words: abduction, explanation, inference to the best explanation, presentational device, strategic manoeuvring

1. Introduction

Abductive arguments are generally known as arguments in which the premise states an observed fact and the conclusion offers an explanation for that fact. One could also describe them as 'reasoning from effects to causes' (Aliseda, 2006, p. 28). It is often said that abductive arguments are characteristic of making a diagnosis of a patient's condition, for explaining the evidence in a criminal case and for scientific reasoning. However, not much attention has been paid to the fact that these arguments are also a common phenomenon in everyday reasoning, when arguers present their view on how the world operates. Consider the examples below:

(1)   It must be about the money. LeAnn has it, Brandi doesn't. How else do you explain why he would choose ugly Leanne over gorgeous Brandi.

> Gossipcop.com, 14 May 2012, reply to 'Brandi Glanville: "I was going to kill";
> http://www.gossipcop.com/brandi-glanville-kill-leann-rimes-soccer-australia-nw-hq-magazine/

(2)   (…) the clues of a person's nature can be found in her/his face. [W]hy else would we have different faces other than to advertise our nature?

> Hubpages.com, 2010, reply to 'Can you judge a person by his or her looks?';
> http://hubpages.com/forum/topic/41546

The first example concerns a post in response to an item describing how celebrity Brandi Glanville feels since her (now ex-)husband started a relationship with LeAnn Rimes. The observed fact that the husband did this, is explained by the husband's desire for money which would have motivated him to start this affair. In argument (2) the observed fact that no face is alike elicits the arguer's explanation that facial appearances reflect character traits.

As the above arguments show, everyday abductive arguments often exhibit a weak relation between the premise(s) and the conclusion, as they convey an arguer's individual interpretation of reality. The problem is that what seems obvious to the arguer may look dubious

or even far-fetched to an opponent. For this reason, and from the perspective of an arguer's rhetorical goal, a proponent is supposed to put effort in formulating the argument in such a way that the conclusion is suggested to follow inevitably from the premise(s). In other words: a proponent is expected to use certain linguistic means that enhance the chances for an argument being effective. The 'How else do you explain' phrase in example (1) and 'Why else would' phrase in example (2) can be considered as linguistics means that are opportune for the presentation of abductive argumentation. As my research is embedded in the theoretical framework of strategic manoeuvring I will consider the use of such linguistic means as 'presentational devices' (van Eemeren, 2010, p. 94 ff.).

This paper examines how sentences starting with 'how else can you explain' or 'why else' and related phrases enable an arguer to strategically present an abductive argument.[1] To this end I will firstly elaborate on the concept of abductive argumentation and how it is discussed in the literature. Then I will introduce the kinds of expressions that can be used for a strategic presentation of this type of argumentation. Finally, it is shown in what way they are strategic.

2. Abductive argumentation

2.1. Abduction, causality and inference to the best explanation

Abductive argumentation is often considered as a 'third category' of argument (Walton, 2004, p. 1; cf. Pierce, 1965V), that is: a form of argument of which the inference is neither deductive nor inductive. While a deductive inference allows a conclusion to be drawn with certainty and an inductive one with probability, authors are at pains in trying to characterize the type of inference drawn in an abductive argument. Walton (2004) characterizes the type of inference of an abductive argument as *plausible*: "In an abductively weighty inference, it is implausible that the premises are true and the conclusion false" (p. 3). This means that, according to Walton (2004), in contrast to a deductive argument, in an abductive argument the general rule connecting the premise with the standpoint allows for exceptions, and in contrast to an inductive argument, it is not known how many exceptions there are (pp. 4-5). Instead, plausibility means that the generalization on which the argument is based 'holds only for normal or familiar cases' (Walton, 2004, p. 5), i.e., it states how 'things can normally be expected to go in a familiar kind of situation' (Walton, 2004, p. 4).

Well-known examples of abduction are found in the legal, the medical and the scientific field. While investigating a crime, police officers make an inventory of tracks and other signs in order to make up a hypothesis about the most likely account of the course of events having led to the crime. A doctor is examining a patient's symptoms in order to deduce a diagnostic hypothesis about the most likely cause of these symptoms. A scientist tries to find the most encompassing explanation for an observed phenomenon, for example for a planet moving a direction that goes against the implications of current scientific models.[2] According to Walton (2004), the standpoint of an abductive argument is an 'intelligent guess', but still a guess because it is tied to an incomplete body of evidence (p. 3). For this reason, abductive inferences are 'defeasible':

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[1] This paper is part of a project in which I examine several presentational devices for symptomatic argumentation; see a.o. Jansen (2008; 2011; to appear).

[2] See both Aliseda (2006, p. 30) and Wagemans (2013) for examples taken from astronomy; see Walton (2004, p. 5) for an example from archeology.

When new information comes in, it can undermine an earlier explanatory conclusion and lead to a new hypothesis (Walton, 2004, p. 26).

From the viewpoint of formal logic, abductive arguments exhibit the reasoning pattern of affirming the consequent (a.o., Walton, 2004, p. 11; Wagemans, 2015, p. 1). This can be demonstrated by an argument in which a medical diagnosis is presumed on the basis of a patient's symptoms:

> It is observed that the child has a blocked nose, swollen eyelids, a cough and small greyish-white spots in her mouth *(q)*
> It is a general rule that the measles cause these symptoms *(If p, then q)*
> Conclusion: there is reason to suspect that the child has the measles *(p)*

This argumentation structure—which Walton (2004) calls a 'reverse *modus ponens* inference' (p. 14)—reflects the idea that the process of abductive reasoning can be called 'retroductive inference' or 'retroduction' (Walton, 2004, pp. 17-18; Walton, Reed, & Macagno, 2008, p. 171) or 'backwards deduction' (Aliseda, 2006, p. 34 ff.). The structure of affirming the consequent also comes to the fore in Wagemans' pragma-dialectical formalization of abduction (2013, p. 14). It is only the order in which the argumentative elements are put that makes Wagemans' (2015) version different from the one above, because it starts with the conclusion instead of ending with it:

> 1.   *A* is true *(p)*
> 1.1   *C* is observed *(q)*
> 1.1' *A* explains (or causes) *C* *(If p, then q)*

In this analysis (1) is the standpoint (conclusion), (1.1) the premise (the observed fact) and (1.1') the unexpressed premise containing the general rule which explains the effects expressed in the premise by the cause expressed in the standpoint.[3] In the pragma-dialectical theory of argumentation an argument structure like this embodies the 'reverse' variant of causal argumentation (van Eemeren, Houtlosser, & Snoeck Henkemans, 2007, p. 165).[4]

It seems to be generally acknowledged that abductive arguments are based on an underlying causal rule, even when they are classified as arguments from sign. Walton (2004) claims that symptomatic argumentation is abductive in nature (p. 42); Walton, Reed & Macagno (2008) write that "argument from sign would be closely associated with abductive inference, so closely that it is hard to separate the two" (p. 169 ff.). In order to link this concept to causality, they cite Hastings (1963, p. 143 ff.) who seemed to be of the opinion that argument from sign, and also, for that matter, argument from evidence to hypothesis, are at least often based on an underlying causal relation from effect to cause (as cited in Walton et al., 2008). To demonstrate the connections between abduction, sign arguments and causality they discuss an example concerning the observation of tracks that look like they were made by a bear. These tracks may function as a sign that invoke the abductively drawn conclusion that a bear passed this way (Hastings, 1963, p. 170 ff., as cited in Walton et al., 2008). Walton et al. (2008) characterize this

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[3] See for the pragma-dialectical formalization of the elements of an argumentation structure van Eemeren & Grootendorst (1992) or van Eemeren, Grootendorst & Snoeck Henkemans (2002).
[4] The reasoning in this argument goes from effect to cause, which contrasts to the prototypical variant of causal argumentation where the reasoning goes from cause to effect.

example as both an abductive argument and a sign argument, both of which would be based on an underlying causal rule, i.e., 'a bear passing by caused the tracks'.

Notwithstanding the agreement in the literature on the above description and analysis of abduction, it is claimed by several authors that its concept captures more. Abduction would not only see to merely finding an explanation, but also to finding an explanation that is the best. In this sense, abductive arguments are equated with inference to the best explanation (IBE). Following Aliseda (2007; 267), Wagemans (2015) explains the interpretation of abduction discussed so far (the 'traditional interpretation') and IBE as follows. The traditional interpretation of abduction concerns the 'generative' version, which reflects the process of generating a hypothesis that can explain the observed facts. The second interpretation, IBE, is called the 'selective' interpretation, which focuses on the process of selecting the best hypothesis amongst several potential candidate hypotheses. In the literature on abduction there is wide agreement that the concept of inference to the best explanation (IBE) is included in an abductive argument (Wagemans, 2015, p. 3).

If the element of providing the best explanation instead of merely an explanation is part of abduction indeed, this has consequences for the formalization of this kind of argument. Below it is shown how Wagemans combines the generative and the selectional aspect of abductive arguments in an encompassing account of abductive argumentation, presented as an argumentative pattern:[5]

> 1.   It may be hypothesized that Xi
> 1.1   It is observed that Y
> 1.1' Of possible explanations X_1-Xn, Xi is the best explanation of Y
>   1.1'.1 Xi meets criteria C_1-Cn with scores S_1-Sn
>   1.1'.1' Decision rule R applies (2015, p. 6)

According to Wagemans (2015), the main argument in this reconstruction, consisting of standpoint (1), premise (1.1) and unexpressed premise (1.1'), embodies the generative part of abduction, in which a hypothesis is generated, i.e., hypothesis Xi. The subargumentation, consisting of (1.1'), (1.1'.1) and (1.1'.1'), stand for the selective part. In this subargument, (1.1') functions as a substandpoint, presenting the best explanation (Xi) that was chosen from a range of candidate explanations. This substandpoint is supported by both a premise providing the criteria accounting for the choice of Xi (1.1'.1), and by the justificatory power of these criteria (1.1'.1'). The justificatory power is reflected in the decision rule that justifies the application of the criteria.

2.2. Everyday abductive argumentation

Some authors acknowledge that abductive arguments often occur in everyday argumentation (Walton, 2004, p. 6; Aliseda, 2006, p. 28); 'common sense abductive arguments' may be a more appropriate term for this phenomenon (Aliseda, 2006, p. 28 ff.). The examples they come up with show interpretations of situations on the basis of what we know about the 'physical' aspects of the world. Such an example is that when we get up in the morning and see that the lawn is

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[5] An argumentative pattern "is characterized by a constellation of argumentative moves in which, in order to deal with a particular kind of difference of opinion, in defence of a particular type of standpoint. A particular argument scheme or combination of argument schemes is used in a particular kind of argumentation structure" (van Eemeren, 2016, p. 14).

wet, we may explain this observation by assuming that we left the sprinklers on (Aliseda, 2006, p. 28 ff.). Walton (2004) cites a dialogue described by Josephson and Josephson (1994, p. 6) in which an explanation is sought for the dashboard sign indicating that the gas gauge is nearly empty:

> *Joe:* Why are you pulling into this filling station?
> *Tidmarsh:* Because the gas tank is nearly empty.
> *Joe:* What makes you think so?
> *Tidmarsh:* Because the gas gauge indicates nearly empty. Also, I have no reason to think that the gauge is broken, and it has been a long time since I filled the tank.
> (as cited in Walton, 2004, p.7)

Indeed, these examples certainly reflect the way we could argue in our daily routine, although the above example sounds rather artificial as it is not very likely to immediately think of other causes than an empty tank when the gas gauge indicates it is nearly empty.[6]

A kind of abductive argument that often occurs in everyday reasoning is example (1), where a state of mind (money inspired intentions) is deduced from a person's actions (starting an extramarital affair).[7] This kind of argument is discussed in the literature on abduction indeed, albeit not as everyday abductive arguments but as arguments that play an important role in criminal cases; they are studied from the perspective of artificial intelligence in law. Bex, Bench-Capon and Atkinson (2009) describe arguments like (1) as "abductive practical reasoning" in which an agent's actions are considered as inspired by "the motivational preferences we believe the agent to have" (p. 80). Walton (2011) speaks about "reasoning backward from action to inferred motive", which he calls "teleological argumentation to motives" (p. 203). Arguments in which a psychological state is attributed to a person on the basis of his actions are considered as one of the means to create a plausible story of if, why and how the crime at hand was committed. According to Bex et al. (2009), an account of events that may have led to a crime cannot solely be based on causal relations between events that are of a physical nature; causality related to choices made by the agents should also play a role.

The authors recognize the difficulty of ascertaining causal links that are of a psychological nature. As Walton (2011) remarks, a person's motives, intentions or desires are not themselves observable: their existence can only be presumed indirectly from observing someone's actions or speech. However, one can never be certain whether the observed action or speech was indeed incented by the presumed motivation and not by some other motivation. It is for this reason that arguments in which a state of mind is deduced from a person's actions are

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[6] One could object that the wet lawn-example is reasoning rather than argumentation: it is how we make deductions in our head. Be that as it may, we could easily imagine how the abduction in this example could function in a discussion as a reason put forward by an arguer to defend a claim: *A:* 'It looks like it rained tonight.' *B:* 'I don't think so, the weather forecast did not mention any rain. Presumably we left the sprinklers on.'

[7] Elsewhere and from another perspective, I have described arguments in which a person's state of mind is deduced from his or her actions in more detail (Jansen, 2011). I showed the link between these arguments and the classical rhetorical concept of *eikos*-arguments, to which the abductive notion of plausibility in terms of "how things can normally be expected to go in a familiar kind of situation" (see Jansen, 2011, section 2.1) is particularly applicable. Furthermore, I discussed this type of argument in relation to the presentational device of a counterfactual formulation generating a *modus tollens* argument. See Jansen (2015) for a more elaborate account of arguments in which a conclusion is drawn from a person's actions.

approached as inference to the best explanation. In doing so, the conclusion about an agent's motivation can be considered as a hypothesis about the belief, intention or desire that led to the action. That is, in such an approach these arguments should be evaluated by weighing and balancing competing motivational explanations. This asks for an evaluation procedure offering critical questions that should bring to light whether the explanation offered is the best explanation indeed. Bex et al. (2009) offer several critical questions, adopted by Walton (2011, p. 220-221), asking if there is something that takes away the motivation, whether there is another motivation which is a deterrent for doing the action, etc. (Bex et al., 2009, p. 84). These questions offer a means by which the explanation offered can be judged as a more or less plausible explanation of the facts.

3. Presentational devices for abductive arguments and their strategic potential

The presentational device that is used in example (1), repeated below, makes use of the verb 'explain' and therefore literally labels the type of argument as an abductive one:

(1)   It must be about the money. LeAnn has it, Brandi doesn't. <u>How else do you explain</u> why he would choose ugly Leanne over gorgeous Brandi.

> Gossipcop.com, 14 May 2012, reply to 'Brandi Glanville: "I was going to kill";
> http://www.gossipcop.com/brandi-glanville-kill-leann-rimes-soccer-australia-nw-hq-magazine/

One can think of several instantiations of formulations using the verb 'explain'; in the example phrases below X stands for the observed fact functioning as the premise:

> How else can/could/do we/you (possibly) explain (that) X?
> How otherwise can/could/do we/you (possibly) explain (that) X?
> How else/otherwise can X (possibly) be explained?
> We/you cannot otherwise explain (that) X
> X can only be explained in that way/in terms of Y

In these patterns 'explain' could be substituted by a verb with a synonymous meaning, for instance 'rationalize': 'How else can you possibly rationalize that […]?' That an argument is put forward in which in explanation is offered for an observed fact can, of course, also be achieved with a formulation containing the noun 'explanation':

> Can/could there be another explanation that X?
> What other explanation can/could there (possibly) be?
> There is no other (possible) explanation that X
> There can be no other explanation that X
> There cannot be another explanation that X

In these phrases 'explanation' can be substituted by the noun 'reason', which can be considered in the argumentative context at hand as having a synonymous meaning:

(3)   [British PM] Cameron swears that the restaurant wrecking happened on nights
        when he wasn't there. I expect that Gideon [Chancellor of the Exchequer George

Osborne] knows different, and possibly even has some pictures to prove it. Surely <u>there can be no other reason</u> for keeping this fool in one of the top jobs.

Blog; The battle on same sex marriage will be – Munguin's Republic;
http://munguinsrepublic.blogspot.com/2012/09/the-battle-on-same-sex-marriage-will-be.html

The key message of the above formulations is that there are no other explanations for the observed fact X. Such a message is invoked by calling up a hypothetical situation where other explanations are actually tried out but should be judged as inadequate. This meaning is brought about with the adjectives 'other' and 'another' or with the adverbs 'else' and 'otherwise'. 'Else' and 'otherwise' can also invoke the hypothetical situation of other explanations having been considered if they are not combined with the verb 'explain' (or a verb with a synonymous meaning). They do so when they are used in a rhetorical question which is introduced with 'why', as in (2), repeated below, or with 'how', as in (6):

(2)   (…) the clues of a person's nature can be found in her/his face. [W]hy else would we have different faces other than to advertise our nature?

Hubpages.com, 2010, reply to 'Can you judge a person by his or her looks?';
http://hubpages.com/forum/topic/41546

(4)   The American Medical Bulletin recently stated that every teenage girl who has had sex, needs to be tested for Chlamydia every six months for five years. Why are only girls tested? Boys get it too. <u>How otherwise would</u> it be passed on?

Jesuspowerministries.org, [n.d.], Pam Stenzel - She Was Conceived Through Rape;
http://www.jesuspowerministries.org/N25.htm

Argument (2) says that for each of us having different faces there is no other reason than that these differences reflect our different personalities. In (6) it is said that the distribution of a communicable sexual disease as Chlamydia is only logical if boys pass it on too. According to the dictionaries 'else' and 'otherwise' have the meaning of appealing to an alternative possibility: 'why else' meaning 'for what other reason' and 'otherwise' meaning 'in another way' (*Cambridge Dictionaries*).

How can the strategic function of the above phrases be accounted for with regard to the presentation of everyday abductive argumentation? Their strategic function is related to their meaning of suggesting that other possible explanations have indeed been considered and balanced and have resulted in the choice of the explanation which is expressed in the standpoint. It is precisely the 'inference to the best explanation' aspect of abduction that these phrases are referring to. This is strategic because it suggests that the whole procedure of finding the best explanation has been followed, which makes the result trustworthy. In addition, the fact that these phrases don't just say that the explanation offered is *the best* but indicate that it is *the only one* makes it even stronger. Framing an argument as a thoroughly checked inference to the best explanation is an expedient strategy for everyday abductive arguments, because they often don't result from such a careful procedure. However, they are also an opportune means for the strategic presentation of everyday arguments that do not contain—on closer inspection—all the characteristics of abduction and therefore cannot even be considered as abductive arguments.

In the first place, the presentation of an argument as inference to the best explanation can be applied to arguments that look like abduction but don't share the characteristic that the argument was occasioned by an observed fact. The idea of an abductive argument is that the whole reasoning process was initiated by this fact, because it was 'puzzling' (Aliseda, 2007, p. 28) and needed an explanation. But if one looks at the examples, some of those arguments don't seem to be the result of a fact needing an explanation at all. Instead, they convey the impression that the arguer was already convinced of his/her standpoint and needed evidence to support it. Consider example (2), which is put forward in an advanced phase in an ongoing discussion in a thread called 'Can you judge a person by his or her looks?' The initiator of this thread holds a positive standpoint with regard to this issue and claims that character traits are reflected in physiognomy, including racial characteristics. Example (2) presents only one amongst multiple reasons the author has put forward for her standpoint. Or take example (4), which definitely did not start with the observation that boys get Chlamydia and with an urgent need to explain this. Instead, this arguer's concern relates to the option of having boys tested on Chlamydia because they can get infected just as well as girls can. In these examples the reasoning process did not start with the premise and end with the standpoint, but precisely the other way around. In fact, these are not abductive arguments but plain symptomatic arguments in which the premise functions as a sign that could serve as evidence for the standpoint. The presentation of these arguments as if they are based on an abductive procedure thus gives them a stronger appearance than they deserve.

In the second place, the presentational devices for abductive argumentation can be applied to arguments that don't share the characteristic of the premise containing a fact having the status of common ground. Because an observed fact functions as the occasion for an abductive argument, it is presupposed that its truth is accepted by the proponent and the opponent and therefore is part of their shared starting points.[8] This can be demonstrated by example (1), where the observed fact that someone's husband had started an extramarital affair was indeed a fact shared in the argumentative context at hand. But if one looks at the other examples, it becomes clear that some of them contain premises stating an arguer's individual assessment of a situation or phenomenon. The claim in argument (3) that Gideon is a fool and the suggestion that it is surprising that he still owns his position, is an opinion that obviously cannot be taken as a generally accepted starting point. Or take the following argument:

(5)   Many psychologists are afraid of their own shadow. They're unwilling to confront their dark side. They may be smart but they're lacking in consciousness. <u>How else can we explain</u> the third-rate knowledge that the profession passes along to a suffering world.

> Opednews.com, 11 May 2012, Psychologists of the word, go deeper;
> http://www.opednews.com/articles/Psychologists-of-the-World-by-Peter-Michaelson-121105-810.html

In (5) the premise expresses the author's view on the professional quality of most psychologists—a view that cannot be taken as generally accepted. Nevertheless, the ways (3) and (5) are formulated suggest that their premises rest on shared starting points—(3) does because it

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[8] Compare how Snoeck Henkemans (2001) distinguishes between explanatory arguments and non-argumentative explanations: in a non-argumentative explanation the explaining statement must contain new information whereas the premises in an explanatory argument "are taken as given, or have the status of facts for the listener" (p. 242).

presents the premise in an embedded clause, (5) does because it states the premise in a rhetorical question.[9] As many of the above mentioned strategies for presenting abduction employ the same linguistic structures (with the same effect), they are an opportune means for the presentation of straightforward arguments from sign containing a dubious premise. The aim of such a presentation could be to prevent critical questioning of the premise's dubious content.

4. Conclusion

In this paper I have discussed some presentational devices that serve a strategic presentation of abductive arguments. These presentational devices are characterized by the use of (a combination of) the words 'explain', 'explanation', 'other', 'another', 'otherwise' and 'else'. They are strategic because their meaning invokes a hypothetical context in which other explanations have been considered and rejected. In doing so it is suggested that the argument at hand is the result of the process of inference of the best explanation. As such they can be (and are) used to present everyday abductive arguments as the result of a thorough investigation. In addition, they can (and do) provide plain symptomatic arguments that do not satisfy all the characteristics of abduction, with the same impression of being rested upon a thoroughly investigated link between the premise and the standpoint. This is particularly strategic if an argument is not occasioned by an observed fact, or if its premise does not express a generally accepted starting point.

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[9] Cf. Snoeck Henkemans (2007), who shows that the strategic potential of a rhetorical question lays in the fact that such a question "indirectly amounts to making an assertion in which the arguer presents the acceptance of [its content] as unproblematic" (pp. 1311-1312).

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