Words and Images in Argumentation

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ABSTRACT: In this essay, I will argue that words and images play essentially the same role in argumentation: exploiting information from the context, they both help to convey the propositions that play the roles of premises and conclusion. Consequently, we can keep our traditional conception of arguments as composed of propositional premises and conclusion — and the theoretical apparatus built around it —, while also broadening it to include visual arguments. In general, the way we interpret words and the way we interpret images are so similar that whether an argument is purely verbal or not should make little difference for argumentation theory.

KEYWORDS: Visual Argumentation; Interpretation; Visual Communication; Propositions; Images; Sentences

1. INTRODUCTION

One of the main challenges facing argumentation theory today is to make sense of the use of visual images in human argumentation (Johnson and Blair 2000, Groarke 2008).[1] That images are commonly used with persuasive ends and in argumentation is an uncontroversial fact. The challenge is to make sense of this widespread use. In this paper, I want to argue that there is no substantial difference in the role words and images play in argumentation. Both contribute in essentially the same way to the communication of arguments to audiences. Thus, very little revision to our

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[1.] When talking of images in this context, we mean external man-made images, like pictures, symbols, icons, diagrams, maps, etc. My account is not intended to cover mental or natural images.

argumentation theory is required to accommodate what is commonly, but misleadingly known in the literature as "visual argumentation", i.e. argumentation where visual images do not merely illustrate or accompany verbal argumentation, but "can, like verbal claims which are the epitome of argument, be understood as speech or communication acts that contribute more directly to argumentative exchange" (Goarke 2002, 140). Visual argumentation, in this sense, includes both purely visual argumentation (i.e. visual argumentation without words, about which I will not say much) and what I will call, following Barwise (1993), "heterogenous argumentation" (i.e. argumentation that combines both verbal and visual resources).[2]

Like Gilbert (1994), Blair (1996), Richards (2009), and many others, I strongly believe that visual argumentation is a genuine phenomenon and therefore, that images can play the same kind of argumentative and persuasive role as words. For the purposes of argument analysis, whether we use verbal or visual means is not important, informational content is. This is the main point I want to make in this paper: that the similarities between words and images are such that whether an argument is purely verbal or not should make little difference for argumentation analysis. In particular, if I am right, and visual elements play in argumentation the very same role as words (i.e. they both help convey the propositions that will play the role of premises and conclusions), then we can keep our traditional conception of arguments as composed of propositional premises and conclusion and the theoretical apparatus built around it, while also broadening it to include not-purely-verbal arguments.

Defenders of visual argumentation are commonly challenged on the grounds that there are "important gaps in the theory that need to be filled [one of them being] exactly how we are to decode the images that are supposed to constitute such an argument" (Johnson 2003). Part of the purpose of this paper is to contribute to filling such a gap, i.e. to start developing a systematic account of the interpretation of visual elements in argumentation in a way that does not involve translating them into verbal ones. This later point is crucial to defend visual argumentation as a real phenomenon. For visual argumentation to be a real phenomenon, putative visual arguments must be both genuine arguments and genuinely visual. In order to be genuinely visual, they must be more than mere visual clues to recover verbal arguments; in order to be genuine arguments, they must have a clear premise/conclusion structure. (Blair 1996) It is commonly assumed (for example, by Johnson 2003, Tarnay 2003 and Alcolea-Benegas 2009) that, in order to recover the propositions that play the role of premises and conclusion in visual arguments, one must first reconstruct them verbally. This means that putative visual arguments are either not actual arguments, but only visual

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[2.] For the purposes of this paper, i.e. for the comparison between the roles and contribution of words and images in argumentation, focusing on heterogenous argumentation will prove more fruitful, and so from now on when I talk of visual arguments and visual argumentation I will mostly mean heterogenous arguments and argumentation.

clues to recover genuine (i.e. verbal) arguments (Johnson 2003), or genuine arguments that do not contain propositions as premises and conclusions (Goarke 2002, Alcolea-Benegas 2009). I want to show that propositional premises and conclusions can be visually conveyed without the need of verbal reconstruction; consequently, there is no need to abandon the propositional conception of what an argument is in order to accommodate visual arguments. My evidence for this later claim will be basically Stainton's (2006): there is empirical evidence that nothing like the tokening of a verbal argument is involved in the interpretation of visual arguments. Verbal language may be used to *describe* what visual arguments convey, but it can hardly translate it. I wholeheartedly agree with Alcolea-Benegas (2009) and Tarnay (2003) that the verbal reconstruction of visual arguments hardly ever recovers their full original content. However, the moral I draw goes in the very opposite direction. Precisely because it is not always possible to translate visual arguments into verbal ones, it is very unlikely that that is what happens every time we interpret visual arguments. Visual argumentation, therefore, does not depend on verbal reconstruction.

In order to show this, I will adopt a standard, but admittedly not uncontroversial account of how words and sentences are used to convey propositional information, and extend it to shed light on how images are used for the same purpose.[3] Since my main goal is to ground a strong analogy between words and images, I am less interested in showing that the overall account is right, that in arguing for the weaker claim that, if it the account is right for words, it must also be right for images; if it fails for words, it will surely fail for images as well. For similar reasons, I have tried to keep my arguments neutral regarding any substantial theory of propositions, relying only on the least con-

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[3] I am assuming that the role of language in argumentation, as in many other communicative acts, is to help convey propositional information. Even though I know it is a controversial thesis (challenged by Moeschler 2009, Sloman 1992, Reddy 1979 among others), I am not going to argue for it here. My purpose in this paper is to argue for the even more controversial thesis that the role of images in argumentation, as in many other communicative acts, is to help convey propositional information. In consequence, I am not going to try to develop a theory that accounts for the content and interpretation of visual images tout court either. The explanation I am going to offer will try to account for their content in argumentation and similar communicative acts only. It would be naive to think that all images are produced for the purpose of communication, or that they are always interpreted in a communicative setting; just think of how images are produced and interpreted in contemporary art, for example. About this later kind of images, I have nothing to say. notice however that this feature is common to both language and images. Neither all words are written or uttered with a communicative intention, nor are they all interpreted in a communicative setting (Banfield 1982, Reboul, 1992).

troversial of their properties, i.e., that they (i) can be true or false, (iii) stand in entailment relations and (iii) be linguistically conveyed (McGrath 2007).[4]

On the account I will offer here, the interpretation of visual images will bear strong analogies to the interpretation of spoken and written language, so that the general analytic tools developed to account for verbal communication can (and should) be easily adapted to visual communication in a straightforward way. My goal is to advocate for a theory of argumentation where fully verbal and non-fully verbal arguments are given a uniform treatment, incorporating irreducibly non-verbal elements while minimizing the necessary revision to our traditional (i.e. propositional) views on logic and argumentation.

2. PROLEGOMENA TO A THEORY OF VISUAL COMMUNICATION

Let's start from a few simple and basic similarities between words and images. First, images represent; a picture of a boat on a river represents a boat on a river, just as a road map represents the distribution of roads and highways in a region. This much should be uncontroversial.[5] Second, just as words and phrases can have meaning of different kinds depending on their semantic and syntactic type (i.e. depending on whether they are nouns, adjectives, quantifiers, etc. Gamut 1991), different images can also represent a broad variety of things of different types; they can represent objects, properties, relations and even full propositions (Goodwin 2009). Third, in different contexts, a single picture can be used to communicate different things about different objects. A picture of a bald eagle, for example, can be used to represent both a bald eagle and the United States of America (Atwood 1990). In cases like these, what

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[4.] At most, it may be difficult to reconcile my general account with theories like Jeffrey King's (1996) that make the structure of propositions strongly dependent on the syntactic structure of the sentences that express them.

[5.] This does not mean that images represent *in the same way as* words or, much the less, that all images represent in the same way. The mechanisms behind some systems of visual symbols may be strongly similar to those of words and sentences, while substantially different on others. It might make sense to talk about the syntax and vocabulary of a nation's traffic sign system, but maybe not about photography or painting (Blumson 2009). Pictures may represent differently than maps, icons or diagrams, etc. (Casatti and Varzi 1999, Allwein and Barwise 1996) Furthermore, to say that images represent does not entail that images *in themselves* represent. On their own, images are just physical objects and whatever representational properties they have are not intrinsic, but instead depend on external factors, like how they are used and perceived (Barwise and Seligman 1997). Nevertheless, this does not break the proposed analogy between words and images, since this is also true of words and sentences (Kripke 1982).

an image represents can differ drastically from what it depicts.[6] This same phenomenon is as common for words as it is for images. In Max Mayer's recent film *Adam*, for example, when Rose Byrne's character, Beth, asks Hugh Dancy's autistic title character, "Adam, can you give me a hug?", he simply says yes and stands there for a long moment. We find the moment funny, because we know that, even though he answered her question, he failed to understand the information she was trying to convey.[7] Interpreting what someone says is a complex phenomenon that requires, besides knowledge of the language, substantial knowledge of the world. Interpreting images is not less complex, and it too requires a broad knowledge of the world and of our visual systems of representation. Also, words are used to perform a broad specter of communicative acts: assertions, questions, orders, threats, arguments and so on. We even use words to do things like baptizing a baby, declaring a war, awarding a penalty kick to a football team, or sentencing a convict (Moore 2001). Like linguistic expressions, an image can also be used to perform different communicative acts in different circumstances, and thus used to convey different information depending on both its context and the intensions of its user. For example, while a depiction of a plate of Chow Mein in the menu of a Chinese restaurant may be used to assert that the restaurant has such dish available, a costumer placing an order by pointing at the same picture performs a very different kind of communicative act. In both acts, the image is the same, what is different is the act and consequently, the information conveyed. The picture itself neither asserts nor

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[6.] This difference between what a picture depicts and what it is used to represent roughly corresponds to the commonsensical distinction between what our words literally mean and what we use them to communicate. (Korta & Perry 2006) It is worth noticing however, that some theorists (for example Wilson and Sperber 2002) have argued that the notion of literal meaning has no place in rigorous linguistics. This might mean that the analogous notion of depiction may deserve a similar fate. For a defense of the literal/non-literal distinction regarding verbal communication, see Récanati (2004). For a defense of the depictive/non-depictive distinction regarding pictures, see Abell (2005).

[7.] The whole point of the episode is to illustrate one of the symptoms of Adam's autism. On the relationship between Autism and the failure to grasp this sort of communicative content, cf. Happ (1991) and (1993). The above scene is described in O'Hehir (2010).

orders (Crane 2009). It depicts a dish, and only when embedded in certain circumstances can it be used to convey information about what the restaurant serves or what the costumer wants.[8]

Besides these basic similarities, words and images also share some deeper common features that any satisfactory account of human communication ought to recognize. For example, the process of interpreting both words and images show what are commonly known as *near-side pragmatical* phenomena, where context plays a substantial role in the resolution of ambiguity and vagueness, determining the reference of indexicals, demonstratives,and anaphors, etc. (Korta 2006).[9] Take a traffic sign like the one depicted in figure 1:

Fig. 1 Indexicality

Conventionally, the sign says that turning to the left is forbidden. This much we know just from knowing our traffic sign vocabulary, so to speak. Yet, in order to determine what direction it is forbidden to turn, i.e. to determine *where the left is*, one must appeal to information about its context, in particular about the place where the sign is posted. Only then can we get its full content. This is exactly what happens when we interpret utterances of expressions with indexical elements in them. No amount of knowledge of the English vocabulary and its syntax will give us the full

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[8.] Notice that, within communicative acts, visual representations can be used by a broad variety of means. We can paint them, publish them, point at them, and even tear them up or set them on fire. Thus, when dealing with this kind of representations, it is very important not to confuse the author with the user in a particular communicative act. The patron at the Chinese restaurant in our example made use of an already available picture. He did not create it, and it would be wrong to adjudicate to the creator of the picture in our example the assertion that such dish was served or that the patron wanted it. In general, creators (their intentions and beliefs) play little or no role in determining the content of many of the communicative acts in which their images are used.

[9.] This might mean that we cannot simply say that the semantic content of an image is just what remains constant across contexts. However, the question of what near pragmatics means for the context-invariance of semantics remains open in linguistics (Carston 2008, Stanley 2008).

semantic content of a sentence like "I am hungry", as uttered in a specific context. We also need to know who is speaking. In order to know who is said to be hungry, we must look beyond the dictionary meaning of the words and look into the context of their assertion. The strong parallels between the verbal and visual cases strongly suggest there is something very similar taking place in each case; i.e. there might be some sort of indexicality involved in the interpretation of visual representations like traffic signs.[10]
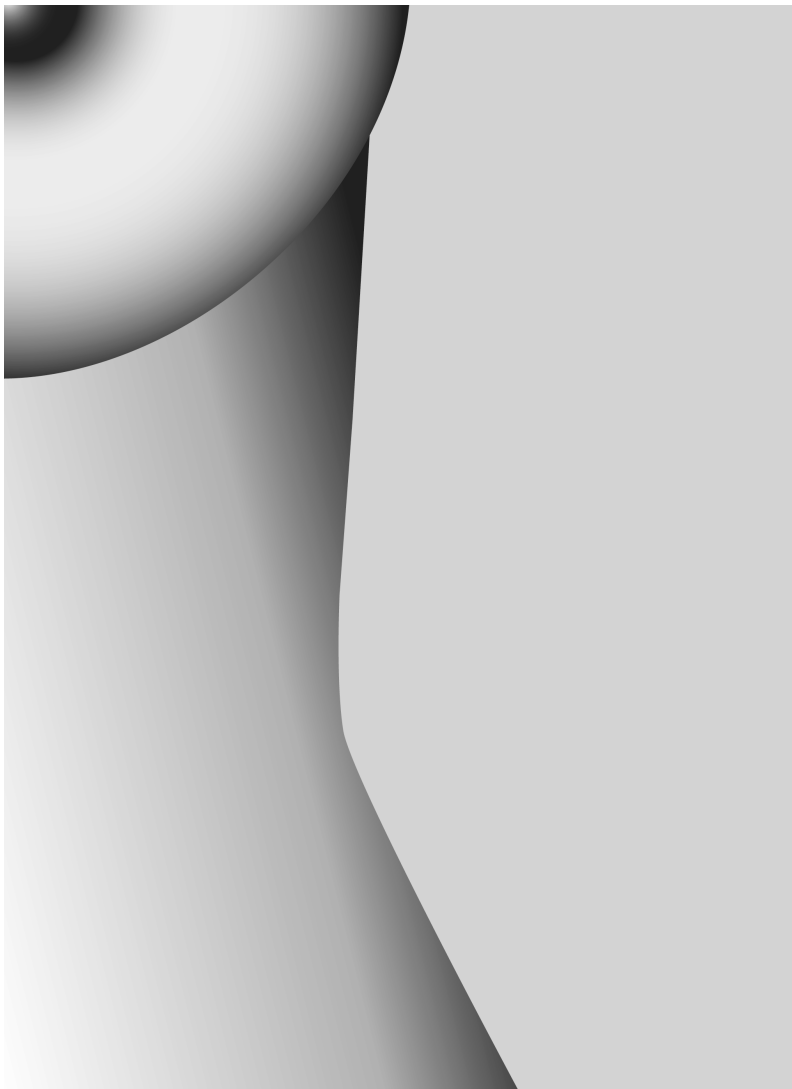

Fig. 2 Visual Ambiguity

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[10]. Besides indexicality, other pragmatic mechanisms have been proposed to account for this kind of context sensitivty. Deciding between them has proved to be a extremely difficult task. Cf. Clapp *forthcoming*.

A very similar treatment must be available to account for phenomena like the resolution of visual ambiguity. For example, in 2004, the Light of Life foundation ran a series of ads featuring a cropped photograph resembling a woman's naked torso (similar to figure 2), showing part of her waist, one of her breasts and just the edge of her nipple. However, on closer inspection, one noticed that the image was actually a cropped photograph of a woman's face, showing just a tip of her lower lip, chin and long neck. The photograph, by Frank W. Ockenfels, was purposely ambiguous between both interpretations. Only when placed in the context of a campaign to raise awareness of thyroid cancer, was the ambiguity resolved.[11] In cases like this, substantial input from the context is necessary to determine what the image represent.[12] An adequate theory of visual representations must be able to account for this kind of phenomena.

Also, any theoretical account we give ought to allow for at least some images to represent, even if they lack a proper syntactic structure. Holding otherwise, would commit us to the controversial thesis, mostly associated with Nelson Goodman (1968), that all representations are symbolic (i.e. that the distinction between words and pictures is one of degree, not of kind), because all content is compositional. Since not all visual images show an obvious compositional structure, it is better to conceive of visual content in a way that does not presuppose any underlying syntactic structure. In the framework I am trying to develop here, pictures and sentences have contents of the same kind (i.e. propositional and sub-propositional), but they do not represent in the same way. On the contrary, as most accounts of depiction (Blumson 2008, 2009, Malinas 1991) and diagrams (Stenning 2002) recognize, there are funda-

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[11.] The example is described in Meyers 2004.

[12.] Thus, it is a mistake to identify what an image literally represents with what it represents *independently of its context*. This is also a feature present in words and sentences as well (Searle 1978). If I am right, just as the linguistic meaning of the words we use is commonly insufficient for determining what we mean to say, the context-invariant aspects of the images we use (what I have labelled their "pictorial character" in figure 3) also tend to be insufficient to determine what we mean to communicate with them.

mental differences in the way words and images represent, and pace Goodman, compositionality is one of them. All languages have it, most images do not.[13]

On the other hand, it also ought to allow for at least some images to have proper syntactic structure. Even if not all visual images show an obvious compositional structure, it is also clear that at least some of them do, like subway maps or Peirce's logical graphs (Allwein & Barwise 1996). For similar reasons, we must remain open to having different mechanisms grounding the representational properties of different kinds of images. Some of them may be compositional, while others not. Sometimes, there may be a convention similar to fixing the semantic meaning of words, especially for certain elements in diagrams. For depictions, resemblance may be the key notion, while causal connections may play a larger role in visual signals like footprints and traces. After all, visual images are not homogenous enough to form a natural kind.

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[13] Incorporating a literal/non-literal distinction in visual communication is also useful to disentangle the common confusion between an inaccurate picture (one whose literal content, i.e. what it depicts does not correspond to any actual or past event or state in the world), and the misleading use of a picture (where at least one of the propositions non-literally conveyed is false). This distinction is essential in photojournalism, where a big difference is made between tricking or manipulating a photograph (resulting in a distorted or unfaithful representation of its subject), and misrepresenting it in certain context (for example, saying that it represents what it does not). It is my intuition that this distinction could also be very helpful in making sense of certain epistemological issues in photo-journalism (Aguilar y Eraña 2008). For example, photographs are said to be testimonial, in so far as they provide factual information about their subjects. Yet, this presumption might be true regarding their literal contents, but not about their non-literal ones. However, developing both of these theses here would divert us too far from our main goal.
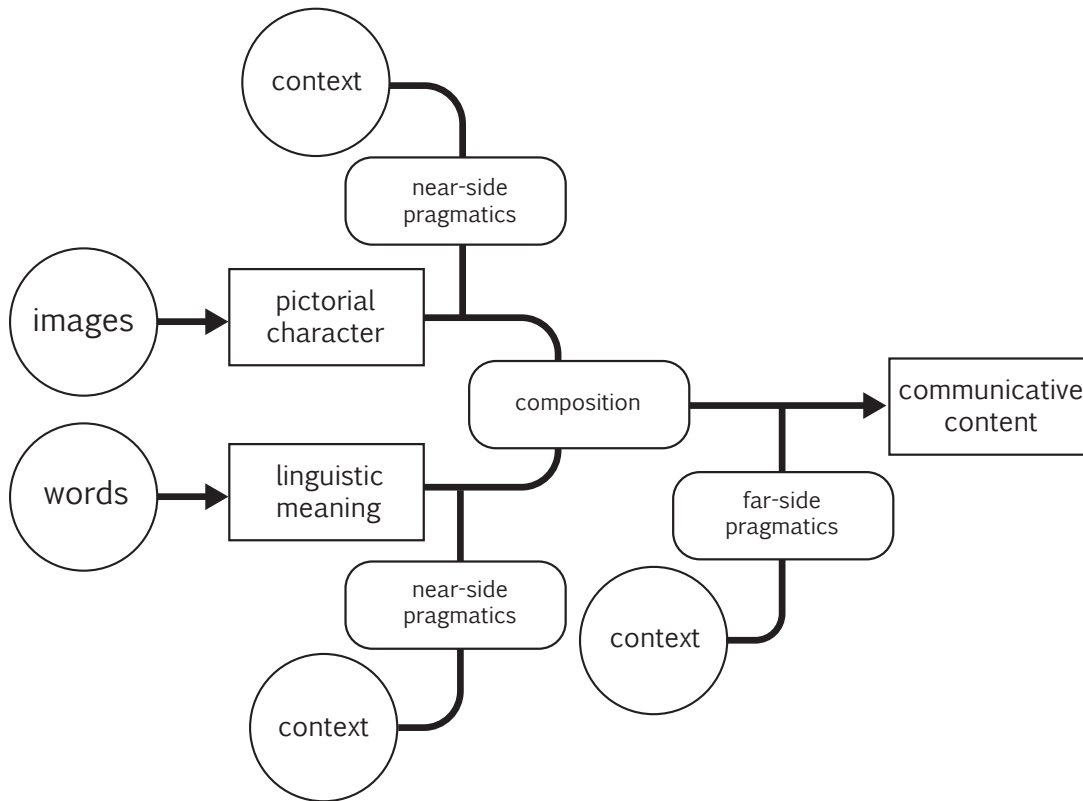
Fig. 3 The Full Interpretation Process: From Words and Pictures to Communicative Content

Summarizing, any adequate theory of visual communication must be able to explain how we combine the information contained in words and pictures with the information available in the context of our communicative acts to convey and recover messages. It must give us an explanation of both how we attach linguistic meaning to words and pictorial content to pictures, and also how we exploit information in the context for both near-side (diambiga-tion, indexicality, etc.) and far-side (metaphor, symbolism, implictature, etc.) pragmatical phenomena. The general process of interpretation can thus be schematized as in figure 3, where circles represent our sources of information (words, pictures and context), rounded squares represent the subprocesses involved in interpretation (composition and pragmatics), and squares represent the information obtained (from the contribution of words and pictures to the final communicative content).

3. FROM SUBSENTENTIAL ARGUMENTATION TO HETEROGENOUS ARGUMENTATION

The framework sketched in the previous section is very broad and abstract. A lot of detail would need to be provided before we could say that we have a full explanation of how pictures are used in communication. In the rest of the paper I will fill enough of the detail necessary to argue for my main claim, i.e that words and pictures play a very

similar role in argumentation; they both contribute, along with contextual information, to conveying the propositions that play the roles of premises and conclusion. To ground my claim, I will borrow insights from both Barwise and Seligman's work on visual inference and Robert Stainton´s work on subsentenial speech. From Barwise and Seligman (1997), I borrow the methodological insight that, in order to understand the role of visual elements in argumentation, it is better to look at what Barwise called "heterogenous" arguments (Barwsie 1993), i.e. arguments that are not conveyed through a single medium, but instead contain both verbal and non-verbal elements. Trying to study visual argumentation by focusing on purely visual arguments like those of advertising or fine arts is like trying to understand verbal argumentation by focusing on aphorisms and poetry. It is better to start from simpler quotidian examples where words and images collaborate side by side. After all, in everyday argumentation, we seamlessly combine verbal and visual information. The most parsimonious explanation of why this is so is to think that the information conveyed by these two mediums is of the very same kind. Unless we have strong arguments to the contrary, this should be our default position. Thus, in argumentation, images are used to convey the same sort of information that words: not only can they convey full propositions, they can also convey sub-propositional information, i.e. properties and functions of different kinds, that combined with information conveyed through other means (like language) yield full propositions. To further ground this later claim, I will now take on board some of Robert Stainton's recent work on sub-sentential argumentation (2006), that is, arguments where premises or conclusion are conveyed verbally, but without using full sentences. There, Stainton gives a detailed account (based on Sperber and Wilson's relevance theory, 1986, 1995), of how easily we combine verbally conveyed information and ostensively conveyed information (i.e. information conveyed by showing or pointing at things in the environment) to form regular arguments where premises and conclusion are fully propositional. It is not a great insight on my part to notice that his account of this kind of argumentation can be easily extended to heterogenous argumentation.

The central goal of Robert Stainton's 2006 book *Words and Thoughts* is to argue that subsentential speech is a genuine phenomenon and to spell out some of its implications for our understanding of the relation between language and thought. By "subsentential speech", Stainton means cases where the speaker utters ordinary words and phrases, not embedded in any larger syntactic structure, and yet he literally conveys a full proposition easily graspable by the hearer. Genuine subsentential speech is ipso facto non-elliptical, since what is produced is not a semantically or syntactically elliptical sentence, but a subsentential linguistic unit. In other words, in genuine subsentential speech, what is uttered not only sounds like a bare phrase, but actually is a bare phrase.

According to Stainton, in subsentential speech, phrases are used with their regular meanings, i.e. when uttered in isolation, "a tie" means *exactly the same* as it does when it occurs inside a full sentence like "John always gets his boss a tie for Christmas". Since these meanings are not propositions, a pragmatic mechanism is set into gear to determine the proposition the speaker intended to convey. An expression need not be a full sentence to be used in argumentation; however it must be used in such a context that the hearer may still grasp a full proposition without needing to complete a sentence in her mind. Context must provide the proposition's missing elements, i.e. elements of the proper semantic type. If the phrase uttered is a predicate, for example, the context must make an entity salient, so that that entity may serve as subject of the proposition. In other words, phrase and context must provide adequate arguments and functions, capable of combining into a full proposition (Stainton 2006, p. 158).

In this story, the proposition's constituents are the different elements the hearer needs to combine to recover the communicated proposition. Some of them come from the uttered expression, while others come from the context. Yet, no matter whence they come, once they are combined into a proposition, they work seamlessly together as logical components.

In order to show that the content of subsentential speech is fully propositional, Stainton argues that information conveyed subsententially stands in entailment relations with propositions expressed by complete sentences. If such entailments exist, they would be hard to explain without accepting that subsentential phrases can be used to convey full propositions. Thus, he needs to show that there are genuine cases of sub-sentential argumentation, i.e. cases of argumentation where premises or conclusion are conveyed sub-sententially. (Stainton 2006, 184-5) He does this by presenting the following example:

> 1. ALICE AND BRUCE
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> Suppose Alice and Bruce are arguing. Bruce takes the position that there are not really any colored objects. Alice disagrees. A day or so later, Alice meets Bruce. Having just read G.E. Moore, she offers the following argument. She picks up a red pen, an says "Red. Right?" Bruce, guileless fellow that he is, happily agrees. Alice continues, "Red things are colored things. Right?" Bruce nods. At which point, Alice springs her trap: "So, Bruce, there is at least one colored thing. This thing." (Stainton 2006, 181)

According to Stainton (and I completely concur), Alice successfully conveyed an argument with fully propositional premises and conclusion. Furthermore, her first premise was conveyed without the need of a full sentence: neither

Alice used one to convey her premise, nor Bruce used one in his mind, so to say, to recover it. (Stainton argues for this last claim appealing to well known reasons of subdetermination: there is ample evidence that Alice did not mean (nor Bruce recovered) "This pen is red' as opposed to "This thing is red", or "This is red", or "This thing in my hand is red", etc. Any of these sentences can be used to describe what Alice meant, but none of them perfectly translates it into English.)[14] Furthermore, the conveyed premise was a proposition, with "implications with respect to the existence of colored things" (Stainton 2006, 184)

It is easy to generalize Stainton's account presenting this same data, not in terms of the sentential/subsentential distinction, but through the eyes of a verbal/non-verbal distinction. Stainton's main thesis is *intra*-linguistic. His main interest is to topple sentences from their central place in language, to show that linguistic phrases can play the same role as sentences in assertion and argumentation. My main interest, in contrast, is to topple verbal language from its central place in argumentation, i.e., to show that *non-linguistic entities like images* can play the same role as phrases and sentences in assertion and argumentation. Thus, I take the fundamental distinction to be that between fully verbal and non-fully verbal arguments.

Stainton's argument above is a clear example of what we have called *heterogenous argumentation*, i.e. a single argument conveyed using an heterogenous combination of verbal and non-verbal resources. In Stainton's example, the non-verbal elements come from the contextual environment. However, it is not hard to see that they could have been provided by other non-verbal means, like images. Consider the following example, fairly homologous to Stainton´s:

> 2. CARLY AND DANIEL
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> Carly and Daniel are reminiscing about a party that took place a few weeks ago. At a certain point in the conversation, they start arguing over whether John was there or not. Carly takes out a picture from the party and pointing to someone in the picture says "John. Right?" Daniel nods. "So, Daniel – Carly concludes –, John was at the party."

Just as in the previous argument between Alice and Bruce, in this new argument Carly´s sole premise is conveyed using both a subsentential phrase – "John" – and an image – the photograph. Both contribute something to the prem-

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[14.] Stainton's book-length argument is much more complex and detailed than this, of course. In it, Stainton extensively considers (and argues against) other possible explanations, like Alice's speech being actually elliptical, of her having produced a completely verbal sentence with an unpronounced part, her using shorthand for a complete sentence, Bruce recovering the disjunction of all possible verbal reconstructions, etc.

ise. "John" delivers its referent as argument for the function provided by the photograph. Together, they constitute a proposition such that, Daniel´s argument is correct if the proposition is true and entails the conclusion that John was at the party.

Just like in Carly´s premise, words and images commonly interact to communicate fully propositional messages. Take the well-known "wanted" signs that are still common in banks (in Mexico) and post offices (in the USA). In them, the word "wanted" itself does not convey the full message. Its meaning falls short of a proposition. Just like ¨Red¨ in Stainton´s example, it conveys a predicate in search of a subject. We need something that tells us *who* is wanted, and that is the role that the picture plays in those signs. It depicts someone and it is of that person that the sign says he or she is wanted. It is only when the audience combines what the picture represents and the semantic meaning of the word "wanted" that they grasp the proposition that the depicted person is wanted.

A similar thing happens in store catalogs and ads. A "$35.00" sign next to the photo of a pair of shoes combines with it to assert that shoes of that model cost 35 dollars a pair. In both cases, the wanted sign and the shoe catalog, it is fairly obvious that no sentence is being elicited by the combination of words and images. The person who reads the wanted sign does not recover a sentence like "This man is wanted", "Someone who looks like this is wanted", "A fair man of broad nose and small eyes is wanted" or anything of the sort. She grasps the proposition without verbalizing it. A sentence can be used to describe the information conveyed, but that does not mean that the sign primarily conveyed that sentence and only derivatively conveyed the proposition. Similarly, there is no sentence in the mind of the shoe costumer who looks at the catalog with the picture and the price before the proposition that that kind of shoes cost that much.

Looking at other cases of argumentation where people combine words and images should also make clear that what is asserted using visual images holds entailment relations with what is verbally asserted (Blair 1996, 2003; Birdsell and Groarke 1996, 2008; Shelley 1996, 2001; Gilbert 1997; Groarke 1996, 2002, Lunsford, Ruszkiewicz and Walters 2005 apud. Gorarke 2009). It is hard to see how this could be so, unless we took both sorts of acts as conveying propositions (Perini 2005). Consider the following example:

3. EUGENE AND FEDERIKA

Eugene and Fred are driving through town on the same car. They have stopped at an intersection. Federika is at the wheel, and Eugene has a map of the city in his hands. She turns on her blinkers to indicate she plans to make a right turn. Eugene tells her not to do it. "Look – he says, pointing at a section of the map – the street is closed."

According to the position I advocate, what happens in this case should be seen as a (very simple) case of heterogenous argumentation, where the argument's premise is not expressed by a sentence nor any other linguistic means, but by an image. The proposition expressed in the context by the full sentence "The street is closed" is inferred from the information in the map. Since the map contains much more information than the proposition expressed in Eugene's utterance, the sentence does not merely translate such information into verbal language, it expresses the conclusion of his argument.[15]

It could be argued that what happens in this case is no true argumentation, because what is supposedly transmitted from premises to conclusion is not *truth*. After all, we do not usually say that maps are true or false.[16] At most, we say that they are accurate or inaccurate; but accuracy is not truth (Crane 2009).[17] However, whether a representation can be true or not is not a question to be solved only in the way we talk about it. Even if we do not commonly use the words "true" or "false" to talk about maps, it is clear that we recognize the difference in our use of such representations. Consider the example above. Suppose Fred ignored Eugene's advice, turned right and found out that the street was not closed. Eugene and Fred could validly infer, by Modus Tollens, that the map was wrong. The information it conveyed about the street was false. Thus, the simplest way to make sense of what happens in this and similar cases is to conceive of at least some of the information conveyed by our use of maps as propositional. In this sense, mine is an argument to the best explanation. Accepting that images can lead to full propositions is the simplest way to explain why they can be used to express premises in arguments.

Not all interactions between words, images and context are as harmonious as Stainton's examples may suggest, of course. Many times, they are much more complex. It is not unusual that information verbally conveyed turn to be inconsistent with information conveyed through images or with information presupposed in the context, etc. In those cases, proper adjustment is required. Sometimes, contextual information overrides verbally conveyed informa

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[15.] On the similarities and differences between verbal directions and maps, see Tversky and Lee (1999).

[16.] However, we do speak of propositions being true in them. For example, in Eugene and Federika's argument, we may say that it is true in the map that the street is closed (Malinas 1991),

[17.] Crane's claim that things that can be accurate (or inaccurate) cannot also be true (or false) is ungrounded. It is true that we sometimes talk of the accuracy of objects of which we would not usually predicate truth, like clocks or weather forecasts. However, it is also true that sometimes we use "accurate" to describe entities of which we also predicate truth. It is very common to talk about accurate descriptions, for example. But descriptions are also the kind of things (sets of sentences, conjunctively linked) that can be true or false. At least in this case, it is clear that "accurate" can be used as a synonym for "true".

tion. That is how conversational implicature works, for example in sarcasm (Grice 1975). Consider uttering the words "This is the funniest party I have ever been to" at a party, while looking clearly bored (without even trying to hide it). The semantic content of the uttered words is in clear contradiction with the contextually available and salient information that you are clearly bored. In this case, this contextual information trumps the semantic content of the words, so that it is conveyed that you find the party boring. [18]
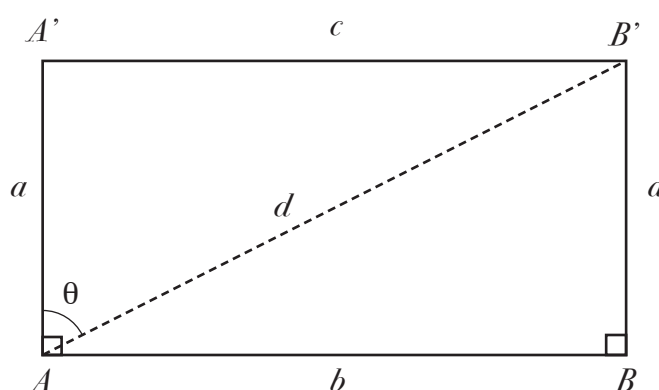

Fig. 4 Saccheri's Diagram

As Sherry (2009) has noticed, just like contextual information may take precedence over semantic content in conversation, words may also take precedence over pictures in certain contexts, for example, in diagrams. In geometry for example, a diagram clearly depicting a square angle can be used to represent an acute angle, if it is accompanied by a text saying that it does. As a matter of fact, this is just what happens in Saccheri's (1697) famous use of the same diagram (depicting a bi-rectangular, isosceles quadrilateral as shown in figure 4) to prove theorems about three different and inconsistent types of quadrilaterals (Rozenfeld 2008). When Saccheri explicitly asks us to consider the consequences of angles A' and B' being both acute, we have no problem interpreting the diagram as representing a quadrangle with two acute angles, even if we clearly see that they are all straight. Just like in the boring party example, in Sacchieri's case there is an inconsistency between what the diagram literally represents, and the information conveyed linguistically in the proof; yet the inconsistency is easily removed. Following general pragmatic rules of communication, we use the information conveyed by the proof to preempt part of the information

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[18.] It is also commonly stated that this precedence can be verbally reversed or cancelled. In our example, saying something like "I mean it. I am not in the party mood, and that is why I am bored. But I can still tell that the party is great. If I was in a better mood, I would certainly enjoy it" could be used to cancel the implicature that the party is boring. However, the universal cancellability of conversational implicature has recently been put in question (cf. Weiner 2006, Borge 2009).

conveyed by the diagram. There is no need to postulate some new, sui-generis mechanism to make sense of this kind of phenomena. All that is needed is to extend our usual pragmatic theories to incorporate visual representations.

Conceiving of heterogenous argumentation this way makes it plausible that we can incorporate images in a general theory of argumentation without making but the smallest adjustments to our theories of interpretation. On this approach, the process of interpreting heterogenous arguments does not diverge much form the process of interpreting purely verbal arguments. In both cases, relevant information sometimes needs to be elicited from the context. In the interpretation of both texts and images, pictorial resemblance, conventional meaning and contextual information must combine following semantic and pragmatic rules. If I am right, and the information conveyed through images is of essentially the same kind as information conveyed through words, we may not need to make major adjustments in our logic, rhetoric or pragmatics. After all, verbal arguments are structured just like visual arguments: they have premises and a conclusion. For argumentation theory, how such premises and conclusion are expressed should be of little importance.

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