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Sección Monográfica / Monographic Section

Iconic Intuitions about Linguistic Meanings

Intuiciones icónicas acerca de significados lingüísticos

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Abstract

I identify the nature and the epistemic status of a sub-type of linguistic intuitions that I call *iconic intuitions* (IIs). The naive speakers are able to detect, through these intuitions, consistent iconic correspondences between linguistic forms and meanings. Firstly, I identify the main features of the linguistic phenomenon detected by IIs: sound symbolism. The correspondences in which it consists are iconic because they are made up of different types of perceived similarities or associations based on similarities between stimuli - one of which is linguistic. Then, I analyze the main alternative philosophical and psychological characterizations of intuitions, and their evidential role, focusing on linguistic intuitions. On these bases, I conclude that intuitions should be conceived as a heterogeneous construct. Secondly, I argue that the IIs are neither beliefs, dispositions to belief, judgments, or intellectual seemings with propositional contents, but rather *perceptual seemings*. They consist of the ability or sensitivity to detect iconic correspondences or associations. In other words, sound inputs directly "track" the meanings conveyed by them. They are characterized by their peculiar presentational phenomenology and evaluative component. Now, according to the type of content and cognitive processing involved, it would seem convenient to distinguish between the most purely perceptual ones, based on associative processes, and those that also involve accumulated experience, analytical processes, and conceptual manipulation. After reviewing the psycholinguistic experimental literature based on intuitions about sound symbolism, I argue that IIs are first-level intuitions, and as such a reliable source of direct and *prima facie* evidence about the iconic features in language. Finally, I argue that these IIs offer a privileged "window" to explore the relationships between language and perception (and affection/emotion). I conclude by arguing that this kind of intuition is a non-dispensable

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input for philosophical reflection and scientific research on language. So, although I vindicate the relevance of intuitions for understanding linguistic meaning, IIs are not of the same kind, nor do they require the same methods for studying them as those that have mainly interested philosophers.

Keywords: sound-symbolism, iconicity, intuitions, perceptual seemings, first-level intuitions.

Resumen

Identifico la naturaleza y el estatus epistémico de un sub-tipo de intuiciones lingüísticas que llamo *intuiciones icónicas* (IIs). Por medio de estas intuiciones, los hablantes son capaces de detectar correspondencias icónicas consistentes entre formas lingüísticas y significados. En primer lugar, identifico los principales rasgos del fenómeno lingüístico detectado por las IIs: el sonoro-simbolismo. Las correspondencias en las cuales consiste son icónicas porque están conformadas por diferentes tipos de semejanzas percibidas o asociaciones basadas en similitudes entre estímulos -uno de los cuales es lingüístico. Luego analizo las principales caracterizaciones filosóficas y psicológicas alternativas de las intuiciones, y su rol evidencial, centrándome en las intuiciones lingüísticas. Sobre estas bases, concluyo que las intuiciones tendrían que ser concebidas como un constructo heterogéneo. En segundo lugar, argumento que las IIs no son ni creencias, disposiciones a la creencia, juicios o pareceres intelectuales con contenidos proposicionales, sino más bien *pareceres perceptuales*. Ellas consisten en la capacidad o sensibilidad para detectar correspondencias o asociaciones icónicas. En otras palabras, los inputs sonoros "rastrean" directamente los significados transmitidos por ellos. Se caracterizan por su peculiar fenomenología presentacional y su componente evaluativo. Ahora bien, de acuerdo al tipo de contenido y de procesamiento cognitivo involucrado, se puede distinguir entre las más puramente perceptuales, basadas en procesos asociativos y aquella que involucran experiencia acumulada, procesos analíticos y manipulación conceptual. Después de revisar la literatura psicolingüística experimental basada en intuiciones acerca del sonoro-simbolismo, argumento que las IIs son intuiciones de primer nivel, y como tales, una fuente confiable de evidencia directa y *prima facie* acerca de los rasgos icónicos en el lenguaje. Finalmente, argumento que estas IIs ofrecen una "ventana" privilegiada para explorar las relaciones entre lenguaje y percepción (y afecto/emoción). Concluyo argumentando que esta clase de intuición es un input no prescindible para la reflexión filosófica y la investigación científica sobre el lenguaje. Así, aunque defiendo la relevancia de las intuiciones para entender el significado lingüístico, las IIs no son de la misma clase ni requieren los mismos métodos para estudiarlas que aquellas que interesaron más a los filósofos.

Palabras clave: simbolismo sonoro, iconicidad, intuiciones, parecer perceptual, intuiciones de primer nivel.

1. Iconic intuitions about linguistic meanings

In the *Cratylus*, Plato speculated about the theoretical benefits that would derive from the *natural* similarity link between names and named things: "… names should be as much like things as possible" (Plato, 1997, pp. 433-435). However, he could not explain how such a link could be compatible with the arbitrary character of many words. The evidence collected in recent years with experimental approaches allowed "…to turn just-so stories about iconicity into empirically grounded explanations" (Akita and Dingemanse, 2019, p. 8). These explanations brought "…iconicity out of the wild and into the lab to resolve the argument between Cratylus and Hermogenes with evidence as well as the reason" (Lockwood and Dingemanse, 2015, p. 3). In other words, Plato's "philosophical intuition" about *words that sound like what they mean* harvested unexpected evidence in the laboratories of psycholinguists, inviting philosophers not only to explore language in new avenues, but also to conceive of intuitions in a broader way.

Against the background of the recent scientific revitalization of that old philosophical idea, this paper is concerned with identifying a subtype of linguistic intuitions, which I call *iconic intuitions* (hereon: IIs). By means of these intuitions, speakers detect correspondences between linguistic forms and meanings. These correspondences are iconic in a broad Peircean sense because, as we will see, they are made up of different types of perceived similarities between stimuli - one of which is linguistic. The linguistic phenomenon identified by these intuitions, known in the literature as *sound symbolism* (hereon: SS), consists of the fact that the meanings of some linguistic units are constituted by associations based on similarities between them and the things signified. These sound-symbolic associations "naturally go along with", so the linguistic signs are perceived and recognized as expressing similarities with non-linguistic stimuli (Dingemanse et al., 2015; Sidhu and Pexman, 2018).

Despite its relative importance in all studied languages, the SS is an almost ignored phenomenon by the philosophy of language and is considered marginal by some prominent linguistic approaches. For this reason, it is understandable that it has not taken note of the peculiarity and importance of the intuitions that detect it. Nevertheless, even if IIs have not identified with that name, they were used as guides for research since the beginning of the last century when the SS began to be investigated empirically. In any case, the nature of IIs has remained presupposed, and their similarities and differences with other types of intuitions in linguistic and philosophic investigations have not been explored. Briefly, my proposal is to conceive of IIs as a peculiar type of *perceptual seemings* that associate in consistent ways, on the basis of similarities (in a broad sense), the perceived properties of some linguistic stimuli (of those having iconic properties) with perceived (or perceivable) properties of certain non-linguistic stimuli. By virtue of these seemings, people are able to recognize (guess, score, etc.) the meanings of linguistic signs, without the aid of semantic information or prior linguistic or non-linguistic knowledge, with varying degrees of accuracy.

Therefore, I will argue that the IIs are a differentiated subtype of linguistic intuitions. For this, it will be necessary to clarify its nature and delineate its epistemic status. I assume that the philosophical interest of the IIs depends on prior recognition of the salient features and the relative importance of SS in language. Therefore, I will first refer to it in some detail (section 1). Then, after a brief review of the recent literature on the nature of intuitions, in particular, on linguistic intuitions, I will defend the proposal that these should be conceived as a heterogeneous construct. So, I will object that all of them correspond to a single overintellectualized type, as many philosophers have thought, and I will argue, positively, that IIs can be understood as *perceptual seemings*, with a specific epistemic role, both exploratory and evidential, about the presence and properties of iconic phenomena in the language (Section 2). As it will see later, some characteristics of IIs that I am going to defend here come from suggestions and proposals on other subtypes of intuitions (and on related phenomena) scattered in the literature. In the following section, I will delineate the features of IIs (Section 3). To do so, first I will reconstruct the evolution of experimental designs and cognitive tests based on speakers' intuitions to identify, measure, and evaluate iconic associations, in increasingly reliable ways. I will show that the IIs provide partial but direct evidence about the presence and some significant features of SS (Section 3.1). On these grounds, I will finally characterize the IIs as *perceptual seemings*, the very ones that partly *constitute* the cognitive phenomenon that gives rise to the SS in language. As such, they are *first-level intuitions* resulting from the consistent integration of mostly multi-sensory perceptual information. According to the type of contents and cognitive processing involved, I will differentiate the most purely perceptual IIs, which might be characterized as *holistic intuitions*, based on associative contents and processes, from *inferential intuitions*, which involve accumulated experience, analytical processes, and conceptual manipulation (Section 3.2).

Based on this characterization, I will make some guesses about possible "contra-intuitive" sources that could explain the persistent disbelief surrounding the phenomenon of iconicity in natural languages and the consequent invisibility of IIs that detect them. Finally, I will propose that IIs are a privileged "window" to study some aspects of the relationships between language and perception, and also affect and emotion. Thus, they could contribute to explaining some semantic distinctive features of sensory, expressive, and aesthetic language, to the extent that they are strongly rooted in the experiential links of speakers with sound patterns of languages. Iconic associations, and our cognitive capacities to detect them, would provide a mechanism or scaffolding to ground language in sensory-affective experiences. As a consequence, they also reconfigure our understanding of language as based on purely amodal and abstract processing. (Section 4).

2. Iconicity in language: sound symbolism

Many specialists agree that the SS is a variety of *cross-modal correspondences* (hereon: CCs)[1] that is a more general phenomenon concerning sensory perception. The CCs are defined as the propensity or tendency to associate certain features or dimensions of the perceived stimuli with others seemingly not related to them, in different sensory modalities. These associations produce a *concordance* or *congruence effect* in the contents of experience, generally, a bi-directional one, insofar as they are elicited by the stimuli in any sequence in which they occur (Deroy and Spence, 2016). The CCs frequently go hand in hand with a phenomenal experience of similarity between the associated features (Parise and Spence, 2013). This aspect correlates with its "intuitive nature" (Parise, 2016): these correspondences "feel right" and those who experience them, cannot justify them (Deroy and Spence, 2016).

CCs have been verified in all sensory modalities, e.g., high-pitched sounds with small objects, luminosity or brightness, and loud sounds with big objects or shapes. They have also been verified between shapes and colors or flavors, sounds and colors, textures and sounds, music and smells, colors or smells and letters or words, more or less light or brightness with emotional feelings, etc. (Spence, 2011). To sum up, these associations cover and combine "low-level" properties, such as luminosity, with "high-level" properties of stimuli, such as pseudo-words[2] or words (Parise, 2016), between different sensory modalities. On the other hand, as said, the CCs are consistent and "expected" (Parise and Spence, 2012). Some specialists hold that some specific CCs are universal: the same in different populations and cultures, also in preverbal infants and non-human animals (Siddu and Pexman, 2018). In any case, the evidence refutes the assumption that it could be restricted to the synesthetic population[3] (Parise and Spence, 2012), or very anecdotal, idiosyncratic, or just culturally delimited experiences (Deroy and Spence, 2016). CCs give rise to a myriad of complex philosophical issues (about their cognitive etiology and mechanisms, representational vehicles, contents, etc.). I will address many of them indirectly, in Section 2, when I examine the nature of intuitions that detect CCs.

I will refer now to the *association* concept because is related in varying degrees to all CCs and it is crucial for understanding the nature of sound-symbolic correspondences. *Association* means a more or less stable and reciprocal relationship between representational states that

[1] This phenomenon is called in different ways: synesthetic congruencies, synesthetic associations, cross-modal equivalences, trans-modal similarities, natural trans-modal mappings, and natural associations, among others (for reviews, see Spence, 2011; Deroy and Spence, 2016; and Siddhu and Pexman, 2018).

[2] A pseudoword, in this context, is a combination of consonants and vowels, phonologically similar to the ones of familiar languages, that does not have any conventional meaning in any language. Psycholinguistic research on SS uses pseudowords and nonce-words.

[3] Synaesthetic individuals vividly experience multimodal percepts, e.g., tasting colors, seeing sounds, etc. Unlike typical experiences, synesthetic experiences add a 'concurrent' percept, sometimes in a different sensory modality, to an experience related to the stimulus that generates it (inducer).

activate sequentially. These relationships are based on resemblances (we will see later how they should be understood). But as Mandelbaum (2016) and Brownstein, Madva and Gawronski (2019) point out, the *association* concept covers different kinds of phenomena, which can combine and dissociate themselves, and with a variety of mental states and processes, in different ways.[4] Thus, it must be distinguished between *associative learning* (how something is learned), *associative structures* (how contents are related to), and *associative thinking* (how transitions between mental states are produced). Associative learning links directly stimuli, in a way insensitive to any information about their relationships. Associative structures relate contents (conceptual or not) in a way that tend to co-activate but not in an evaluable propositional structure. And associative thinking causes another thinking (or behavior) but it does not may justify it. While some CCs would be more plainly associative, other CCs, being modulated by more structured information would not be "pure" associations, i.e., in all senses of the notion, e.g., they could be the result of automated associative processes but involving propositional contents. I will return to this matter later.

Wolfgang Köhler identified the phenomenon that interests us at the beginning of the last century (1929). But Ramachandran and Hubbard (2001), a work on the different types of synesthetic perceptions, revitalized their interest in the cognitive sciences. Since the beginning, it has been pointed out that spoken and written words[5] must be included among the stimuli that trigger CCs, as long as they are objects of auditory or visual perception. The linguistic phenomenon was called *sound symbolism*.[6] The conjecture, originally formulated by Jespersen (1922), was based on the discovery that the vowel sound /i/ is usually associated with small things, while vowel sounds /u/, /o/, and /a/ are usually associated with big ones. It has been conjectured that these associations could stem from how the oral cavity and the tongue are positioned for pronunciation.

Many other correspondences between speech sounds and non-linguistic perceptual features discovered, embracing a wide variety of semantic domains, such as liquid-solid, narrow-wide, fast-slow, high-low, etc. (Perlman, 2017); and different dimensions, such as size, movement, intensity, brightness, lightness, duration, texture, among others (Akita and Dingemanse,

[4] Mandelbaum analyzes another kind of putatively associative mental construct: implicit attitudes. I do not agree with his general propositionalist view (see, e.g., "… one really can't do psycholinguistics (never mind generative semantics or syntax) without, at a minimum, structures that take truth-values, and because associations aren't truth-apt, they cannot serve that role" (Mandelbaum, 2016, p. 18)). As we will see, psycholinguistics has to deal also with associations.

[5] I will refer only to the vocal (or vocal-auditory) modality, but SS was also described in sign languages and graphic forms of writing, i.e., in the visual modality. The phenomenon is relatively more transparent in sign languages although with variations in lexical types and the semantic categories related to the iconic potentials inherent to the prevailing modality (Perlman et al., 2018).

[6] It is also known as sound iconicity, phonetic symbolism, sound-synesthetic iconicity, phonemic iconicity, sound-meaning association, and trans-modal iconicity. Many of these labels wrongly suggest that SS is limited to vocal modality.

2019). SS has been verified in different features of spoken words in the vocal-auditory modality, i.e., in sound properties, articulatory gestures, and prosodic features (intonation and rhythm),[7] so as in other features at the syllabic structure level, such as reduplication. Likewise, it has been verified at sub-morphemic,[8] and morphemic levels and at the level of words and complex linguistic constructions in different dimensions: syntactic, semantic, and pragmatic (Dingemanse et al., 2015). For simplicity, from now on, I will mainly refer to spoken words or their sub-lexical components. Sound symbolic vocal-auditory correspondences are the most studied ones. For example, a recent study has examined cross-modal associations between the loudness of sounds and the brightness of colors in 11 color terms and related terms in 245 language families, assuming "that high luminance and high saturation are the two visual traits that guide the lexicalization of color words across languages" (Johansson, Anikin and Aseyev, 2020, p. 79). It was found that vowels with high perceived 'brightness' and loudness or sonority ratings are over-represented in high-luminance color words, while sonorous consonants are more common in words for saturated colors, and less robustly for luminant colors.

It is worth noting that it is still controversial whether the SS is a CCs subtype or not, given the multidimensional and more complex character of linguistic stimuli and the type of processing they require, compared to simpler stimuli involved in many CCs (Sidhu and Pexman, 2018). Nevertheless, the associations between speech sounds and visual properties of objects, such as shapes (the "bouba-kiki" effect), or sizes (the "mil-mal" effect),[9] and other audio-visual associations between words and basic stimuli, such as color, can be considered "…good candidates to bridging the gulf between cross-modal associations in a perceptual level and sound-symbolism in natural languages" (Johansson, Anikin and Aseyev, 2020, p. 3). Bearing in mind that many sound-symbolic words do not have purely perceptual or sensory meanings, as pointed above, different kinds of semantic content should be admitted in them.

The differences between the stimuli involved and other related features have encouraged the need to categorize SS (Sidhu and Pexman, 2018). Thus, it has been distinguished in literature from a weaker form to a stronger one. The former would be *regular associations*, based on statistical co-occurrences of the surrounding stimuli (and the internal experiences triggered by them); the latter would be more robust *iconic relations* by which articulatory-sound forms or signs reflect or 'mirror' some aspect or property of the referent or meaning,

[7] E.g., in the case of prosody, the phonetic lengthening of a word changes some parameters in speech production to mean more size (*huuuge*), duration (*leeength*), or speed (*faas*t) (see Winter, 2019).

[8] The so-called *phonesthemes* are sub-morphemic phonological components, that carry semantic information and vary depending on the language, vgr., *fl*, *gl*, *sn*, *cr*, *pl*, etc. (e.g., /*gl*/ in words with meanings related to light, such as *glimmer* or *glow*, in English (cf. Bergen, 2004).

[9] Ramachandran and Hubbard (2001) tested "bouba-kiki" as a variant of Köhler's "maluma-takete". As known, the effect consists of vowels and consonants are consistently associated with round and spiky shapes, respectively. Sapir's experiment tested the association between the pseudo-words "mil-mal" with little and large objects, respectively.

or users' experiences consistently related to their usage. Similar mechanisms to the ones that would explain the CCs have been conjectured. (Sidhu and Pexman, 2018). Summing up, CCs and SS would have similar varieties inasmuch that they seem to be based on similar hypothesized mechanisms. Thus, they would originate either mere associations or more complex and robust iconic links between perceived stimuli. So as, as we will see in Section 2, both might ground two different subtypes of IIs.

Meanwhile, most authors agree on the idea that this phenomenon, as CCs do, manifests gradual variations in a *continuum* in which more objective (relative to properties perceived) or more subjective elements (inner feelings) (Winter, 2019), and more innate or more learned factors are involved (Parise, 2016). Also, the phenomenon takes place in variable ways according to the modalities, types of similarities, and languages (Dingemanse, 2012; Dingemanse and Thompson, 2020). Languages differ in prevalence, distribution, and linguistic types of iconicity. For their part, many words have iconic as well as arbitrary components in different proportions. Some experiments explored this *gradability* by quantifying the perceived iconicity on a scale, higher or lower in sensory information, according to lexical types: verbs, adjectives, nouns, grammatical words, and semantic domains (Perry, Perlman and Lupyan, 2015; Winter et al., 2017).[10] They constitute cases of relative iconicity and differ from *absolute* iconicity, i.e., onomatopoeic words and *ideophones* (Dingemanse et al., 2015).[11] Nevertheless, iconicity can be *indirect* when the sound form causes a similar associative effect or "impression" to the one produced by the property referred by the word, which is presented in the same or other modality. So, not only some vowels are associated with size, i.e., /i/ and /a/ with smallness and largeness, but some other phonemes (consonants or vowels) with shape, i.e., roundness or sharpness[12] (Sapir, 1929; Sidhu and Pexman, 2018). When it is neither absolute nor direct, the iconicity is a less *transparent* property for speakers. In this context, transparency defines as the capacity to understand or conjecture the meaning of a

[10] Iconicity manifests also in personal names and nicknames; in some expressives such as puns, jokes, slurs, and bad words; so too in interjections, exclamations, and diminutives; in literary texts, and the so-called *Motherese* or *baby talk*. It is presumed that perceptual and affective associations turn SS into a very effective communicative tool.

[11] Onomatopoeic words are strongly imitative as based on sound-to-sound correspondences, e.g., *boom*, *ring*, *splash*, *cuckoo*, *click*, in English. *Ideophones* (or *mimetics*) are specialized iconic words class that express sensory, motor, or affective information. They are common in many language families. Words that evoke repetition through reduplication are also strongly imitative, such as *korokoro* ('a light object rolling repeatedly'), and *gorogoro* ('a heavy object rolling repeatedly'), in Japanese (Perniss and Vigliocco, 2014; Dingemanse et al., 2015).

[12] Sonorant consonants (e.g., /l/, /m/ and /n/), voiced stop consonants (e.g., /b/, /d/, /g/) and back vowels (e.g., /u/), are associated with roundness, such as *balloon*; front vowels to small or spiky objects, or to lower intensity of sound or light, such as *teeny* (Perniss and Vigliocco, 2014). Other phonemes in these words are arbitrary. A robust association between the /r/ phoneme and roughness (an audio-tactile association) in the sensory lexicon of many different languages has been proved (Winter et al., 2022). Some words are likely to evoke psychological traits, the so-called psychotomimetics, e.g., wakuwaku (exhilarated) (Akita and Dingemanse, 2019).

word only based on its linguistic form (Motamedi, Little and Sulik, 2019), even though the subject is not necessarily subjectively aware of such a capacity.

As I have said, these correspondences are iconic in a broad Peircean sense. It is time to make explicit what are the Peircean features of the notion of *iconicity* in use. A sign, linguistic or not, is iconic when its representational content is motivated, directly or indirectly, by some similarity or resemblance with what it represents. Usually, this means that a sign is iconic by virtue of some property that it shares, in some respect, with its meaning. Icons differ from indexes and symbols, as it is known. Two caveats are in order. First, according to Peirce "… in fact, there is no pure icon: and we apply the name icon to any sign in which the force of resemblance is the dominant element of its representativity." (1898) (MS (R) 484: 4-5). Peirce warns, then, that signs can contain both iconic and non-iconic elements, so their meanings are not completely transparent to speakers. And second, "…the meanings of words ordinarily depend upon our tendencies to weld together qualities and our aptitudes to see resemblances, or… upon associations by *similarity*, while experience is bound together…" (1892, CP 3.419). So that, "…it is the association which constitutes the resemblance…" (1898, CP 7.498).[13] This means that *natural associations*, embracing linguistic and non-linguistic signs, have two faces: one objective and the other subjective. In other words, they always suppose a triadic relationship, with an interpreter who "attaches a peculiar value" to the associative link. Note that in other theoretical frameworks, instead, it is assumed that: (a) icons and symbols differ *sharply*, i.e., they are pure semiotic categories; (b) iconicity is only a property of representational vehicles relative to certain properties of objects represented, without any constitutive role of interpreters; and also (c) verbal languages are almost exclusively made up by symbols.

Under this *iconicity concept*, different manifestations of resemblance-based mappings among linguistic signs and meanings could subsume, covering from the most transparent and direct imitation to the most blurred connotation or emotional evocation (Perniss, Thompson and Vigliocco, 2010; Perniss and Vigliocco, 2014).[14] Summing up, iconicity can be defined

[13] Peirce distinguished *accidental associations* (i.e., one's distaste for a particular kind of food associated with a period of sickness) from *natural associations* "…because it was in the nature of things that they should appear in sets. Thus, light and warm get associated in our minds because they associated in Nature" (1892) (CP 7.549-51). In the Peircean sense, many CCs and sound-symbolic associations would be natural associations. (Note that curiously the same label is used in specialized literature about CCs, cf. Parise, 2016). But Peirce observed also that *association by resemblance* is not a good label for them "…since it implies that the resemblance causes the association, while in point of fact it is the association which constitutes the resemblance… the human mind attaches a peculiar value and emphasis to some resemblances, and that consists in this, that when one quality is brought vividly to consciousness, others will at once have their vividness increased, some more, some less" (1898) CP 7.498). These paragraphs show that triadic relationships are necessarily involved in all semiotic links, including iconic ones. In these senses, I interpret that the notion of iconicity in the literature on linguistic iconicity reflects the Peircean notion in a *broad sense*.

[14] Aryani (2018, p. 25) sustains that "affective iconicity" consists of "…the phonology of words has per se affective iconic properties which can interact with affective aspects of semantics." According to this hypothesis,

as the property of some vehicles of the linguistic form (whether phonological, articulatory, orthographic, or communicative features) of having some type or grade of similarity with some sensory properties of the referents or meanings or being associated with affective experiences evoked by them, for certain kind of interpreters (Perniss and Vigliocco, 2014; Winter et al., 2017).

Despite the omnipresence of arbitrariness in the so-called *formal approaches* to language in linguistics and philosophy of language,[15] iconic phenomena are gaining more attention and a prominent role in some *non-formal approaches* because they give a less peripheral significance to experiential dimensions of meaning and the sensory-motor system in semantic processing and cognition in general (Perniss, Thompson and Vigliocco, 2010; Perniss and Vigliocco, 2014). Nowadays, it seems reasonable to revise the orthodox view about iconicity in language as almost a para-linguistic feature or a marginal phenomenon or, at most, only present in a few languages. In that sense, insufficient knowledge of languages until recent decades has been another source of disbelief about this phenomenon.[16] If the importance of iconicity in language is now better recognized, the aim of examining the relevance of IIs to investigate it is better motivated.

3. The nature of intuitions

Although some philosophers deny that intuitions are a type of distinctive mental state (see Cappelen, 2012), the general assumption in the philosophical literature is the opposite: intuitions would be a rather "monolithic" category (Schukraft, 2016). Nevertheless, the proposals about their nature are quite different. According to the majority, they are *only* a type of judgment, a belief, a disposition to belief, or similar doxastic states (Sosa, 2007). A variant of this approach conceives them as judgments or empirical generalizations about data, "loaded" with theories (Devitt, 2006). For another group of philosophers, instead, intuitions would be a very peculiar type of mental state, which possesses certain modal properties: the subject believes that such or such a proposition *must* be true. In that way, intuitions would be *seemings* or "more primitive propositional attitudes" (Bealer, 1999), that is, states with contents that have a distinctive phenomenal character, consisting in its peculiar assertive force, grounded on *a priori* evidence on concepts involved. Because of similarities to perceptual experiences, these views of intuitions are called "perceptualism" (Chudnoff, 2011), or more properly, "quasi-perceptualism" (Bengson, 2015). Now, these views hold that the philosophically relevant intuitions would be "intellectual seemings" (inasmuch

verbal sounds would evoke non-verbal emotional vocalizations. So, some aesthetic uses of language would be supported by affective iconicity.

[15] Arbitrariness consists of the fact that any sound speech can mean any semantic content. As a consequence, the sound of an unknown word does not allow us to infer its meaning.

[16] See, among others, the striking findings of a recent study about iconicity in the basic vocabulary of 4298 different languages (cf. Blasi et al., 2016).

they provide *prima facie* justification about the proposition that appears to be true) rather than "sensory", "imaginative", or other ones (Bealer, 1999; Huemer, 2001; Brogaard, 2014). For both groups, intuitions have propositional contents. Therefore, *propositionalism* about intuitive contents is the prevailing position among philosophers (see McGahhey and Van Leeuwen, 2018). It is true that many of these views were proposed to account for intuitions by virtue of their epistemic relevance for philosophical inquiry, not out of any interest in intuitions themselves. In fact, the main philosophical literature on intuitions revolves around a specific type of them, the so-called intellectual intuitions, derived from the focus on specific topics or areas of research (with properties such as abstractness, necessity, and apriority). In any case, none of these characterizations seems to be appropriate to account for the nature of the phenomenon that interests us: less complex in the structure of their contents, presumably also less cognitively demanding. Let's consider now linguistic intuitions.

The linguistic intuitions (LIs) were defined, in a standard way, as judgments or beliefs, as well as their corresponding verbal reports, about a variety of properties of linguistic phenomena (Maynes and Gross, 2013). Syntactic and semantic intuitions caught the linguists' and philosophers' attention respectively. The homogeneous views in the linguistic and philosophical literature about LIs could stem from the increased attention paid to one or another variety (Maynes and Gross, 2013). Under this assumption, Devitt (2006) tried to develop a characterization of the LIs and their epistemic role which aims to be valid for both of them. According to his approach, the LIs would be meta-linguistic judgments about linguistic data, but the only judgments that should be considered relevant are those influenced by appropriate beliefs. For this reason, these intuitions would only provide indirect evidence about the studied properties.

As regards the syntactic intuitions, many specialists replied to Devitt that, on the contrary, the intuitions that matter are those that express the assessments of native speakers (judgments of "acceptability"), since they reflect the underlying rules and principles of grammar, which is what the theory wants to explain. In other words, the cognitive etiology of LIs confers informational content to the introspective reports of native speakers, making them direct and reliable evidence about an underlying system of linguistic knowledge (Maynes, 2012). Devitt and their critics disagree, not only on the nature of the LIs (expert meta-linguistic judgments vs. naïve linguistic judgments, respectively) but also on their evidential role (indirect evidence vs. direct evidence, respectively) in virtue of a previous discrepancy related to their different conceptions about the cognitive etiology of intuitions (Maynes and Gross, 2013). These distinctions will be useful for understanding IIs.

In the philosophy of language, in turn, it is assumed that semantic intuitions are judgments about the semantic properties of the linguistic expressions, such as the reference or the truth. A generalized assumption is that ordinary people are reliable detectors of the relevant properties (Cohnitz and Haukioja, 2015) and that philosophers are, in turn, "expert" detectors of these intuitions. The so-called "Machery cases" challenged both assumptions: some experiments carried out in groups of speakers of different linguistic-cultural communities show that they

differed in their semantic intuitions, and, consequently, supported different semantic theories (Machery et al., 2004). As a direct consequence, an "experimental turn" in the philosophy of language was encouraged, which consisted of replacing the trust in the informal intuitions with the "systematic experimental surveys of ordinary speakers' intuitions" (Machery and Stich, 2012, 495).

This debate has also many other interesting alternatives, but, for my specific purposes, it is worthwhile pointing out only the following ones: (a) the defense of the "experimental turn" is compatible with the acceptance of some evidential role conceded to the intuitions of ordinary speakers when properly collected and calibrated (Machery and Stich, 2012); (b) the defense of the role of the meta-linguistic intuitions as indirect evidence for the linguistic theories is compatible with an experimentalist approach about the "linguistic usage" (see Devitt & Porot, (2018),[17] and, as we will see, about the intuitions about the linguistic usage, which taken together might provide direct evidence of different linguistic phenomena. As will be seen later, IIs come from ordinary speakers, are first-level intuitions and, to the extent that they can be properly collected and calibrated, serve as direct evidence of SS.

In contrast with the characterization of the LIs as judgments, Textor (2009) proposed that they are *perceptual seemings*, as they *only* trigger by the hearing or visual perception of chains of linguistic signs. Let's see first what are perceptual seemings. These are experiences that come along with a peculiar phenomenology: *a presentational phenomenology* (see Tucker, 2010; Chudnoff, 2011; Reiland, 2015). This means that their contents are not presented neutrally but "compelling" (Bengson, 2015), i.e., with a special "forcefulness" (Huemer, 2001), "pushiness" (Koksvik, 2021), or "assertiveness" (Tucker, 2010). Now, this phenomenology of seemings (i.e., presenting a proposition as true or unstructured content as acceptable) is common to perceptual experiences and intuitions. Philosophers differ on what unifies intuitions as a kind of mental state: perceptualists or quasi-perceptualists about intuitions claim that this distinctive presentational phenomenology is not relative to contents (in that sense, intuitions are *only* analog to perceptions) but to the attitude involved: intuitions are intellectual seemings, not perceptual ones (Chudnoff, 2011; Bengson, 2015;[18] Koksvick, 2021). On the contrary, following Textor (2009), I claim that at least some LIs have perceptual contents, and are based on the same cognitive etiology as perceptual experiences. In other words, some LIs are perceptual seemings.

So, syntactic intuitions (Textor only refers to them) would consist of perceiving *specific* linguistic expressions as *acceptable* or *unacceptable*. Thus, these intuitions manifest by *general* evaluations (e.g., "Sounds good"), so they do not need to have the structure of a judgment: a *feeling* would be enough. Therefore, they cannot be true or false but it has other evaluative

[17] Devitt and Porot (2018) recognize that the experimental techniques of induction of usage or production elicited, among others, provide direct evidence about the different language properties. But he holds that "experimental semantics" should be limited to them.

[18] Bengson (2015) distinguishes presentations from seemings, but I will not deal with this distinction here.

properties, perhaps degrees of accuracy or precision. You probably can't express this assessment through a linguistic judgment, and even less justify it with a meta-linguistic one. So, they are "felt evaluations" inasmuch as perceived stimuli "feel right" or in tune with each other. Therefore, these *seemings* are the result of "… passive evaluations of 'bits of language' that we are conscious of, and that are not arrived at by reasoning" (Textor, 2009, p. 401) and provide a non-inferential, direct justification (see also Huemer, 2001; Reiland, 2015; Brogaard, 2013, 2018). Both, perceptual experiences and *perceptual seemings* may have an evidential role: the latter usually presupposes the former. In the cases we are interested in, its general character evaluative is still more evident: some linguistic sounds "feel right" with some other perceptual stimuli.

On the other hand, these *perceptual seemings* are conceived as pre-doxastic or sub-doxastic states with non-propositional contents.[19] While some seemings could have non-conceptual contents, others would have conceptual ones or would presuppose categories or basic conceptual structures. Given the (mostly) perceptual and associative character of the SS phenomenon, *perceptual seemings* about them would be (mostly) perceptual in contents (whether conceptual or not) and would have an associative structure. So, the contents attached to these correspondences would project to *perceptual seemings* about them. Since the intuitions about sound-symbolic correspondences refer to perceptual experiences about linguistic signs, let us now consider how these are perceived and how we could have *perceptual seemings* about them.

First, unlike the perception of non-linguistic sounds, a distinctive phenomenology comes along with the audio-visual perception of linguistic sounds, including the unknown (O'Callaghan, 2015). This phenomenon reveals the peculiar significance of human speech perception in contrast with other stimuli. Additionally, the perceptual phenomenology of native speakers differs significantly from that originating from the perception of a foreign language (Siegel, 2006). In such a case, we cannot perceive words or sentences because we need to pay auditory attention to sounds themselves (Siegel, 2006; O'Callaghan, 2015). This fact originates so-known phenomenal contrast: we have different phenomenal experiences in front of the same auditory input. This contrast can explain by invoking different properties perceived in each case, e.g., different representational contents (Siegel, 2006). In the case of perceiving speech sounds, however, it is possible to appeal to other properties: we either perceive only *phonological properties* ("low-level audible qualities") differently every time,

[19] Not all *perceptual seemings* (or *appearances*) have been conceived in the same way (see Tucker (2013) and Reiland (2015), for whom they are ever conceptual and propositional). I remain here uncommitted to any general view about *perceptual seemings*, but it follows from the above that I am predisposed to accept a heterogeneous view about their contents.

but not meanings (O'Callaghan, 2011; 2015);[20] or we perceive *phonological* and *semantic properties* ("high-level features") in one case, but not in the other (Brogaard, 2018).[21]

Now, when we perceive arbitrary signs, it is possible to distinguish more clearly between semantic and non-semantic properties, according to the degree of linguistic competence involved (see O'Callaghan, 2011). Conversely, in the case of linguistic signs with iconic properties, phonological and other non-semantic properties are strongly associated with their meanings. In some cases, these associations even transcend the different phonological repertoires of languages. These last two facts explain that iconic meanings can be experienced not only by competent speakers of a language but also by incompetent ones, as we will see in most of the experimental tests on iconicity effects. Now, in the case of iconic words, two perceptual contents "seem to be similar or linked to each other", i.e., certain phonological (and eventually prosodic) properties perceived in speech sounds are associated with semantic properties manifested through those same perceptible features. In other words, sound inputs "track" directly the meanings they convey. Thus, the so-called *semantic-perceptual view*, according to which "…we can come to know what was said merely on the basis of hearing the utterance" (Brogaard, 2018), would be an obligatory theoretical choice for sound-symbolic properties of speech because it provide very plausible way of satisfying the requirement that such a view should satisfy: explaining how we could be able to extract information about meanings *only* from the auditory stream (Drożdżowicz, 2020).[22] So, whatever the right view about arbitrary meanings, iconic meanings need to figure in our account of perceptual experiences and of *perceptual seemings* about linguistic signs. In other words, iconic meanings are the best candidates for being objects of semantic perception, and consequently, *perceptual seemings* about them. Inasmuch people may have different degrees of linguistic understanding due to perceptual learning and skills, and also context-sensitivity and top-down influences (see Brogaard, 2018), these kinds of *seemings* may extend to more cognitive sound-symbolic associations (and also to their affective valences or emotional feelings, too). That is, we could not have perceptual seemings about iconic meanings if we could not perceive iconic meanings at all in the first place. So, conceiving these intuitions as *perceptual seemings* is not grounded on a mere analogy (as quasi-perceptualists claim): they are robustly perceptual. I will return to this issue in the two following sections.

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[20] O'Callaghan (2011) objects to the thesis that we perceive meanings, claiming that we have different experiences due to language-specific differences in phonological attributes.

[21] Acoustic signals of speech sounds always include multiple levels of semantic and pragmatic information and go along with other simultaneous signals in other modalities.

[22] We leave out of consideration here whether experiencing meanings is about properties of utterances or properties of an expressions-type. Additionally, whether if it is just about sentences or also of words (see Brogaard, 2018). This last issue is relevant to the experimental designs and evaluation of iconicity tests, mostly based on words. It assumes that iconic words can be tested in isolation by virtue of their specific iconic properties: more iconicity goes together with less grammatical integration (see Dingemanse and Akita, 2016).

As has been said, philosophers have characterized intuitions as a type of mental state, by the nature of its contents and by a peculiar phenomenology, but also by their cognitive etiology. They generally accept that intuitions are non-reflective conscious states, i.e., that have not originated in conscious inferential processes. This feature confers on them an element of "spontaneity" or "effortlessness" that differentiates them from those mental states that involve reflection or effort (Cappelen, 2012; McGahhey and Van Leeuwen, 2018). In that way, the sub-personal process of formation (*intuiting*) contrasts with the outcome (*intuition*), which is consciously registered (Sinclair, 2010). However, as we will see shortly, psychologists dissect the intuitions according to more finely identified cognitive etiologies (Nado, 2014; Schukraft, 2016).

Interest in intuitions has increased significantly with the proposal of the *dual model of cognition* (Evans, 2009). According to this approach (at least in one of its classic versions), two types of cognitive processes should be distinguished: the intuitive and the reflective. The first one, called System 1, is characterized by a holistic and non-conceptual processing style. It works in parallel, through fast, unconscious, and effortless operations. The opposite features characterize the so-called System 2, which is ruled-based, analytic, and reflective (Evans, 2009). Different types of processing are involved in each case: in the first one, it is *associative*, that is, guided by the principles of similarity and contiguity; in the second one, it is *rule-based*, with an analytical type of processing, and it elaborates representations with a conceptual/propositional format and truth values. In this framework, intuitions gained a prominent position as a peculiar form of direct and automatic "knowledge", which manifests itself through fast and effortless "judgments"[23] beyond the conscious control of the one who produces them and followed by a strong feeling of certainty.[24] The features of the first type of processing give rise to the spontaneous and assertive phenomenology that distinguishes intuitions.

The dual model of cognition contributed to recognizing intuitions as a differentiated type of cognitive process and response (De Cruz, 2014). Nevertheless, many critics pointed out that it is not right to infer from any System 1 property to any other one because "…different processes are arranged in a multitude of different ways" (Mandelbaum, 2016, p. 20). Thus, more nuanced versions of the *dual model* are proposed, questioning above all the strong idea we have "two minds". Regarding intuitions, an illuminating distinction was elaborated between two subtypes: one that could be modular and innate or associatively learned, and the other one with a procedural character. This distinction was further developed in terms of "two developmental pathways" of intuitions: one that corresponds to maturational processes,

[23] In this context, "judgment" has a more hands-off usage than in the philosophical literature: the association between sensory stimuli is considered a type of "judgment" (Pretz, 2011). I use quotation marks to point out this usage.

[24] See Thompson (2009) about the "Feeling of Rightness" (FOR), conceived as the "metacognitive experience" more or less strong, with mainly a perceptual and (or) affective content, that guides the production of intuitive answers.

and the other one, that depends on the accumulation of experience and learning (De Cruz, 2014; McGahhey and Van Leeuwen, 2018). The former originates, e.g., our skill to be fluent speakers of a natural language. Reading and writing, instead, require deliberate practice, and competencies thus acquired show great variability between individuals. Nevertheless, both processes overlap to some extent, and both generate intuitions (De Cruz, 2014).

In the same vein, and considering the different cognitive mechanisms involved in the etiology of intuitions as a criterion, a distinction between two subtypes was proposed: *holistic* and *inferential* ones (Pretz, 2011). *Holistic intuitions* would come from the integration of complex perceptual information through primary processes, i.e., cross-modal grouping based on similarity. These intuitions would be the result of the "holistic integration of cues" (Sinclair, 2011) and would not depend on prior experience. On the other hand, *inferential intuitions* would be "judgments" based on automatic, and highly reliable inferences that derive from the accumulated perceptual experience and the analytical processes of its acquisition. The *expert "judgments"* would belong to this group, judgments that become automatic with practice.[25] Meanwhile, at the base of these subtypes of intuitions would be different "processing styles", although sometimes partially overlapped: purely associative processes or *bottom-up*, or more constructive processes or *top-down*, in which conceptual (and propositional) representations may also intervene. Thus, *inferential intuitions* would base on constructive processes, and *holistic* ones would base on the integration of *bottom-up* processes (Glöckner and Witteman, 2010; see also Sinclair, 2011).

Bearing in mind that some SS correspondences are more basic and shared and others are specialized or expert, one might suppose that IIs that detect them would not be homogeneous either: while some are purely perceptual (perhaps with affective valences), others seem to be of a mixed nature, perceptual and cognitive (in both phenomenology and cognitive etiology), in different degrees. In sum, regarding the empirical question about the cognitive etiology of intuitions, and specifically in the case of IIs, "…the sameness-of-origins thesis can no longer be justifiably assumed" (Schukraft, 2016, p. 332). Ultimately, "…we must be more fine-grained in the way we carve up intuitions" (Schukraft, 2016, p. 334), not conceiving of *intuitions* as a homogeneous construct (Glöckner and Witteman, 2010; Nado, 2014, 2016). In any case, for my purposes, it is not only relevant to note the feasibility but also the interest of this heterogeneous approach, because it accommodates a distinctive subtype of LIs: IIs as *perceptual seemings*. In turn, this subtype of *perceptual seemings* admits a finer distinction between *holistic* and *inferential* ones. This distinction will be useful in accounting for the differentiated features of IIs.

[25] The link between intuition and expertise might consist of the possibility to modify perception and related skills through the experience accumulated in a given domain. This sub-type of intuition, which also extends to IIs, reinforces its characterization as a heterogeneous type of mental state, regarding cognitive processes and their contents.

I In keeping with the distinctions set forth above, Cohnitz and Haukioja (2015) proposed to differentiate *first-level intuitions* from *second-level intuitions* (not only linguistic ones), and also intuitions from their corresponding verbal reports. Based on these two types, *linguistic first-level intuitions* would be constitutive of the capacity of which they are its manifestation and are expressed through ordinary linguistic competence, not only in comprehension but also in producing linguistic outputs: "a first-level intuition is any outputs of an intuitive capacity that are constitutive of the capacity by an inquiry that has that capacity as its subject matter" (Cohnitz and Haukioja, 2015). In that sense, they are intuitions about use, such as "immediately formed expectations" or "immediate feelings" of what to say or what to do (e.g., in a test). However, they are not always followed by the ability to report them linguistically.[26] In that case, they can be identified through non-verbal tests, which provide even more direct evidence about the semantic knowledge of speakers.[27] The authors refer, among others, to the psycholinguistic tests using eye-tracking to detect the possible referents in a proper name, without asking the subject to utter any utterance. *Second-level* or *meta-linguistic intuitions* would, in turn, be beliefs about them or theoretician intuitions about the first-level ones, and they also differ from the corresponding second-level reports. Both of them have an indirect evidential role in theories.

To summarize, *perceptual seemings* are *first-level LIs* about the use, and although we can make reports about them, they could manifest also through spontaneous or triggered non-verbal behaviors. Whether it is appropriate or not for characterizing syntactic intuitions, the notion of *perceptual seeming* is well suited to the IIs, since they are triggered by perceptual stimuli that trigger, in turn, consistent associations with other perceptual stimuli. As for their evidential status as *first-level intuitions*, they could gather as outputs of the cognitive capacity that originates them, making them direct evidence for linguistic theories. For that purpose, they need to be calibrated. Finally, whatever the preferred terminology, we should distinguish between the linguistic use and the intuitions about the use -although both are closely related- and these two, and meta-linguistic intuitions. Whenever possible, we should distinguish between the intuitions themselves and their corresponding reports. Relating to first-level intuitions, they manifest also through non-verbal outputs. Thus, IIs are first-level intuitions: they "constitute" what second-level theories intend to explain. Once these points have been settled, we can deal with iconic intuitions.

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[26] Maynes and Gross (2013) hold that the distinction between intuitions and their reports has a "limited signification" because intuitions have to be reported to be taken as evidence and because reports usually coincide with the reported experiences. But it is objectionable to confuse the nature of mental states with the ways of linguistically reporting them. See Section 3 for a more detailed answer to this point.

[27] Devitt & Porot (2018) admit that linguistic behaviors are equivalent to intuitions, as they provide direct evidence of features of the language but they point out that it is not accurate to call them intuitions or that it is an "infelicitous term" (p. 1557). Why?

4. Iconic intuitions

I will first refer to the research strategies and some relevant results published in the psycholinguistic experimental literature about iconicity (Section 3.1). They will show how a specific type of intuition has been used as evidence to study SS and which character they are presumed to have. On these bases, and what has been presented in the previous sections, I will offer a characterization of the IIs and their epistemic role, consistent with this psycholinguistic research and with the phenomenon they detect (Section 3.2).

4.1 Intuitions in experimental research about iconicity

It is worth clarifying that it is not my aim to analyze the intricate methodological issues related to the design, the limitations, and the evidential potentials of the experimental research about SS.[28] Nor do I intend to directly evaluate to what extent such research adds a positive foundation to an experimentalist way of doing philosophical semantics or linguistic theory (although they have that "flavor"). The references to these issues have a more modest aim: to identify the peculiar features and the epistemic role of IIs. Sapir (1929, p. 229) referred to IIs as the *feeling-significance*. In recent specialized literature, it is common to find the use a variety of terms with similar meanings to intuition, such as associations, guesses, assumptions, impressions, listener sensitivity, intuitive expectations, vocal improvisations, natural assessments, etc. (Deroy and Spence, 2016; Dingemanse et al., 2016; Motamedi, Little and Sulik, 2019; Sidhu and Pexman, 2018). It is worth noting the almost exceptional use of "intuition" and "iconic intuition" in McLean, Dunn and Dingemanse (2023). However, neither the meaning of those labels nor the nature of the referred phenomenon has been analyzed. Deroy and Spence (2016, 35) pointed out that the time has come to rectify that omission: "When many cognitive neuroscientists, anthropologists, and philosophers are trying, at the moment, to understand the nature of moral and linguistic intuitions, it feels especially timely to investigate the nature of these *sensory intuitions*."

A variety of tests that measure the recurrence of the answers to select, classify, and associate perceptual stimuli from different sensory modalities converge to point out the robustness of SS (Parise and Spence, 2012; Parise, 2016). Consistency of the answers also validates the role of these intuitions. As Dingemanse et al. (2016, p. e118) observes, the research started at the same time, in 1929, in Linguistics and Psychology, "…twin roots that affirm the relevance of sound symbolism to the study of both language and mind…". In this convergence, intuitions were the first guides for the study of the SS. In its beginnings, the research strategy based on the informal gathering of the researchers' intuitions only verified iconic phenomena without advancing conjectures or explanations about their etiology (Motamedi, Little and Sulik,

[28] In the literature about CCs and SS there are abundant methodological reflections about different tasks and experimental designs (see Spence, 2011; Parise and Spence, 2012; Parise, 2016; Motamedi, Little and Sulik, 2019; Dingemanse, Perlman and Perniss, 2020, McLean, Dunn and Dingemanse, 2023, among others).

2019). They played, therefore, a positive exploratory role (Maynes, 2015). Moreover, the finding reported by Köhler was anecdotal and based on a small sample of linguistic stimuli, with interventions that were clear for the studied subjects and requiring explicit semantic tasks on their part (Westbury, 2005). Subsequent anecdotal reports generated findings of similar scope, which were suspected of simply providing evidence for post hoc agreement. Iconicity studies then began to rely on the intuitions of naïve participants and to select with more rigorous criteria to avoid confirmatory biases. This allowed measurements and statistical analyses to be repeated under even more ecologically sound experimental conditions, such as controlling for the different variables involved. The collection of other independent evidence helped to verify them. Thus, the chosen intuitions were better *calibrated* each time.

Most of the experiments conducted are *meaning-understanding tasks* from which subjects had to guess the meanings of linguistic forms. But then experiments were designed that required the utterance of linguistic sounds (Motamedi, Little and Sulik, 2019).[29] Finally, other tests measure *degrees of iconicity* using one scale or another: asking speakers to *evaluate* or *rate the extent* to which the forms resemble the meanings (Perry, Perlman and Lupyan, 2015; Winter et al., 2017). These tests made it possible to recognize SS features in lexical types, semantic fields, sensory modalities, languages, etc., as well as their gradation and greater or lesser transparency in each of them.

The first experimental studies by Köhler (1929) and Sapir (1929) on the correspondences between visual forms and verbal, graphic, or articulatory forms opened the first line of research based on the detection of speakers' intuitions. The original results have been replicated and broad cross-cultural consistencies have also been verified (Sidhu and Pexman, 2018). However, the experimental paradigm on the "maluma-takete" effect (Köhler's experiment) and "mil-mal" (Sapir's experiment) had some limitations. The first was that it only included pseudowords on which subjects had to indicate with which types of object properties they associated them (e.g., sharp or rounded shapes, and small or large objects, respectively) (Lockwood and Dingemanse 2015). More recently, real verb forms replaced pseudowords, and as expected, the phenomenon was detected in a more attenuated form (see Dingemanse et al., 2016). Nonwords probably require more phonological processing than real words. Incidentally, the tests are preferentially performed with words from unknown languages, as the goal is to detect intuitive guesses not guided by linguistic knowledge, assuming, in turn, that it is easier to guess the meanings of iconic words than of completely arbitrary words (Perry, Perlman and Lupyan, 2015). Given that subjects cannot resort to semantic competence with the linguistic items perceived, they could only deal with nonconceptual contents, conveyed by low-level properties of nonlinguistic stimuli. Another limitation of the classical paradigm is that it consisted mainly of *forced binary selection tasks*, e.g., choosing between two antonyms. But by privileging maximum contrast and minimum complexity,

[29] Parise and Pavani (2011) designed tests based on the creation of linguistic answers to know if correspondences could arise not only passively, in tasks of meaning *understanding*, but also actively in sound *production* tasks.

the results could suggest a more robust phenomenon than that manifested in real conditions. In recent tests, more than two options or other choice alternatives were used. The paradigm has been enriched by extending it to other sensory modalities, to sign languages, to different population groups, and to unrelated languages. It was also extended to the study of the relative role of acoustic and articulatory properties of vowels and consonants; and, similarly, to the segmental and prosodic characteristics of speech sounds.

Now, the capacity to detect sound-symbolic associations can manifest itself through different tasks. In a quick review, we can identify the following: *associating* pseudo-words as possible "good" labels, with certain particular visual forms (Maurer, Pathman and Mondloch, 2006); *guessing* specific meanings or more global semantic features from sound-symbolic cues (Anikin and Johansson, 2019); *guessing* the meaning of a sound-symbolic word of an unknown language, choosing from two antonyms of the same language (Bankieris and Simner, 2015); *improvising* iconic vocalizations, and test whether they can be understood by other speakers (Perlman, Dale and Lupyan, 2015; Perlman and Lupyan, 2018); *choosing* between two possible definitions in the mother language for iconic words from unrelated languages (Dingemanse et al., 2016); *guessing* the meanings of different types of unknown words from unrelated languages, choosing between three options of the mother tongue language (D'Anselmo et al., 2019); *assessing* the iconicity grade in a scale of different types of words of Indo-European languages (Perry, Perlman and Lupyan, 2015; Winter et al., 2017); *rating* how male- or female sounding a personal name of an unknown language was on a scale (Cai and Zhao, 2019); *evaluating* how "exciting" or "calming", and how positive or negative the meanings of pseudo-words were (Aryani, 2018); *making* assessments or "intuitive impressions" about nasal and plosive poems[30] in different languages to test "pleasantness" and "unpleasantness" arousals, respectively (Auracher et al., 2011), among many others.

Some techniques used in the experiments based on explicit tasks, like perceptual association, explicit matching between stimuli of different modalities, preferred visual attention, semantic differential techniques, and the analysis of the speaking sounds, among others. However, as Parise and Spence (2012) point out, these techniques detect explicit correspondences. It means that they would be introspectively conscious and, therefore, reportable to a certain level. The more recent studies seek to identify the more or less *automatic* character of provoked answers (Spence and Deroy, 2013) because they avoid inducing people to generate deliberately systematic associations. Tasks that measure *implicit associations* were presumed to be more effective in detecting purely perceptual or pre-semantic iconic correspondences (Westbury, 2005; Anikin and Johansson, 2019). In that way, tests were designed based on fast and accurate detection of iconic matchings, applying techniques such as the reaction time in tasks of fast classification with implicit interference, and The Implicit Association Test (IAT)

[30] It is about poems that contain higher frequency of nasal (/m/, /n/) or plosive sounds (/t/, /p/, /b/, /d/), respectively.

was also applied (Greenwald, McGhee and Schwartz, 1998; Westbury, 2005; Spence, 2011; Parise and Pavani, 2011; Parise and Spence, 2012; Parise, 2016).

IAT measure reaction time, in this case, the ability to associate words and images into categories as quickly as possible, with the fewest number of errors. It is an *indirect* measurement test because subjects are not asked about their perceptual associations, beliefs, and other attitudes; therefore, their responses do not depend on or presuppose introspection abilities, so they are implicit in this strict sense. This technique can measure not only explicit but also implicit cognitive phenomena, or rather, it measures *behaviors* that might reveal one or the other causally underlying cognitive phenomenon. Thus, it captures the "behavioral effects of associatively activated representations" (Brownstein, Madva and Gawronski, 2019, p. 5). However, the measurement is indirect, as the content to be identified is not obtained through questioning, but is inferred from the answers given. These tests are applied in different experiments to detect CCs and SS, trying to shift the intervention of perceptual processes away from other decisional cognitive mechanisms, such as selective attention (Spence, 2011; Parise and Spence, 2012; Hung, Styles and Hsieh, 2017). These findings are inferred to reinforce the immersion of SS in CCs as, in some cases, only early stages of perceptual processing are involved. This brief review of the evolution of experimental test designs shows changes towards increasingly sophisticated paradigms and, at the same time, always based on the selection of speakers' intuitions, although not requiring only introspection and verbal reports. In Dennett's words, "button presses can be configured to be interpreted also as speech acts, with very specific meanings and fine temporal resolution" (Dennett, 2003, 20).

It should be added that, as experimentalists demand, the speaker's intuitions are calibrated through rigorous methods. So, they allow to make comparisons in the same subject but at different moments, so as in different subjects and cultural-linguistic groups to obtain stability and generality. So, the reached results based on the intuitive evidence are table or reproducible not depending on the inquiry method and techniques used (Maynes, 2012). And by the way, they should complement each other with the provided ones for a diversified evidential base. In these senses, these first-level iconic intuitions can be considered reliable sources of evidence (Schukraft, 2016). As many specialists argued, different cognitive etiologies are relevant for assessing the evidential value of intuitions. The intuitions that are based on the congruent associative integration of perceptual information reveal basic data about the cognitive mechanisms involved. So, they would be immediate and prima facie evidence about the existence and some properties of the investigated phenomenon (in our case, the SS and the CCs).[31]

[31] As Maynes and Gross (2013) point out, the inference from intuition to the cognitive mechanism is not simple.

4.2 What are iconic intuitions?

As is evident from iconicity tests, IIs detect consistent associations between properties or dimensions of perceptual stimuli in different sensory modalities, one of them linguistic. Naïve subjects can *guess* the meanings of unknown sound-symbolic words, *choose* words with meanings associated with the tested words, *rate* words with higher or lower degrees of iconicity, *improvise* vocalizations elicited by perceived non-linguistic stimuli, etc., with varying degrees of success (correct responses above chance). . In most cases, this ability is not based on semantic knowledge and has its origin in sub-personal processes that are activated automatically. Therefore, they could be characterized, in terms of Pretz (2011), as holistic intuitions. Almost all iconicity tests on pseudowords or words from unknown languages are based on this type of intuition since they do not depend on knowledge of the language tested. However, to the extent that they are influenced or modulated by accumulated perceptual experiences and even by downstream cognitive processes, other IIs would be inferential, also in terms of Pretz (2011). Learning a language is, among other things, the result of gradual processes of perceptual learning, up to acquiring specific perceptual skills. But people can develop more refined perceptual skills with language, which can give rise to expert IIs with the native language and a rich phenomenology (e.g., the fine-grained IIs of poets vs. ordinary speakers).

Iconicity in poetic language has been explored intensively in the literature since Fónagy (1961).[32] Tests based on the IIs of native speakers on expressive ("funny") and literary language have been conducted. See, e.g., recent studies (using lexical decision time) about ratings on the perceived correlations between "playfulness" or "funniness" and iconicity in English words. The hypothesis is that it would have a shared semiotic mechanism that explains that correlation: vivid depictive properties and the markedness character of iconic words draws attention to the words themselves (Dingemanse and Thompson, 2020). But, as observed, iconicity tests resort mainly to "naïve and linguistically untrained raters". However, "…users of a language may have strong feelings about form–meaning fit simply due to a lifetime of exposure or due to background knowledge about iconic motivation, so they may make different choices than raters who have less experience with the signs they are rating." (Dingemanse, Perlman and Perniss, 2020, pp. 5-6). Now, as far as I know, there are no tests resorting to expert iconic intuitions. Therefore, it would be interesting to assess, by means of tests that measure IIs, what kind of improvements in aesthetic production and appreciation would derive from sound-symbolic expertise, such as greater precision and more creative manipulation of linguistic signs, e.g., combining and dissociating them according to higher-order iconic relationships between them, or exploiting different dimensions of their semantic-perceptual (SS) properties with higher selectivity and fluency. Clear samples of SS poetic expertise are Arthur Rimbaud's *Voyelles* on vowels iconicity, and Charles Dickens's

[32] Fónagy (1961)'s classic analysis is about the frequency of some vowels and consonants in Valery's, Verlaine's, and Hugo's tender and aggressive poems.

Oliver Twist on perceived phonetics of character names, among many others (see Pogacar et al., 2017). Lewis Carroll displays great expertise in the use of playful iconic words, and also in the creation of playful iconic nonce words, as in the poem *Jabberwocky*.

Taking into account what has been said so far, IIs are neither beliefs, nor judgments, dispositions to believe, intellectual appearances with propositional contents, but perceptual appearances, in the sense of Textor (2009). They consist of the capacity or sensitivity to detect consistent associations between percepts of the same or different modalities, one of them being linguistic. However, some of these intuitions might be multidimensional seemings, according to Sinclair (2010), when they are also composed of other types of states (such as affective) and other types of contents (propositional contents), involving more complex meanings (e.g., aesthetic). Assumptions, conjectures or guesses, vocal improvisations, and intuitive impressions involve an implicit capacity for recognition or "passive evaluation" that turns them into seemings. Intuitors systematically associate, for example, nouns or adjectives with visual figures, words with colors, unknown words with known words, etc., guessing or evaluating only on the basis of perception or experience of some of the respective stimuli. This is usually done without making inferences and ignoring any prior information (linguistic or otherwise). In that sense, they provide an immediate justification for sound-meaning pairings. Thus, IIs are not assimilated to linguistic use or perceptual (and sensory) experiences with the same contents that accompany linguistic use. However, they are closely related to them because the underlying mechanisms responsible for giving rise to CCs and SSs in the first place would be *constitutive* of those that give rise to the *seemings* that detect them. Therefore, following the ideas of Cohnitz and Haukioja (2015), IIs are *first-level intuitions* inasmuch as they express themselves in behaviors triggered by the presence of linguistic stimuli. So, they provide basic data or *direct evidence* about the existence and some distinctive features of SS. Now, although they can be expressed through explicit verbal tasks and through more or less specific reports about them, i.e., *first-level reports*, IIs can be better isolated using *implicit association* tests with *indirect techniques* that trigger behaviors, not necessarily verbal. In short, the primarily non-introspective and thus relatively ineffable character of many IIs sets them apart from linguistic judgments and metalinguistic judgments -expert or not.[33] But this is a natural consequence of their etiology and cognitive contents: iconic associations are triggered without reflection or inference and do not have the structure of propositions that can be expressed linguistically by judgments. Therefore, surveys and behavioral experiments are better ways to capture IIs.

Thus, IIs can be defined as follows:

- *Iconic Intuition*$_{\text{def}}$: A subject S has an II only in the case that: (a) S has a *perceptual seeming* about some LS (linguistic stimuli) with iconic properties of any kind in any sensory modality, including those pertaining to unknown languages; (b)

[33] The admission of IIs does not negatively prejudge the type and degree of utility of LIs conceived as judgments of any kind for linguistic and philosophical theorizing.

as *consistently associated by resemblances* with properties or features perceived or perceivable of certain NLS (non-linguistic stimuli);[34] so that, (c) both, LS and NLS, automatically and immediately "feel right" for S, and, as a consequence, (d) S is able to recognize (guess, score, etc.) the meanings of linguistic signs *only* by virtue of those iconic associations, i.e., without the aid of prior linguistic knowledge, with varying degrees of accuracy. As such, this iconic subtype of *perceptual seeming* consists of the capacity to recognize meanings based on iconic properties of LS.

An additional remark about the iconic character of these intuitions is timely. Deroy and Spence (2016) suggested another name for them: *sensory intuitions*. Along those lines, and taking into account that frequently these intuitions integrate stimuli from different sensory modalities but also, different dimensions within modalities, it would be more appropriate to call them *intersensory intuitions*. This label further emphasizes the role of perceptual experience in these IIs. My suggestion in favor of the label *iconic intuitions*, instead, depends on focusing attention on the non-arbitrary or motivated links between signs and meanings, which involve sensory but also affective and emotional experiences, as specified. Moreover, I believe that, to some extent, this label presupposes their primarily sensory character. Besides, not all sensory intuitions are iconic in nature. But note also, on the one hand, that IIs can be about CCs involving nonlinguistic stimuli and, on the other hand, about nonverbal communicative signals, such as iconic gestures and facial expressions. I do not presuppose that they all have identical properties, but they seem to be members of the same type of intuition. Thus, although IIs are a subtype of linguistic intuitions, they are also a subtype of the broader type of iconic intuitions in general.

Now, in Dennett's (2003) terms, IIs are to be embedded in a linguistic heterophenomenology: the third-person methodology of cognitive science to study the perspective of language users as manifested in different behavioral events, either as speech acts or as nonverbal responses. The assumption is that first-person data, verbal or not, are public data. So, the type of perceptualist view of IIs I have defended is not committed to a first-person and armchair methodology in semantics. Thus, the speaker's intuitions become experimental data that can be placeholders for other independent empirical evidence (Akita and Dingemanse, 2019). Properly selected and calibrated, they become a source of immediate and prima facie evidence of robust uninterpreted data not only about the semantic features they detect but also about the cognitive phenomena that give rise to them. If someone did not want to consider them as linguistic intuitions, he or she would have to offer a positive argument, based on empirical considerations, justifying it. Now, given that SS is not only the effect of a cognitive phenomenon, since it could also come from other sources, such as familiarity with a language, and cultural influences, it may not manifest intuitively, or trigger different intuitions. For this reason, the IIs are only a partial source of evidence for studying SS. An explanation of the

[34] a) and b) can be presented in reverse order: in that case, the perceptual seeming is about an NLS that elicits an association with a perceived or perceivable LSA.

causes and mechanisms that could give rise to SS and its variable characteristics in different languages requires the convergence of hypotheses, research strategies, and different sources of evidence. Finally, IIs can also play an exploratory role: in fact, early research on SS was initiated in this way.

5. Conclusion

Since Plato showed the seed of iconicity in language, it has been trapped in a halo of disbelief. That incredulity could have many sources. One of them could be the metalinguistic intuition that words can only be arbitrary in performing the most distinctive syntactic and semantic functions attributed to them, namely, to enable the expression of abstract conceptual thought (and perhaps also its formation). In that sense, as Westbury rightly suggests, sound-symbolic effects "are counterintuitive... and.... problematic for some formal theories of language" (2005, p. 16), insofar as they have paid privileged attention to such functions. In particular, this occurred in the analytic philosophy of language, perhaps because such functions were thought to be at the core of its philosophical *métier*. For similar reasons, philosophers limited philosophically relevant intuitions to those that possess a judicative structure and can be identified and examined from the armchair. The homogeneous view of intuitions as a type of judgment and propositionalism about their contents, or, alternatively, as intellectual seemings with propositional contents, was probably motivated by the primarily metaphilosophical interest in them, given certain convictions about the character of the philosophical enterprise. According to these metalinguistic and metaphilosophical assumptions, iconicity in language still seems (paradoxically) counterintuitive. But perhaps the time has come to recognize that we can "paint" the world, to some extent, also with words (depending on how it "seems" to us to be).

However, being *first-level intuitions*, the IIs are indifferent to possible conflicts with metalinguistic intuitions of any kind. On the other hand, as we saw above, the consistency of IIs has shown general and stable results, across a varied menu of experimental techniques. Therefore, they would be very reliable, direct but not unique evidence of iconic features in language. As I argued, IIs are *perceptual seemings*, comprising not only associations between basic perceptual contents but also more complex contents, due to accumulated experience, perceptual learning, and conceptual skills. These two subtypes of perceptual appearances, holistic and inferential, respectively, can also be combined with affective or emotional experiences. Then, the peculiar characteristics of IIs as a subtype of LIs, along with some lessons from the "experimental turn" on how to methodologically appeal to LIs, might motivate philosophers to consider intuitions as an interesting phenomenon in their own right, although more heterogeneous than what many of them have thought.

Needless to say, many of the points mentioned here are open to further research and analysis. I only hope to have shown why IIs offer a privileged "window" for exploring various aspects of the relationships between language and perception (and affect/emotion). In that

sense, they might give foundations to an embodied view of language, e.g., language processing Since IIs are one of the main sources responsible for giving rise to SS in the first place, they provide support for grounding human language in sensory and affective experiences. Among other phenomena, IIs could contribute to explaining some expressive, affective, and aesthetic uses of language related to speakers' experiential attachments to words. It would also be fruitful to explore the similarities and differences between linguistic and non-linguistic but communicative IIs. More generally, IIs and SS underpin the need to revise the assumption about the generalized arbitrariness between signs and meanings and to favor a semiotically heterogeneous approach of linguistic phenomena. These issues, among others, provide positive reasons to consider the IIs as a non-negligible contribution to philosophical reflection and scientific research on language.

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