

Equivalence and polyvalence: A case for the stratification of semantics

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The article presents a semantic theory suggesting that equivalence and polyvalence are closely connected phenomena. The connection between them is utilised by making equivalence the basis of an argument for polyvalence within semantics, or in other terms, for a stratified semantics encompassing two levels of description. This *argument from equivalence* lends new support to frameworks assuming a stratified semantics. For the argument to work properly, it is necessary to distinguish between equivalences that are facts of language and equivalences that depend on extralinguistic circumstances. A few other requirements for a coherent concept of equivalence are also introduced. A major part of the article is devoted to an investigation of previous accounts of equivalence and of the conceptual underpinnings of these accounts. The investigation shows that all previous accounts have failed to make the necessary distinction. Close examination of various cases of equivalence reveals differences that are captured by the proposed distinction, thus providing evidence for its accuracy. The article concludes that the argument from equivalence strengthens the case for a stratified semantics provided that the concept of equivalence has been appropriately delimited and defined.

Keywords: stratified semantics, manner of representation, construal, monosemy, polysemy

1. Introduction

In semantic research, the problem of sense variation has often been cast in terms of polysemy and monosemy with the ensuing debates focused on the choice between the two (e.g., Ruhl, 1989; Taylor, 1999; Janssen, 2003; Van der Gucht et al., 2007). Polysemy handles the problem by distributing the variation over a number of invariant meanings, whereas monosemy concentrates the semantic content to a single invariant, thereby putting all variation down to *senses* subsumed under one invariant *meaning*. This relation of subsumption, in which several variants fall under an invariant, is a case of *polyvalence*. Monosemy, unlike polysemy, promotes such a hierarchical organisation.

The two approaches are motivated by different priorities. For the polysemist approach, accounting for established usage is an important concern. Its proponents submit that polysemy achieves this goal at a manageable level of abstraction, while charging the monosemist approach with excessive abstractions that fail to account for attested usage (e.g., Wierzbicka, 1980; Lakoff, 1987; Taylor, 1999; Tyler & Evans, 2003; Langacker, 2008). The monosemist approach is more concerned with the possibility of novel uses. Its proponents submit that a language is a system constraining uses within a range of possibilities, and they therefore see a more crucial task in accounting for the potential inherent in linguistic items, which is assumed to go far beyond established usage. From this perspective (e.g., Jakobson, 1990 [1936]; Hjelmslev, 2013 [1939], 1961 [1943]; Coseriu, 1992, 2000; Willems, 2006; Widoff, 2021), the polysemist approach lacks in projective power.

Framed in this fashion, the choice stands between two *states*, two possible configurations in the domain of semantic content – plurality of meanings versus a singular meaning. Another and, to my mind, more illuminating way of framing the same problem is in terms of two *strategies* in the analysis of sense variation – separation versus subsumption. When faced with sense variation, we have two main procedures at our disposal: either a particular range of semantic content is separated into a number of distinct invariants or it is subsumed under a more general meaning. While it is possible to employ both strategies, and while most theories actually do so, there is

usually a preference for one or the other, and this preference shapes the overall goals and concerns of the theory.

Preference for separation leads to significant *polysemy*, so research within this approach will be preoccupied with the delimitation of senses, their distribution and how senses relate to each other, as is often seen in the literature on polysemy (e.g., Lakoff, 1987; Geeraerts, 1993; Sennet, 2016). Tyler and Evans (2003, pp. 65, 83, 90), for example, propose 15 senses for the English preposition *over*, such as ‘higher than’ (1a), ‘above-and-beyond (excess)’ (1b) and ‘covering’ (1c). Senses as in (1b) and (1c) are seen as derived from the sense in (1a), which is claimed to be primary.

- (1) a. The bee is hovering over the flower.
- b. The arrow flew over the target and landed in the woods.
- c. The tablecloth is over the table.

Preference for subsumption, on the other hand, leads to significant *polyvalence*. Research within this approach will therefore be concerned with defining meanings and with accounting for the relation between these meanings and the range of senses falling under them, as is also well attested in the literature (e.g., Jakobson, 1990 [1936]; Benveniste, 1949; Ruhl, 1989; Coseriu, 1992; Reid, 2004; De Cuypere, 2013). Van der Gucht et al. (2007) argue against polysemist accounts such as that of Tyler and Evans (2003), submitting that many senses of English *over* can be accounted for by the general meaning ‘positioning of X vis-à-vis a reference point Y which is inferior to X’. Senses such as those in (1) are taken to fall under this description. The hierarchical nature of subsumption tends to promote a stratification of semantics, or in other words, polyvalence within semantics. Research where separation dominates is for the most part satisfied with one level of semantic content.

Thought of in terms of strategies rather than states, the problem is not so much a question of polysemy versus monosemy as a question of the preferred degree of generality and of the stratification or non-stratification of semantics. The question is diverted from the choice between dichotomous states, and it is instead directed towards the procedures that could lead to one or the other of these two states. Adopting this understanding of the issue makes it possible to accept the principles and motivations of a monosemist approach to linguistic meaning while eschewing the requirement of strict monosemy. We can then advance a notion of *general meaning* that does not coincide with *singular meaning*, that is, a notion of an abstract, comprehensive meaning that ranges over *senses* but that is not necessarily all-encompassing. This leaves room for limited forms of polysemy.

The present article provides an argument in favour of such a stratification of semantics in terms of meanings and senses. The gist of the argument is that *polyvalence* and *equivalence* are two sides of the same coin, so if you acknowledge one, you also ought to acknowledge the other. Preliminarily, we can think of polyvalence as the subsumption of senses under a meaning, as exemplified above for English *over*, and by the same token, we can think of equivalence as different meanings coinciding in one and the same sense, as illustrated in (2).¹ The two sentences are different ways to express the same relationship, here brought about by a subject–complement reversal in combination with converse prepositions. There is a difference in meaning, but the sense remains the same. More precise definitions of polyvalence and equivalence are provided in the sections to follow.

- (2) a. He is behind her. ≡
- b. She is before him.

The structure of the argument makes it work both ways: it can take the form of an *argument from polyvalence* (for equivalence) or the form of an *argument from equivalence* (for polyvalence). In

¹ As a symbol for equivalence, I use the triple bar (≡).

the former case, we account for polyvalence in order to arrive at equivalence, and in the latter case, we do the reverse. I am here pursuing the latter path. It is of course also possible to argue for polyvalence in and of itself, without reference to equivalence. The impetus for the present line of argument is the lack of support for polyvalence within semantics. Often it is in dispute (e.g., Jackendoff, 1983; Taylor, 1994), entertained as a possibility but not embraced in practice (e.g., Taylor, 1993; Langacker, 2004; Jackendoff, 2011), or not recognised as an issue at all (most textbooks in semantics). While arguments without reference to equivalence have been provided before, the argument from equivalence is, to my knowledge, a novel one. Hints at the close correlation between polyvalence and equivalence are found in a few places (Husserl, 1970 [1900]; Coseriu, 1970a; Widoff, 2018), but there is nothing that amounts to an explicit argument.

The next section elaborates on the concept of polyvalence and introduces a few conceptual and terminological prerequisites, after which the article moves on to give an account of equivalence. Since I am pursuing the argument from equivalence, the main weight of the present article lies on this account. Section 3 expands on the definition of equivalence and introduces a few important conditions on the concept, which are then the concern of Sections 4 through 6. In Section 7, the article returns to polyvalence, where it is argued that the presence of equivalence of a certain kind implies polyvalence of a corresponding kind. Provided that the right kind of equivalence has been established, the argument strengthens the case for a stratified semantics.

2. Polyvalence

It was suggested above that a preference for the procedure of subsumption promotes a stratified semantics. To see why this is so, let us assume a meaning of a high degree of generality and then consider what the consequences for semantics are. A suitable item for this illustration is *with*, a preposition with a broad range of senses and with a reasonable candidate for a general meaning. Drawing on earlier work on *with* and similar prepositions in other languages (Coseriu, 1970a, 1987a, 1989; Ralph, 1984; Haug, 2009; Rapoport, 2014), Widoff (2021) proposes that *with* signifies concomitance, i.e., simultaneous presence.² This meaning ranges over a variety of senses, as shown in (3):

- | | | | |
|-----|----|--------------------------------|--------------------------------------|
| (3) | a. | beat with a hammer | <i>instrument</i> |
| | b. | pay for it with a loan | <i>means</i> |
| | c. | spread with butter | <i>material</i> |
| | d. | go with a friend | <i>companion</i> |
| | e. | proceed with hesitation | <i>attitude</i> |
| | f. | scream with pain | <i>manner or cause of action</i> |
| | g. | charge him with corruption | <i>content or cause of judgement</i> |
| | h. | be furious with him | <i>object of emotion</i> |
| | i. | be familiar with the topic | <i>object of cognition</i> |
| | j. | be busy with the task | <i>object of action</i> |
| | k. | wear a tie with the jacket | <i>part of outfit</i> |
| | l. | serve biscuits with the coffee | <i>part of meal</i> |

² An anonymous reviewer raises the pertinent question how we can decide whether such a proposed meaning is the real general meaning. The present study is hardly the place to resolve the issue, but a few indications may still be in order. First, the problem is essentially the same as for all kinds of meanings or senses, even though it becomes more apparent for general meanings due to their abstractness. Second, there is no absolute certitude and neither should we expect there to be one. Proposed meanings are *justified* if they provide accurate generalisations over ranges of senses. Note that something very similar holds for senses, which generalise over ranges of individual uses. The accuracy of such generalisations can be judged on several criteria, for instance the distinctiveness and invariance of the proposed semantic content.

m. people with strong personality	<i>property</i>
n. people with summer houses	<i>possession</i>
⋮	⋮

Each sense is a realisation of a much more abstract meaning. From the general point of view, *with a hammer*, *with a loan*, *with butter*, *with a friend*, etc., are merely concomitants, things that are present together with something else. Proposing semantic generalisations of this kind places the general meaning at the centre of attention in a way that is prone to elevate it to the prime subject of semantic research. But even if senses are demoted to a secondary position, the procedure does not make them disappear. They remain just as accessible as before and present themselves as the default (and possibly as the only congruent) interpretation in each case. The procedure of subsumption thus presents us with two levels of semantic description: meanings and senses. There is of course also the option to eject the concept of senses from semantics altogether, which could be done by declaring them to be occasional occurrences in utterances with no relevance for a general description of language. This is the solution favoured in the Columbia School of Linguistics (e.g., Reid, 2004; Diver, 2012). But there are a few reasons to believe this is too drastic.

First, the senses enumerated above correspond to the level at which separation into polysemy typically operates. Granted, one might find the enumeration a bit too fine-grained, as it seems possible to combine a few of them into less specific senses (e.g., 3k and 3l into ‘part of whole’), but it is in no way extreme. If other semantic accounts can deal with such senses, it seems reasonable that an approach that pursues general meanings can deal with them as well. Such senses must in the very least be considered in order to establish the accuracy of proposed meanings. So, regardless of their ultimate status, they cannot be omitted from semantic consideration.

Second, these senses are recurring variants rather than momentary manifestations. As indicated by the moderate linguistic contexts needed to bring them forth, they are of a more general order than messages communicated in context. We need not have any individual situation in mind in order to interpret *with a hammer* as the use of an instrument in (3a). We arrive at this interpretation on the basis of our conceptual knowledge of things like hammers and actions like beating.

Third, these senses are subject to linguistic conventions. In addition to conceptual knowledge, there are linguistic conventions regulating the use of senses. With respect to prepositional usage, these conventions are especially pronounced, since prepositions are often subject to idiosyncratic patterns. Widoff (2021) argues that the meaning ‘concomitance’ for *with* does not preclude a combination like *be married with him* even though it is incorrect according to normal language use, which prescribes *be married to him*. The convention ruling this combination out operates at the level of senses.

These properties of senses make it reasonable to handle them as part of semantics. In doing so, we assume that they belong to *language*, that is, to the general mechanisms, structures and conventions that are autonomous from *speech*, the concrete practice of language use (cf. Widoff, 2018).³ But regardless of what status we infer upon senses, if we integrate them into the semantics of language or if we relegate them to the study of speech, the subsumption performed by the meaning results in significant polyvalence, which brings the issue of a stratified semantics to the fore. Had we instead proceeded by separating senses without introducing a general meaning, the issue would have been rather moot. The more pervasive the procedure of subsumption, the more conspicuous the structure of polyvalence, and the more conspicuous the structure of polyvalence, the more convincing the case for a stratified semantics.

Linguistic descriptions roughly along the lines of a stratified model as illustrated above are represented by Jakobson (1990 [1936], 1984 [1958]), who speaks of *Gesamtbedeutung* and *Sonderbedeutung*, Hjelmslev (1937; cf. 1961 [1943]), who speaks of *signification fondamentale* and *signification particulière*, and Coseriu (e.g., 1992), who speaks of *Bedeutung* and *Bezeichnung*. A somewhat similar approach is also represented by so-called Two-level Semantics (e.g., Bierwisch, 1983; Lang & Maienborn, 2011), whose proponents speak of *semantic form* and

³ Note that on this definition, *speech* includes oral communication as well as written discourse.

conceptual structure. Some recent studies adhering to a stratified approach have dealt with polysemy and variable verb valency (Willems, 2006), prepositions and localism (Van der Gucht et al., 2007; De Cuypere, 2013), prepositions and linguistic norms (Widoff, 2021), and semantic roles (Höllein, 2019, 2021).

The present study adopts a model in agreement with the basic tenets of Structural Semantics with a special emphasis on stratification.⁴ Finer points of disagreement between different installations of the framework can be disregarded here. This model includes meanings that are delineated by the system of a particular language and senses that are specifications on basis of further conceptual knowledge. Under the assumption that meanings and senses fall within the scope of semantic knowledge, they are two kinds of *semantic content*. In addition to these semantic aspects of language, two additional levels have to be recognised. Senses, which are iterable in many situations, are to be distinguished from what is communicated in a particular situation, the *message*. Meanings, senses and messages are articulated through linguistic signs, consisting of expression and content. In virtue of sharing this property, they are different kinds of *symbolic content*, which in turn must be distinguished from the *objective content* encompassing extralinguistic objects, relations, state of affairs, etc., that linguistic expressions refer to in speech. These are not part of speech per se; they are what utterances are about. To avoid cumbersome enumerations of different kinds of extralinguistic entities, I will call them *objectualities*, borrowing from phenomenological terminology. The basic structure of a stratified semantics in comparison to a non-stratified semantics can now be depicted as in Table 1. As shown, the difference does not lie in stratification per se, but in the stratification of a certain range of content.

Table 1. Stratified and non-stratified semantics

	Stratification of semantics	No stratification of semantics
language	meaning	meaning = sense
	sense	
speech	message	message
topic of speech	objectuality	objectuality

The terminology used above adopts *content* as a general term. Having such a term is useful, partly because disagreements over the main demarcations in semantics involve all four kinds of content, and partly because it facilitates definitions of phenomena encompassing more than one kind of content. As an alternative, one could resort to using *meaning* for all kinds of content, but due to more specific uses of the word, this easily leads to confusion. In the same vein, one might say that a meaning, a sense, a message or an objectuality is what is *meant* by an expression, but I shall say that an expression *signifies* a meaning, *designates* a sense, *communicates* a message and *refers* to an objectuality, which are all contents *expressed* by the expression. For the topic of the present study, the communication of messages can be circumvented, so the investigation is exclusively concerned with signification, designation and reference.

Designation and reference are two kinds of *representation* in the formal sense that in both cases a content stands for another content. In the former case, a sense is represented by a meaning, and in the latter case, an objectuality is represented by a semantic content. The latter relation could be described in terms of either meanings or senses, but in a theory operating with both, it is only consistent to include both. For example, in *beat with a hammer*, the meaning ‘concomitance’

⁴ *Structural Semantics* refers to a range of approaches to meaning within Structural Linguistics, such as Jakobson (1990 [1936], 1984 [1958]), Hjelmslev (1937, 1961 [1943]), Greimas (1966), Coseriu (e.g., 1970b, 1973, 1992), and Coseriu & Geckeler (1981). See also Geeraerts (2010) for an historical overview of structural lexical semantics.

represents the sense ‘instrument’, and these two together, the semantic content, can represent the use of a hammer in an actual situation. Figure 1 illustrates this formal (and extended) notion of representation. Using *representation* in this way is made necessary by the distinction between designation and reference. Without the distinction, either *designation* or *reference* could be used in both cases. One might then say that *with a hammer* designates or refers to (or denotes) an instrument, without the distinction made above. This is typical in the linguistic literature.⁵

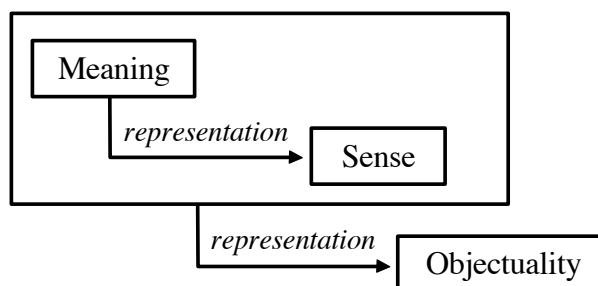


Figure 1. Two layers of representation

Representation involves two terms: a content being represented – a *correlate* – and a content doing the representing – a *manner of representation*. The meaning ‘concomitance’ is a manner of representation of the correlate ‘instrument’, and this semantic content (‘concomitance’ and ‘instrument’) can be a manner of representation of the state of affairs in which something is used as an instrument. As we will see in the following section, the phenomenon of equivalence consists in *several manners of representation for the same correlate*.

Polyvalence is the converse of equivalence, namely *several correlates for the same manner of representation*. Polyvalence within semantics occurs when a meaning subsumes several senses, an arrangement that may be called *designative polyvalence*. Polyvalence also occurs through the ability of a semantic content to refer to several objectualities. This may be called *referential polyvalence*. The argument from equivalence intends to strengthen the view that designative polyvalence is an integral part of semantics that is to be distinguished from referential polyvalence. To this effect, it is necessary to establish the distinction between designation and reference. Without it, the argument from equivalence for the stratification of semantics will not work properly, as it would be unable to connect the right kind of polyvalence with the corresponding kind of equivalence, namely polyvalence that takes place within semantics with equivalence that takes place within semantics. With respect to reference, the argument is in fact trivial, as there is no disagreement that both relationships occur: a particular expression like *house* can refer to an indefinite number of houses (polyvalence) and an indefinite number of expressions – *home, house, shack, dump, that old excuse for a building*, and so on – can refer to a particular house (equivalence). About this there is no debate.

It should now be clear that the argument requires that the same distinction be applied to equivalences. Designative polyvalence and referential polyvalence have to be coupled with designative equivalence and referential equivalence. The reasons for making the latter distinction will therefore be a central concern in the sections to follow.

⁵ A noteworthy exception is Lyons (1977), who distinguishes between *denotation* and *reference*, where the former may be interpreted extensionally or intensionally. Under the intensional interpretation, Lyons’ denotation is similar to the notion of designation used in the present work.

3. Equivalence

In lack of an appropriate conceptual framework, one might be tempted to state that equivalent expressions both mean the same thing and do not mean the same thing – a blatant contradiction on the face of it. The contradiction is resolved by disentangling the ambiguity of the word *mean*. Equivalent expressions are equal with respect to one kind of content but unequal with respect to another: the equality lies in the correlate and the inequality in the manner of representation. The inequality found at the level of representation makes equivalence an irreflexive relation, unlike synonymy, which is a reflexive relation. Equivalence and synonymy are otherwise similar in that both are symmetric and transitive relations. On this definition, the phrases in (4) are all equivalent with respect to each other, but none is equivalent to itself.

- (4) a. people with no children \equiv
- b. people without children \equiv
- c. people who don't have children

As for the reason why these phrases are not synonymous, further arguments will be provided in Sections 4–5. For now, it will suffice to point to their grammatical organisation. In each expression, there is a possessive and a negative sense which together express the absence of children. This absence is realised by linguistic units that can be presumed to have different meanings. The meaning of concomitance (inherent in *with*), for instance, is nowhere to be found in (4c). The signification is different in each case. Only the designation remains the same.

Sentences can be equivalent in a way parallel to these phrases, as shown in (5) and (6). The equivalence in (5) is predicated on the equivalence in (4) with nothing crucial added by the sentences as such. More interestingly, the equivalence in (6) is based on different sentence compositions exhibiting three distinct ways to express a superlative sense. In (6a), this sense is expressed through the superlative form and an existential clause, and in (6b) and (6c), it is expressed through the comparative and positive forms in yet two different ways: one with *chocolate* as theme, the other with *chocolate* as comparand.

- (5) a. People with no children have more time for hobbies. \equiv
 - b. People without children have more time for hobbies. \equiv
 - c. People who don't have children have more time for hobbies.
-
- (6) a. Chocolate is the best thing there is. \equiv
 - b. Chocolate is better than everything else. \equiv
 - c. There is nothing as good as chocolate.

One of the main concerns in the following sections is the distinction between two types of equivalence. The equivalences above are *designative equivalences*. They arise on the basis of semantic knowledge and present themselves as facts of language. The correlates of such equivalences are senses. *Referential equivalences*, in comparison, are contingent on extralinguistic circumstances. The correlates of such equivalences are objectualities. In (7), there is no semantic basis for the equality, since it depends on a particular, albeit traditional interpretation. Only with knowledge of literature could we come to equate the two expressions and interpret them both as referring to Odysseus. Similarly in (8), the equivalence is based on geographic circumstances such that it could cease to hold with a change of borders. It is not a fact of language that Greece is surrounded by certain other countries.

- (7) a. the legendary king of Ithaka \equiv
- b. the blinder of Polyphemus

- (8) a. He's from the country directly south of Albania. \equiv
 b. He's from the country directly west of Turkey.

An alternative way to describe the difference is to state that sentences as in (5) and (6) are truth-conditionally equivalent, while sentences like (8) happen to have the same truth value in some possible worlds but not in others. This, however, does not account for the particular affinity of the sentences in (8), which distinguishes them from other sentences that happen to share the same truth value. The present account avoids reference to truth and truth conditions, as this would require commitment to notions in disagreement with the model of semantics adopted for the study. Under the view that language is a system comprised of meaningful signs, meanings and senses are not truth-evaluable. They are underdetermined in this respect. Only messages can be evaluated with respect to truth. I take the view that truth is determined at the level of utterances to be the traditional linguistic, semiotic and hermeneutic understanding of linguistic meaning. It has also been advocated by some analytic philosophers (Searle, 1979), pragmaticists (Recanati, 2010), and formal semanticists (Pietroski, 2018).

Previous research on equivalences has been sporadic and scattered. There has been little exchange over the generations and next to no dialogue between schools. Three early sources are Bolzano (2014 [1837]), Frege (1948 [1892]), and Husserl (1970 [1900], 1987 [1908]), who all approach the concept with logical and epistemological concerns in mind. Despite their philosophical slant, their accounts of equivalence have linguistic import and are well worth revisiting. They also belong to the most thorough accounts to date. In Structural Linguistics, the notion features on occasion (e.g., Jakobson, 1990 [1936], pp. 343–344; Greimas, 1966), and most prominently in Coseriu's work (e.g., 1970a, 1975, 1987a, 1987b), for whom it plays a recurrent role in linguistic theorising. The ideas most similar to the notion of equivalence propounded in the present study are found in Bolzano, Husserl and Coseriu, who should be considered its precursors.

Examples of equivalence also appear in Cognitive Linguistics (e.g., Langacker, 1988a, 1988b, 2008; Talmy, 2000; Croft & Cruse, 2004), where it is treated as an effect of *construal*, which is considered to be the basic phenomenon. In these accounts the inequality of equivalent expressions is emphasised and the equality downplayed. Equivalent expressions are mainly treated as different in semantic content. The opposite tendency was seen in the early days of Generative Grammar, where equivalences featured in theoretical considerations (especially in regard to the role of deep structure), but were never recognised as such. Instead they were regarded as synonymous (e.g., Chomsky, 1957; Katz & Postal, 1964; Lakoff, 1968). Since then, the opposite position that equivalent expressions are in fact non-synonymous has won some currency, at least with respect to certain cases under discussion (e.g., Chomsky, 1972; Pinker, 1989; Bouchard, 1995). While it would be an exaggeration to claim that the phenomenon of equivalence is not at all apprehended in these sources, the reduction of equivalences to equalities or inequalities makes for a vague, not clearly recognised phenomenon.

As conceived in the present work, equivalence consists in a simultaneous equality and inequality of content. Asserting that two expressions are equivalent is not the same as merely recognising that they are similar in content, because the assertion entails that they are equal with respect to what is being represented. Equivalence is not the same as plesionymy. Apart from this central piece of the definition, there are a few other conditions on the concept that are particularly pressing, at least if equivalences are to function in an argument for the stratification of semantics. In pursuance of such a concept, the theory of equivalence must 1) recognise different kinds of content, 2) distinguish between designative and referential equivalences, and 3) clearly circumscribe correlates of equivalent expressions. Without these conditions satisfied, the concept of equivalence will be inconsistent or weakened. The first condition is satisfied in most semantic theories, although seldom to a satisfactory extent. The second condition is not satisfied in any previous account of equivalences. And the third condition is not satisfied in existing treatments of equivalence in terms of *construal*. In the following sections, I turn to these issues while reviewing relevant cases and positions represented in the literature.

In the next section, I start with the notion of equivalence found in Frege's work. The article then moves on to Bolzano, Husserl and Coseriu, who advocate similar, although not identical notions of equivalence.

4. Equivalence as informative equality

Frege's (1948 [1892]) notion of equivalence emerges as a by-product of his well-known argument for the distinction between sense (*Sinn*) and reference (*Bedeutung*). Frege considers different kinds of equality statements and reaches the conclusion that there is an important difference between statements of the form $a = b$ and statements of the form $a = a$. They differ in *epistemic value*: the former is informative and could even amount to a significant discovery, whereas the latter is analytic and holds a priori.⁶ Statements of the form $a = b$ often extend knowledge in valuable ways, something that $a = a$ could never do. Frege provides the example of the ancient discovery that the rising sun is not a new sun every morning but always the same sun.

The difference in epistemic value between $a = b$, which can be informative, and $a = a$, which cannot be informative, shows that the equality relation expressed by $a = b$ cannot be an immediate relation between the two objects named by a and b . If this were the case, $a = b$ would be indistinguishable from $a = a$. For them to be distinguishable, the relation must hold between two signs that differ in their *mode of presentation* of the same object. Frege concludes that $a = b$ contains two terms with different senses but the same reference, while both sense and reference are the same in $a = a$. Through this line of reasoning Frege introduces a particular notion of equivalence shaped by the epistemic nature of his argument. His most famous example is shown in (9). Also (10) is characteristic of his account.⁷

- (9) a. morning star \equiv
b. evening star

- (10) a. point of intersection of a and b \equiv
b. point of intersection of b and c

Both (9) and (10) are referential equivalences. At first glance, the correlate of the expressions in (9) might appear invariant, since the expressions are part of an astronomical discourse providing them with an established usage. But precisely this dependence shows that its source lies elsewhere than in language. When the equivalence was recognised for the first time in the history of astronomy, it was not because of an improved understanding of language, but because of the eminently non-linguistic discovery that two celestial bodies that had previously been thought to be distinct were in fact one and the same.⁸ The equivalence came about with the increment of astronomical knowledge. Also, as Frege was well aware, language does not prevent the expressions from referring to other objects.

For (10), it is apparent that a particular geometric context is required for the equivalence to hold. Frege provides the following one: a, b and c are lines connecting the vertices with the mid-points of the opposing sides of a triangle. Within this context the equivalence is in fact universal.

Not only are all of Frege's examples of the referential kind. It follows from his argument, with the emphasis on the epistemic value of equivalences, that they must be. The examples of astronomical discoveries notwithstanding, *epistemic value* should not be taken to mean that an extraordinary value, a great leap forward is required. It is sufficient if someone might be unaware

⁶ For increased clarity, I depart from the standard translation *cognitive value* for German *Erkenntniswert*. The associations of the word *cognitive* have changed over the years.

⁷ German examples are cited in translation as long as this does not distort the equivalence.

⁸ Of course, the Greek who discovered the identity of the celestial bodies used the expressions *Φωσφόρος* ('light bringer') and *Έωσφόρος* ('dawn bringer'), but this is immaterial to the point.

of an equivalence and could therefore rationally hold $P(a)$ to be true and $P(b)$ to be false, when in fact $a = b$. Under this condition the statement of equality is informative, since it has an impact on knowledge.

In accordance with his epistemic criterion, Frege regards senses as different if they are compatible with such an arrangement of mistaken beliefs and as identical if they are incompatible, in which case someone could not reasonably recognise the truth of one proposition without also recognising the truth of the other. In other words, Frege has one criterion for equivalence and another, associated criterion for synonymy. For the former, the criterion is *epistemic value*, the ability to extend knowledge, and for the latter, *epistemic equipollence*, equal force with respect to knowledge, or differently put, the inability to extend knowledge.⁹ Because of the former criterion, Frege cannot recognise designative equivalences, and on basis of the latter criterion, he must instead regard them as synonyms (i.e., essentially as $a = a$). The expressions in (11), which Frege (1948 [1892], p. 224) brings up in the context of another argument, are in accordance with these criteria presented by him as having the same sense.

- (11) a. After Schleswig-Holstein was separated from Denmark, Prussia and Austria quarrelled. \equiv
 b. After the separation of Schleswig-Holstein from Denmark, Prussia and Austria quarrelled.

In an earlier writing, Frege (1970 [1879], p. 12–13) provides a more elaborate explanation as to why such expressions should be equated in his theory. The content of two propositions could differ in two important ways: either the consequences derivable from the first are also derivable from the second, or this is not the case. With the terminology used above, although not by Frege in this particular text, the former entails epistemic equipollence, while the latter entails epistemic value. The former holds for (11). It also holds for (12), an example from Frege (1970 [1879]).

- (12) a. The Greeks defeated the Persians at Plataea. \equiv
 b. The Persians were defeated by the Greeks at Plataea.

Frege concedes that there is a semantic difference between (12a) and (12b) but submits that the difference is of little importance: “Even if one can detect a slight difference in meaning, the agreement outweighs it” (p. 12). Frege calls the part of the propositions that are the same *conceptual content*, and this content alone is of importance for the workings of logic. Therefore, there is no need to introduce a distinction between propositions that share the same conceptual content. The reasoning here is not exactly the same as the reasoning of Frege (1948 [1892]), as it does not include reference to possible discrepancies in knowledge, but the purpose is the same: logic, as envisioned by Frege, is concerned with the explication and formalisation of thought and for this enterprise certain kinds of content are extraneous. It may be noted here that Frege’s assessment with respect to logic is the inverse of my assessment with respect to semantics. For semantics, (11) and (12) exhibit pertinent differences, while (9) and (10) fall outside of its purview.

Frege’s treatment of equivalences, with its reliance on epistemic matters, serves to accentuate the difference between referential and designative equivalences. The former are based on non-linguistic circumstances and have non-linguistic import, while the latter are based on linguistic structure and remain restricted to the realm of semantics. Frege’s evidence in support for the distinction between sense and reference shows that there is a phenomenon of equivalence, but it does not reveal its full range. Designative equivalences are excluded and must on his account be reduced to synonyms.

⁹ Frege (1969 [1906]) uses the word *equipollence* without the attribute. I adhere to an explication of the concept by Schellenberg (2012).

5. Equivalence as unequal equality

The basic feature of equivalence in Bolzano's, Husserl's and Coseriu's accounts is simultaneous equality and inequality of content. Unlike Frege, who relies on the criterion of epistemic value, they propose no further criteria. Both designative and referential equivalences occur in their accounts, but due to insufficient recognition of the difference between designation and reference, they appear without distinction.

5.1. Bolzano

Bolzano is led to consider equivalences as a result of his semantic approach to logic. He sets out by considering propositions, which he defines as statements that something is or is not, and proceeds by extracting a concept of *ideas* (*Vorstellungen*) from that of propositions. Ideas are defined as those parts of a proposition that are not in themselves propositions (Bolzano, 2014 [1837], §19, §48, §128). Bolzano's examples of ideas are all cast in the form of noun phrases, although his definition indicates a wider scope. For the present purposes, an idea will be equated with the content of a noun phrase.

One of Bolzano's central concerns is to maintain the independence of ideas from the objects that ideas represent. He spends considerable effort contesting the notion – common among his peers – that ideas resemble the objects that they represent (*iconicity* in semiotic terminology; Peirce, 1998; Jakobson, 1965). His argument is not so much that ideas cannot resemble objects but rather that it is not necessary for them to do so. It will suffice here to mention a few of his more striking pieces of evidence against the notion of resemblance. He has three clear counter-examples: 1) An idea may lack an object altogether, such as *nothing*, *a round square* and *green virtue*. These are objectless ideas and such ideas can obviously not resemble an object. 2) An object may lack a part that is part of the idea, such as *a country without mountains*. There is an absence of mountains in the object, whereas the idea is characterised by the presence of *mountains*. 3) An idea may lack a part that is part of the object, such as *equilateral triangle*. There is no representation of equal angles in the idea, whereas the object must have equal angles (because of the coincidence of equilateral and equiangular triangles in Euclidean geometry). Cases like these, Bolzano argues, demonstrate that the connection between ideas and objects is not as strong as it sometimes has been made out to be. With equal force, we might add, they also demonstrate that ideas and objects are distinct.

Through these considerations Bolzano points out two conditions for the possibility of equivalence (*Gleichgültigkeit*): the distinction between kinds of content (ideas and objects) and the lack of resemblance between them. The latter is not explicitly stated by him to be a condition for equivalence, but it is implicit: without it, two ideas of the forms *ab* and *ba* could never be equivalent, since they would represent two different objects with the analogous structures “ab” and “ba”. In order to establish an equivalence, we must also be able to distinguish between ideas. This is a third condition. We have seen that Frege's criterion for distinguishing between senses is their epistemic value. Bolzano's corresponding criteria for distinguishing between ideas are more formal and fall back on a minimal scheme for their description.

Ideas are first to be divided into simple and complex ideas. A simple idea is determined by its extension. A complex idea is determined by its parts and their manner of combination. Those are the basic properties. This scheme in all its simplicity is sufficient for stating four basic ways in which ideas can differ from one another: 1) The ideas have different extensions. 2) One idea is simple and the other complex. 3) The ideas are composed of different parts. 4) The ideas are composed of the same parts that are combined differently (Bolzano, 2014 [1837], §96). The first type is an extensional difference while the other three are compositional differences. The first type is inapplicable to equivalent ideas, since equivalent ideas must have the same extension in

Bolzano's account.¹⁰ The other three, which draw on how ideas are put together, are all applicable, as shown in (13), (14) and (15):

- | | | |
|------|---|--|
| (13) | a. an A \equiv
b. an A which is an A | <i>simple and complex</i> |
| (14) | a. Erdengeschöpf \equiv
‘earthling’
b. Geschöpf, das auf der Erde wohnt
‘creature that lives on earth’ | <i>different parts</i> |
| (15) | a. a virtuous person who is prudent \equiv
b. a prudent person who is virtuous | <i>same parts combined differently</i> |

Based on the compositional criteria, different formal structures are sufficient for two ideas to count as distinct. This even holds for tautological extensions of simple ideas, as in (13). Similarly, *not not something* is not the same idea as *something* on Bolzano's view – it is an equivalent idea.¹¹ Bolzano's compositional criteria discriminate between ideas in a general enough manner to include both referential and designative equivalences, but they are unable to discriminate between different types of equivalence. To do the latter, we must be able to determine the manner in which ideas converge in a correlate and thus become equivalent. Bolzano provides no way of doing this. Referential and designative equivalences therefore appear without distinction in his account.

Even so, it is apparent that Bolzano has a preference for equivalences with a general scope, equivalences not easily defeated by changing circumstances. Highly occasional equivalences are never featured in his account. Resistance to changing circumstances, however, is not a sufficient condition to qualify as a designative equivalence. Rather than generality as such, it is the source of the equivalence that matters: if it is constituted by semantic knowledge or by circumstances external to language, whether these circumstances be invariant or not. According to this criterion, (13) and (15) are designative equivalences, while (14) might be.¹² But other examples of Bolzano's are not. The equivalence of (16c) with (16a) and (16b) rests on ethical assumptions: the notion that “ought” implies “can” and the principle of utility. The equivalence amounts to an ideological statement in support of a certain ethical doctrine. The equivalence between (17a) and (17b) rests on referential circumstances: it only holds when speaking of the moon orbiting earth. The equivalence between (17a) and (17c) rests on astronomical circumstances. To my knowledge, there are no other known celestial bodies quite precisely fifty times smaller than earth, but there could very well be. In any event, understanding the phrase *the moon* cannot reasonably entail knowing the relative size of the moon.

- | | |
|------|---|
| (16) | a. the morally good \equiv
b. that which one ought to do \equiv
c. that which is possible that advances the common well-being |
|------|---|

¹⁰ It follows from Bolzano's definitions that simple ideas cannot be equivalent since there is nothing but the extension to tell them apart. Under Frege's epistemic criterion, on the other hand, there is nothing to say that simple expressions cannot be equivalent. I suspect that Bolzano is right with respect to designative equivalences but wrong with respect to referential equivalences. Not much hinges on this at the moment, so I will leave the issue aside.

¹¹ This statement is obviously too rigid with respect to natural language. A negative of a negative is not always equivalent to a positive.

¹² Whether (14) is a designative equivalence depends on the meaning of *Erdengeschöpf*, or conversely, whether (14b) is an accurate paraphrase of its full range of senses. This cannot be ascertained without an investigation of the word.

- (17) a. the moon \equiv
b. a celestial body that illuminates earth at night \equiv
c. a celestial body fifty times smaller than earth

Especially general is the equivalence in (18). It also presents us with three particular difficulties. The first difficulty is the use of specialised language, which raises the question what belongs to the semantic content of ordinary language and what belongs to concepts developed in specialised discourse. The second difficulty is the fact that the use of specialised language drives us into particular debates that we better avoid as non-specialists, in this case the debate whether geometric theorems are analytic or synthetic. The third difficulty is the fact that an assessment of the equivalence requires critical decisions with respect to the generality of meaning, an issue to which equivalences are meant to contribute in the present study. The argument runs the risk of circularity.

- (18) a. equilateral triangle \equiv
b. equiangular triangle

Nevertheless, the following can be said in favour of the view that (18) is a referential equivalence. It seems reasonable to adopt the following meanings: *equi-* signifies ‘sameness’, *-lateral* ‘with respect to sides’, *-angular* ‘with respect to angles’, and *triangle* ‘figure contained by three straight lines’. Given these meanings *equilateral triangle* \equiv *triangle with sides all of the same length* is based on semantic knowledge and so is *equiangular triangle* \equiv *triangle with angles all of the same size*, but *equilateral triangle* \equiv *equiangular triangle* is not. Additional trigonometric knowledge is required for the latter equivalence to be recognised. Frege’s criterion applies: it is possible to know the meaning of both expressions but to be unaware of their equality. For (18) to be a designative equivalence, the equality would have to follow from the meaning of the terms. As far as I can see, there is no way to adopt such semantic descriptions of (18a) and (18b) that does not increase the complexity of lexical meaning and decrease the systematicity of semantic composition.¹³ Provided that this is undesirable, (18) should be seen as a referential equivalence.

5.2. Husserl

A similar view on equivalences, in all likelihood inspired by Bolzano (Beyer, 1996; Sebestik, 2003), appears in Husserl’s (1970 [1900], 1987 [1908]) phenomenological theory of meaning. In order to see how Husserl grounds his concept of equivalence, we must briefly consider a few basic tenets of his theory.

In contrast to a common way to think about reference, including the way implicit in Bolzano’s account, Husserl does not perceive reference merely as a matter of words intending objects. Reference also involves a movement in the opposite direction. When a meaning intends an object, the object does not remain a mere object; it becomes an object that is grasped in the manner in which it is meant. This meaning, which adheres to the object as such, is then brought

¹³ There are at least two alternative descriptions of this sort: 1) The adjectives include information about the equivalence, so that the meaning of *equilateral* in its function as a modifier of *triangle* is ‘sides of the same length such that they correspond to angles of the same size’ and vice versa for *equiangular*. This weakens the systematicity of semantic composition by inflating the number of meanings. It also makes the word-formation opaque. 2) The noun phrases are semantically simple in the sense that they carry meaning as wholes without parts, so that their meaning is ‘triangle with sides of the same length, angles of the same size, etc.’ (where “etc.” indicates further specification of all other properties of equilateral triangles, a continuation required for consistency). This eliminates semantic composition by removing all parts while inflating the semantic content of the remaining whole. Since it transposes the properties of the object onto the semantic content, it also undoes the equivalence, creating two synonyms instead. I take it to be apparent that both options are pretty unattractive.

to coincide with the meaning of the words. The object confirms, illustrates, *fulfils* the meaning of the words.

On basis of this dual connection, Husserl distinguishes between three types of content: 1) content as *intending meaning* or simply *meaning*, 2) content as *fulfilling meaning*, and 3) content as *object* (Husserl, 1970 [1900], p. 291). If the intending meaning is ‘apple’, then the fulfilling meaning is ‘this object seen as an apple’, ‘this mental image of an apple’ or some other non-linguistic means by which the notion of an apple is brought forth. The object is a correlate for the other two kinds of content. It can never be exhausted by either one of them: an apple is indeed an apple, but it is also numerous other things, encompassing countless properties that are absent in both intention and fulfilment. Husserl grants that normal linguistic experience is directed towards objects and that the fulfilment of meaning is often a matter of course. But it still is an error, he contends, to identify meanings with objects or with the experiences that accompany and illustrate meanings in imagination. Husserl’s concern here is the same as Bolzano’s – to uphold the integrity of meaning. For a theory of equivalence, this concern is of utmost importance, because without an independent realm of meaning, we would lack the conceptual prerequisites for a concept of equivalence.

So even though meanings and objects are intertwined through the coincidence of intention and fulfilment, Husserl is firm on the point that they are not to be conflated. Against identifying meanings with objects, Husserl (like Bolzano) invokes objectless expressions, such as *golden mountain*, *wooden iron* and *round square*. Objectlessness cannot be the same as meaninglessness, Husserl argues, because if it were, we would not be able to judge that golden mountains do not exist, that wooden iron and round squares are impossible, and that *a square circle is frivolous* is an absurd statement (Husserl, 1970 [1900], pp. 292–295, 517; cf. 1987 [1908]). The presence of a meaning is verified through our ability to evaluate it.

With respect to meanings and mental images, Husserl engages a number of reflections where he attempts to demonstrate the subjective, fleeting and contingent nature of their connection. I cannot but summarise their import here. To the simple points, which Husserl picks up from a long tradition since Descartes, belongs the lack of precision mental images sometimes exhibit in comparison to meaning: we understand that *chiliagon* represents a polygon with a thousand sides but we cannot bring about an image of it as such. At best, we can imagine a polygon with a great many sides. Other times, however, the fulfilment rather secures the intelligibility of meaning. The fulfilment can be important in order to eliminate equivocations, to improve clarity and to ensure firm judgements, but the intimate intertwining of the two does not, Husserl argues, negate the peculiar character of meaning. The simplest evidence for this conclusion is the fact invoked above that not all meanings can be fulfilled.

With these distinctions Husserl provides more than a sufficient basis for a concept of equivalence. Husserl (1987 [1908], p. 98) even notices that certain equivalences hold a priori, such as (19) below, but since he does not specify its basis in semantic knowledge, this acknowledgement does not amount to a clear distinction between referential and designative equivalences. An equivalence like *equilateral triangle* \equiv *equiangular triangle*, also cited by Husserl (1970 [1900], p. 287), holds a priori as well, albeit for different reasons. The former is a fact of language, the latter a fact of geometry. By Frege’s criterion, only the latter has epistemic value.

- (19) a. a is bigger than b. \equiv
 b. b is smaller than a.

As we saw earlier, Bolzano favours general equivalences, such that they withstand changing circumstances in the immediate context (although not necessarily changing assumptions about the world). This preference gives his referential equivalences an air of invariance. Husserl has no such predilection and cites equivalences that are highly conditional. The equivalence in (20), where both expressions are assumed to have Napoleon Bonaparte as referent, requires a particular sequence of historical events to be possible and a particular speech context to be actual. The expressions could in principle refer to anyone who has been victorious or unsuccessful in the

respective places. Even more conditional is the equivalence in (21), which depends on the time and place of speaking.

- (20) a. the victor at Jena \equiv
b. the defeated at Waterloo

- (21) a. The emperor is coming to Göttingen. \equiv
b. Wilhelm II is coming to Göttingen. \equiv
c. He is coming to our erudite city by the Leine.

5.3. Coseriu

A variation on the same notion of equivalence, apparently drawing inspiration from Husserl, appears in Coseriu's work in linguistic semantics (e.g., 1970a, 1975, 1987a, 1987b). Coseriu describes equivalences as different meanings (*Bedeutungen*) having the same designation (*Bezeichnung*). This is similar to Bolzano's and Husserl's descriptions, but unlike them, who are inattentive to the differences between languages, Coseriu places the language-particular organisation of meaning at the centre of attention. In his account, the inequality of equivalent expressions derives from oppositions between signs in a linguistic system, which is a language-particular construct, while the equality of equivalent expressions is due to coinciding designations, which are not language-particular entities.

Coseriu's treatment of equivalent sentences in different grammatical voices serves as a suitable illustration of his theory. He submits that the active and passive voice are meaningful categories in themselves, not merely ways of promoting and demoting arguments. Sentences like (22a) and (22b) are therefore not synonymous but equivalent. Coseriu contrasts his view to Dik (1978, p. 71), who accounts for the difference between the sentences in (23) in terms of different "perspectives" resulting from differences in the "point of departure". Coseriu argues that this account overlooks that the two voices are grammatical functions based on an opposition in the system of English. This opposition has counterparts in some but not all other languages. Importantly, the English voices do not coincide with the perspectives Dik refers to: there are three perspectives – with the agent, the theme or the recipient as topic – but only two voices in (23). Furthermore, the sentence in (24), which according to Coseriu represents the same state of affairs, corresponds to the perspective in (23c) without being in the passive voice. The active and the passive voice, Coseriu concludes, are two particular ways to articulate a content and they therefore carry meaning in themselves. As such, they cannot be reduced to any other linguistic or communicative function.

- (22) a. Hans beats Peter. \equiv
b. Peter is beaten by Hans.

- (23) a. John gave the book to Mary. \equiv
b. The book was given to Mary by John. \equiv
c. Mary was given the book by John.

- (24) Mary received the book from John.

For the most part, designation pertains to the representation of senses in Coseriu's work. However, he provides no explicit distinction between designation and reference and consequently no distinction between designative and referential equivalences. For instance, he quotes Husserl's referential equivalence *the victor at Jena* \equiv *the defeated at Waterloo* without objection or qualification (1970a, p. 2). Some of his own examples also fall under the category of referential equivalences. A case in point is (23c) and (24). On many occasions the sentences may of course represent the same state of affairs, but the coincidence is not complete. If Mary collected a parcel

from John containing a book, (23c) cannot describe what took place at that particular point in time. (24), on the other hand, can do exactly this. The discrepancy is due to different scopes of the verbs: *give* designates the complete transfer, including provision and reception, while *receive* designates only the reception.

Further examples cited by Coseriu (1970a, 1987a) are shown in (25)–(27). The sentences in (25) form a straightforward designative equivalence, while (26) and (27) present similar complications as the pair (23c)–(24). There are clear overlaps between the expressions. Yet there are reasons to doubt these overlaps are complete.

- (25) a. The landing is too low. ≡
 b. The landing is not high enough.
- (26) a. A ist größer als B. ≡
 ‘A is bigger than B.’
 b. A übertrifft B an Größe. ≡
 ‘A exceeds B in size.’
 c. A ist im Vergleich zu B groß.
 ‘A is in comparison to B big.’
- (27) a. mit einem Messer ≡
 ‘with a knife’
 b. mit Hilfe eines Messers ≡
 ‘with the aid of a knife’
 c. unter Benutzung eines Messers
 ‘by using a knife’

(26a) and (26b) constitute a designative equivalence as both express a comparison that might take even the slightest difference into account: something that is bigger than another thing and something that exceeds another thing in size can do so by an ever so slight margin. To be more precise: one may use these expressions in such a case, although often one would not. (26c), on the other hand, expresses a significant difference in size. A sentence like *A ist im Vergleich zu B groß, aber der Unterschied ist unbedeutend* (‘A is in comparison to B big, but the difference is insignificant’) therefore seems contradictory, whereas this does not hold for *A ist größer als B, aber der Unterschied ist unbedeutend* or *A übertrifft B an Größe, aber der Unterschied ist unbedeutend*. The equivalence between (26a–b) and (26c) only holds if the difference is significant, and since this is contingent on extralinguistic circumstances, the equivalence is of the referential kind.

The equivalence in (27) only holds within an appropriate sentential context. Although an instrumental interpretation easily springs to mind, *mit einem Messer* (27a) could designate other senses, as is apparent from *Er kam mit einem Messer in der Hand* (‘He came with a knife in his hand’), in which case it is not equivalent to (27b) and (27c). Coseriu (1987a) does not provide an appropriate sentential context for the phrases (although he does so in Coseriu, 1970a). Only in such a context could there be a designative equivalence: *Ich schneide das Brot mit dem Messer* ≡ *Ich schneide das Brot mit Hilfe eines Messers* ≡ *Ich schneide das Brot unter Benutzung eines Messers* (‘I cut the bread with a knife’, ‘I cut the bread with the aid of a knife’, ‘I cut the bread by using a knife’). The omission is probably not an oversight on Coseriu’s part but stems from the fact that he does not recognise the difference between designative and referential equivalence.

Coseriu’s treatment of equivalence serves to highlight the foundational status of oppositions in the linguistic system. To be sure, equivalences show that it is not always necessary to use a particular meaning to bring about a particular designation. But it is always necessary to use *some* meaning. A speaker does not have to say *too low* (25a) – he could also say *not high enough* (25b) – but to bring about the intended designation he must use either one of them or some other equivalent expression. Similarly, an English speaker can choose between the active and the passive voice, but he cannot dispense with them altogether, if he is to produce a designation of the

intended kind. The level at which equivalences are unequal is a foundational level of semantic organisation. Alternative expressions of the illustrated kind are therefore equivalent rather than synonymous.

5.4. Some basic aspects of equivalence

The preceding investigation has revealed both similarities and differences in the treatment of equivalence by Bolzano, Husserl and Coseriu. The most important similarity is that equivalence is presented as a simultaneous equality and inequality of content without further criteria. For Frege, the further criterion of epistemic value applies. A precondition for this concept of equivalence is the independence of the domain of meaning, a distinction underlined in all three accounts. Bolzano, Husserl and Coseriu go about defending the independence in different ways, however. Bolzano uses composition as a criterion for distinguishing between ideas and appeals to the structural difference between ideas and their corresponding objects. Husserl repeats the argument from objectlessness first put forward by Bolzano and adds an analysis of meaningfulness that reveals that certain meanings lack a clear fulfilment or any fulfilment at all. Coseriu focuses on the articulation of meaning in particular languages, emphasising that meaning belongs to a unique realm of linguistic organisation of a completely different order than that of designation.

Closely tied to this notion of equivalence is the recognition that meanings (or ideas, etc.) are manners of representation, a recognition in which also Frege shares. In Bolzano (2014 [1837]), this conception comes into clear view by his assertion that differences in composition correspond to differences between ideas. It is also suggested by his term *Vorstellung* for 'idea'. In Frege (1948 [1892]), a very similar notion appears in the formulation of the distinction between sense and reference: the terms in $a = b$ differ in their mode of presentation (*Art des Gegebenseins*) of the same referent. In Husserl (1970 [1900], 1987 [1908]), reference is described as the objective direction of meaning, while the meaning as such is the particular manner in which the reference is achieved. In the same vein, Husserl distinguishes between the objectuality in itself and the objectuality in the manner in which it is meant (*in der Weise, wie sie bedeutet ist*; Husserl, 1987 [1908], p. 28). For Coseriu, meaning takes precedence over designation, since for him a language is a system of signs organised in a particular manner. Only secondarily is language about designation. Designation involves an extralinguistic matter (*außersprachlichen Sachverhalt*), which is what an expression is about, and the manner in which this extralinguistic matter is portrayed by the means of a particular language (*einzelnsprachlicher Gestaltung desselben*), which is what is signified by the expression as such (Coseriu, 1987a, p. 7).

Despite their differences, there is an elementary agreement over the nature of meaning among these scholars. For none of them is meaning to be reduced to reference, denotation or extension. Meaning is posited as an independent domain, not necessarily tied to this or that correlate, or to any correlate at all, in the case of Bolzano, Husserl and Coseriu. Without this independence, meanings would not be able to function as manners of representation expressing a content over and beyond the content of the correlate. Without such manners of representation, there could be no phenomenon of equivalence.

This view of meaning bears a clear resemblance to the more recent notion of *construal* in Cognitive Grammar. Since *construal* might appear to be an alternative way to account for equivalences, possibly with the benefit of being a more comprehensive concept, the next section addresses the relationship between equivalence and *construal*.

6. Equivalence as an effect of construal

In the theory of Cognitive Grammar, *construal* denotes those aspects of meaning that cannot be adequately captured in terms of an objective, conceptual content but that require reference to the manner in which the content is conceived (Langacker, 1987, 1988a, 1988b, 1993, 2008; cf.

Verhagen, 2010 and Möttönen, 2016). Construal comes in several varieties, with differences to the kinds of content and operations involved. In the most general formulation, construal occurs as a *conceptualiser* forms an expression with respect to a *situation*, selecting and organising a *conceptual content* in a particular fashion. The process gives rise to alternate construals of the same conceptual content.

The notion of different construals is reminiscent of the notion of different manners of representation for the same correlate. There are a few important differences, however. First and most importantly, the objective, conceptual content is not a correlate in the sense used in the present study, but a more loosely defined material permitting a broad range of operations. Alternate construals do not necessarily produce equivalent expressions (Langacker, 2008, pp. 55–89). Second, the distinction between content and construal is vague, because the content evoked by an expression is taken to be influenced by the construal (Langacker, 2008, p. 43). Third, linguistic meaning and contextual interpretation are seen as continuous. As a consequence, there is no clear boundary between the semantic content provided by language and the contextual content made available in a situation (Langacker, 2008, pp. 39–43, 54). These characteristics make construal difficult to reconcile with equivalence, since equivalence presupposes clearly circumscribed correlates with distinct boundaries between the levels of description. The present context does not allow a comprehensive discussion of all points of disagreement, but it should be worthwhile to consider a few cases, as this will also cast light on the phenomenon of equivalence.¹⁴

Langacker (2008, p. 43) cites “a glass containing water occupying just half of its volume” as an example of a conceptual content that can be construed in alternate ways, providing four possible construals, shown in (28). These construals do not form a four-way equivalence: (28a) and (28b) designate different entities, (28a–b) contain information about the substance contained in the glass, which is lacking in (28c–d), and (28c–d) contain information about the quantity, which is lacking in (28a–b). The pair (28c–d) does however constitute a designative equivalence, since *half-full* designates the same quantity as *half-empty*. Langacker does not comment on this relation specifically.

- (28) a. the glass with water in it
 b. the water in the glass
 c. The glass is half-full.
 d. The glass is half-empty.

The conceptual content illustrated in (28) is not a correlate. It is something less tangible, a range of content available in a situation to which different linguistic responses are possible. Such a broad range of content lacks clear boundaries. Reliance on the same kind of unbounded content can be observed in Langacker’s treatment of degrees of specificity, i.e., “the level of precision and detail at which a situation is characterized” (Langacker, 2008, p. 55). He cites the sentences in (29):

- (29) a. Something happened.
 b. A person perceived a rodent.
 c. A girl saw a porcupine.
 d. An alert little girl wearing glasses caught a brief glimpse of a ferocious porcupine with sharp quills.

¹⁴ In a recent book chapter, Zlatev and Möttönen (2022) formulate a cognitive semiotic critique of the notion of construal that mitigates some of the incompatibilities noted in the present section. They argue that one must distinguish between: a) individual people’s construal of situations in conscious experience, b) speakers’ and hearers’ construal of situations and referents in social interaction, and c) the way conventional linguistic expressions construe situations and referents. Cognitive Grammar fails to make these distinctions, leaving it with a muddled notion of construal. Note that the distinction between (b) and (c) corresponds in part to the distinction between reference and designation as used in the present article.

The conceptual content is claimed to be the same. The striking difference between the four construals, ranging from the elusively general to the punctiliously specific, raises the question how this content can be circumscribed. In lack of an actual, concrete situation, the content is most accurately circumscribed by the most specific expression, if there is an expression that in all respects is more specific than the others. In the sentences above, (29d) qualifies as such an expression. In the presence of an actual, concrete situation, however, there is no maximally specific expression. Given its unusual degree of detail, (29d) might appear specific enough, but this is an arbitrary limit. With respect to a situation, an indefinite number of other construals would have been possible, for example those in (30):

- (30) a. The girl's glasses glittered in the sun.
b. At the sight of the girl, the porcupine emitted its pungent odour.

Put differently, there are two ways to arrive at a conceptual content. It can be *inferred* from the meaning of linguistic expressions and it will then be *incomplete* (we do not know it fully) or it can be *observed* in an actual situation and it will then be *inexhaustible* (we cannot express it fully). Due to this double nature, the conceptual content is neither entirely derived from semantic knowledge nor from the knowledge of a situation. The content is inferred from linguistic expressions as a product of their meaning, but these expressions do not put clear boundaries on the content, because the inference is incomplete. Not even contradictory expressions can be excluded as possible construals of the same situation. We can, for example, imagine (31) as possible construals of the same content as in (28).

- (31) a. There is too much water.
b. There is not enough water.

A common operation of construal is the selection of different *profiles* from the same *base*. (28) is explained this way: (28a) profiles the glass, (28b) profiles the water, (28c) profiles the filled part, and (28d) profiles the empty part. Thus, some equivalent expressions, such as (28c) and (28d), are characterised as having different profiles from the same base, but other expressions receiving the same description are not equivalent, such as (28a) and (28b). In other cases, expressions described as having the *same* profile are in fact equivalent. This holds for (32) and (33). In (32), the difference lies in the trajector–landmark alignment. In (32a), the event of leaving is trajector and the event of arriving landmark. In (32b), the order is reversed (Langacker, 2008, p. 72). In (33), the difference lies in the path of mental scanning: upwards in (33a) and downwards in (33b) (Langacker, 2008, p. 82).

- (32) a. The other guests all left before we arrived.
b. We arrived after the other guests all left.
- (33) a. The hill gently rises from the bank of the river.
b. The hill gently falls to the bank of the river.

(34) illustrates another case of construals with the same profile but different trajector–landmark alignments. In (34a), *child* is trajector and *parent* landmark, and in (34b), *parent* is trajector and *child* landmark. Langacker (2008, p. 68) writes that they designate the same relationship with “different direction of mental access”. Note that (34) does not qualify as an equivalence, because the profile is in the abstract, lacking the prerequisite content to bring about a correspondence. This is seen more clearly if we complete the sentences, as in (35). (35a) implies that there is a parent who has *x* as a child and (35b) implies that there is a child who has *y* as a parent, but the two expressions do not coincide by virtue of *x* and *y* being each other's parent and child. Drawing on this implication, we can however formulate expressions that are equivalent, as in (36).

- (34) a. have a parent
b. have a child
- (35) a. x has a parent.
b. y has a child.
- (36) a. x is the child of y. \equiv
b. y is the parent of x.

Even though Langacker cites equivalences, there are no means within the theory that allow them to be identified and classified as a phenomenon in itself. The reason for this is the lack of clearly circumscribed correlates. It would be unfair to interpret this as a failure of the theory because it does not claim to provide an account of equivalences.¹⁵ Certain prerequisites for such an account are in place, however, most importantly the notions of conceptualisation and alternate construals. With adjustments to the theory, it might be possible to provide an account of equivalence in terms of construal, but as the theory stands, equivalence is not an operative concept.

7. Equivalence and polyvalence

The concepts of equivalence and polyvalence rest on the same division of content. In a theory recognising either one of the concepts, meanings, senses and objectualities must be dissociated from each other so that they can enter into other arrangements than one-to-one. Several manners of representation for the same correlate means that there is equivalence, and several correlates for the same manner of representation means that there is polyvalence. Encompassing the same terms in opposite order, equivalence and polyvalence are structural counterparts, as illustrated in Figure 2.

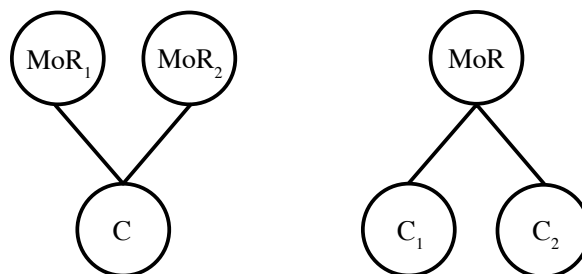


Figure 2. The arrangements of equivalence and polyvalence

Provided that the existence of equivalences has been established, the argument from equivalence asserts that the symmetry of the two arrangements provides evidence for polyvalence. This is an argument of possibility rather than an argument of necessity. Attested equivalences do not entail the existence of polyvalences – they entail the structural possibility of them. They present us with a suggestion, not with a proof. With respect to reference, the line of argument is in fact trivial, because there is little disagreement that both possibilities occur. This in turn lends some additional support to the argument, because if the proposed symmetry holds in one obvious

¹⁵ Among other cognitive linguists, equivalences are sometimes distinguished from other construal phenomena. Croft and Cruse (2004, pp. 41–42) call them “truth-functional equivalences”. But they provide no account of them in terms of construal, presumably because they are seen as a secondary phenomenon: “conceptualization is the fundamental semantic phenomenon: whether alternative construals give rise to differences in truth conditions or not is a derivative semantic fact”.

case, it may very well hold in another, less obvious case. With three out of four possibilities manifested – referential equivalence, referential polyvalence and designative equivalence – it would indeed be surprising if the fourth possibility – designative polyvalence – failed to occur.

The argument outlined above rests on the distinction between designative and referential equivalences. The former have meanings as manners of representation and senses as correlates and the latter semantic contents as manners of representation and objectualities as correlates. If this distinction fails, the argument from equivalence for the stratification of semantics fails as well. Let me therefore reiterate some of the findings in support of it.

Referential equivalences depend on extralinguistic circumstances. Since reference is established in speech and underdetermined by language, referential equivalences are predicated on factors external to semantics. They are possibilities brought about by a variety of circumstances, such as the time and place of utterance, people's worldview, the topic of discourse, historical events and facts of the physical world. The possibility of such equivalences is actualised in speech when the right conditions are met, and as a consequence, variations to such conditions determine whether referential equivalences hold or fail to hold. In the preceding investigation, this was observed in a number of cases. Three of these equivalences serve to summarise the main points. The equivalence *the victor at Jena* \equiv *the defeated at Waterloo* (20) is only possible because of historical circumstances, and it is only actual, as far as we know, under the condition that the expressions refer to Napoleon Bonaparte. The equivalence *the moon* \equiv *a celestial body fifty times smaller than earth* (17) is made possible by facts of the physical world and requires, as far as we know, that *the moon* refers to the moon orbiting Earth. The equivalence *equilateral triangle* \equiv *equiangular triangle* (18) is different from the preceding examples in that it holds a priori, but it is similar in so far that specialised, non-linguistic knowledge is required for it to be recognised as an equivalence. For (20) and (17), the knowledge drawn upon pertains to historical and astronomical circumstances. For (18), it pertains to trigonometric relations, and these relations, as argued above, are not part of the semantic content of the expressions.

Referential equivalence could hold or fail to hold, be recognised or fail to be recognised, depending on extralinguistic circumstances, including the particular knowledge possessed by speakers. Designative equivalences, on the other hand, are non-defeasible. Relative to a language, they hold universally regardless of circumstances. Some examples are *people with no children* \equiv *people without children* \equiv *people who don't have children* (4), *Chocolate is the best thing there is* \equiv *Chocolate is better than everything else* \equiv *There is nothing as good as chocolate* (6), *a is bigger than b* \equiv *b is smaller than a* (19), and *The landing is too low* \equiv *The landing is not high enough* (25). These equivalences are determined by semantics. No variation to contextual circumstances could cancel them.

8. Conclusion

The article has aimed to show that equivalence can be used as evidence for polyvalence, an investigative path based on the idea that equivalence and polyvalence are structural counterparts. They involve the same terms in different arrangements, each corresponding to the structural possibility implied by the other. Essential to both equivalence and polyvalence is the distinction between kinds of content. Neither is a mere equality, nor a mere inequality. They involve a simultaneous equality and inequality of content. In the case of equivalence, there are several manners of representation for the same correlate, and in the case of polyvalence, several correlates for the same manner of representation. On basis of this symmetry, the presence of one suggests the presence of the other.

For this line of argument to work properly, equivalences must be described the right way. To promote such a description, three conditions on the concept were proposed. It is crucial for a theory of equivalence 1) to recognise different kinds of content, 2) to distinguish between designative and referential equivalences, and 3) to clearly circumscribe correlates of equivalent expressions. The first condition is essential to equivalences – without it, equivalences could not be

coherently defined as both equal and unequal in content. The second condition is necessary for the argument for a stratified semantics – without it, the designative kind of equivalence could not be matched with the corresponding kind polyvalence. The third condition aids in delineating the concept – without it, equivalences cannot be properly distinguished from similar phenomena such as construal.

Of these conditions, special focus was put on the second, as it is a new proposal and since it bears most directly on the success of the argument from equivalence. The investigation presented evidence for the special status of designative equivalences. Unlike referential equivalences, which are mere possibilities actualised in speech, designative equivalences hold generally without the possibility of being cancelled. I therefore concluded that they are part of semantics. This conclusion established the desired connection between designative equivalence and designative polyvalence, thereby strengthening the case for a stratified semantics.

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