

Between Coreference and Synonymy: A Note on the Identity Statement ‘a is b’

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Abstract

This article demonstrates that identity is not a homogenous phenomenon. Identity statements of the form ‘a = b’ generally mean that the concept (or the Fregean sense) expressed by the term ‘a’ and the concept expressed by the term ‘b’ determine the same reference. When ‘a’ is a one-criterion term (e.g. ‘A fortnight is a period of fourteen days.’), one can be competent with the concept expressed by ‘a’ only if one is competent with the concept expressed by ‘b’. This relation is made possible by the coreference *de jure* between the two concepts, i.e. the synonymy between the corresponding general terms. When ‘a’ is a cluster term (e.g. ‘Arthritis is a rheumatoid disease of the joints only.’), one can be minimally competent with the concept expressed by ‘a’ without being normally competent with the concept expressed by ‘b’. This relation is made possible by the coreference *de facto* between the two concepts. Regarding cluster concepts, we must distinguish minimal competence and normal competence. Natural kind terms are a subclass of cluster terms. When ‘a’ is a natural kind term (e.g. ‘Water’ is H₂O.’), one can be normally competent with the concept expressed by ‘a’ without being minimally competent with the concept expressed by ‘b’. It follows from these considerations that the statement ‘a fortnight is a period of fourteen days’ is both metaphysically and epistemically necessary (i.e. *a priori*), while the statements ‘arthritis is a rheumatoid disease of the joints only’ and ‘water’ is H₂O’ are metaphysically necessary (if true), but are not epistemically necessary.

1. What Is Identity?

Frege (1892a/1997) opened his essay by asking whether or not identity is a relation. It is as ludicrous to say that two objects are identical as it is to say that an object is identical to itself (Wittgenstein 1922: 5.5303). If identity is a relation, it must be a relation between two signs designating one and the same object. Thus, ‘a = b’ should be considered to express the proposition that the name ‘a’ is coreferential with the name ‘b’. This view enables us to understand why (1a), but not (1b-c), has cognitive significance¹:

(1) a. Phosphorus is Hesperus.

¹ Burge (2012: 55) notes that Frege never wrote that (1b) and (1c) lacked cognitive significance and that for Frege it was sufficient for (1b) and (1c) to have different cognitive values from (1a). I shall assume, however, that (1b) and (1c) are *a priori*.

- b. Phosphorus is Phosphorus.
- c. Hesperus is Hesperus.

‘Phosphorus’ and ‘Phosphorus’, or ‘Hesperus’ and ‘Hesperus’, are coreferential *de jure*, whereas ‘Phosphorus’ and ‘Hesperus’ are merely coreferential *de facto* (Pinillos 2011, 2020: 187, Recanati 2016, 2020: 179, 2021, 2024). In Fine’s (2007) words, (1b) and (1c) represent the objects in question as the same, whereas (1a) represents them as *being* the same:

The idea of representing objects as the same is to be distinguished from the idea of representing the objects as *being* the same. The sentences “Cicero = Tully” and “Cicero = Cicero” both represent the objects as being the same but only the second represents them as the same. And, in general, one cannot informatively represent objects as being the same compatibly with representing them as the same. (Fine 2007: 40)

In (1b-c) but not in (1a) “it is somehow part of how the names represent their objects that the objects should be the same” (Fine 2007: 39-40)². Put differently, the relevant terms are (positively) coordinated in (1b-c)³. Any speaker who understands the expressions ‘Phosphorus’ and ‘Hesperus’ is supposed to understand the truthfulness of (1b-c). Knowledge of coreference *de jure* belongs to grammar, i.e. linguistic competence⁴:

[...] a good test of when an object is represented as the same is in terms of whether one might sensibly raise the question of whether it *is* the same. An object is represented as the same in a piece of discourse only if no one who understands the discourse can sensibly raise the question of whether it is the same. Suppose that you say ‘Cicero is an orator’ and later say ‘Cicero was honest’, intending to make the very same use of the name ‘Cicero’. Then anyone who raises the question of whether

² Fine observes that, in order for objects to be represented as *being* the same, two coreferential expressions must occur in a single sentence:

A further difference is that only a single sentence (such as “Cicero = Tully”) can represent its objects as being the same but two different sentences (e.g., “Cicero is Roman,” “Cicero is an orator”) can represent their objects as the same. (Fine 2007: 40)

This does not preclude the possibility that two expressions may be coreferential *de jure* in a single sentence, as in (1b-c).

³ Coordination is “the very strongest relation of synonymy or being semantically the same” (Fine 2007: 5) and it does the work of “sameness of sense” (Fine 2007: 60, Lawlor 2010: 493). Although Fine claims that the notion of coordination, a form of strict coreference as opposed to accidental coreference (Fine 2007: 108), should replace the Fregean notion of sense (ibid.: 83-85), Lawlor (2010) argues that coordination or strict coreference cannot be a semantically primitive notion insofar as strict coreference entails coreference (Fine 2007: 45). What Lawlor refers to as ‘internal coreference’ can hold “among token expressions in thought and language, with no implication of successful reference” (Lawlor 2010: 493). Internal coreference without actual reference, Lawlor says, can be handled by the notion of sense but not by the notion of strict coreference. Ratten (2009: 5) suggests that Fine’s position “is not an alternative to Fregean sense, but an elaboration of it”.

⁴ Putnam (1954: 118) claimed that sentences of the form ‘a is b’ have a different logical structure from sentences of the form ‘a is a’, even for those who know the identity between the references of ‘a’ and ‘b’. According to Fine (2007: 41), this means that for Putnam the difference between ‘a is b’ and ‘a = a’ is “pre-semantic”, in that “it is only once the logical form or ‘syntax’ of the sentences has been determined that the question of semantics comes into play”. For Fine, the presence or absence of (positive) coordination between terms is a matter of semantics. Bonardi (2019, 2020: Section 6) objects that coordination should rather be characterized as a non-semantic and subjective notion, because, intuitively, for those speakers who have absolutely no doubt that ‘Phosphorus’ and ‘Hesperus’ corefer, these two terms are (positively) coordinated. I shall not go into the matter in this article.

the reference was the same would thereby betray his lack of understanding of what you meant.” (Fine 2007: 40; see also Recanati 2016: Ch. 1)⁵

While we can and must know the truthfulness of ‘a = a’ and ‘b = b’ without any empirical investigation, we can sensibly ask whether ‘a = b’ is true. Thus, we can sensibly ask, as the Babylonians did, whether ‘Phosphorus’ and ‘Hesperus’ designate the same heavenly body (Pinillos 2011: 302). In other words, (1b) and (1c) are *a priori*, whereas (1a) is *a posteriori*.

The view that ‘a = b’ expresses a coreferential relation between the names ‘a’ and ‘b’, however, raises two problems. First, this view wrongly reduces the astronomical discovery expressed by (1a) to a mere verbal one. What the Babylonians discovered was an important fact about Phosphorus and Hesperus, not about the names ‘Phosphorus’ and ‘Hesperus’ (Frege 1892a: 26/1997: 152). Second, the view in question seems to assume a sheer dichotomy between meaning and fact famously demolished by Quine (1951). As Burge (1978: 127) points out, “the fact that a belief involves linguistic considerations does not show that the belief content must be formulated so as to contain quotation marks or to otherwise denote linguistic expressions”. That a thought is about language does not entail that it denotes a linguistic expression (Burge 1978: 128). Thus, even though the sentence in (2a) tells us something about the relation between the expressions ‘vixen’ and ‘female fox’, it remains the case that the sentence expresses a truth about vixens:

- (2) a. All vixens are female foxes. (Burge 1978: 128)
 b. Brothers are male siblings. (Fine 2007: 132)

Likewise, as Fine (2007: 132) remarks, to make the statement in (2b) “is not to say something about the word ‘brother’ but something about what it is to be a brother”. Indeed, one may note that the statement about John in (3a) is truth-conditionally equivalent to the statement about the name ‘John’ in (3b) (cf. Burge 1978: 123):

- (3) a. John is a student.
 b. The referent of the name ‘John’ satisfies the predicate ‘(being a) student’.

To claim that (1a) says something about the expressions ‘Phosphorus’ and ‘Hesperus’ does not ensure that it says nothing about Phosphorus and Hesperus. This brings us back to the question whether or not identity is a relation.

2. Sense and Identity *de jure*

⁵ This characterization of coreference *de jure* ignores empty names such as ‘Sherlock Holmes’ and ‘phlogiston’, which by definition do not refer. To take empty names into account, the characterization of coreference *de jure* must be suitably weakened. Recanati (2016: Ch. 5) examines (i) and (ii) and concludes that (ii) is more appropriate.

(i) Coreference *de jure* (strong): the two occurrences corefer if either of them refers.

(ii) Coreference *de jure* (weak): the two occurrences corefer if both of them refer. (Recanati 2016: 87; see also Ch. 2)
 This article does not deal with such empty cases.

According to Frege (1892a: 26, 31/1997: 152, 156), a linguistic expression expresses a sense (*Sinn*), wherein a certain mode of presentation of its reference (*Bedeutung*) is contained⁶. ‘Phosphorus’ in (1a) does not denote the expression ‘Phosphorus’, nor does it directly designate any object; it expresses its sense, which in turn determines its reference, namely the planet Venus. For Frege, the content expressed by an utterance is not its referential or intentional content but its sense (Cumming 2013: 1). Frege (1892a: 32/1997: 156, 1918-1919: 61/1956: 292) referred to the sense expressed by a declarative sentence as the ‘thought’ (‘Gedanke’)⁷. Although the sentences in (4a) and (4b) correspond to the same state of affairs, they nevertheless express different thoughts:

- (4) a. Hesperus is visible in the evening sky.
 b. Phosphorus is visible in the evening sky. ((4a-b): Cumming (2013: 1))

Thoughts or modes of presentation are individuated by what Schiffer calls Frege’s Constraint, formulated as in (5a), or, more simply, as in (5b)⁸:

- (5) a. Necessarily, if m is a mode of presentation under which a minimally rational person x believes a thing y to be F , then it is not the case that x also believes y not to be F under m . In other words, if x believes y to be F and also believes y not to be F , then there are distinct modes of presentation m and m' such that x believes y to be F under m and disbelieves y to be F under m' . (Schiffer 1978: 180)
 b. If it is possible to rationally believe that p and not believe that q , then the contents of p and q are distinct. (Brown 2004: 165, 197, 205)

Since it is possible to rationally believe (4a) without believing (4b), the content of (4a) differs from the content of (4b). Likewise, we can rationally believe (1b) and (1c) while doubting (1a), suggesting that (1a) differs in content from (1b) and (1c). On this account, the sentences in (1a-c) express relations between senses. Suppose that ‘Phosphorus’ expresses sense_p and that Hesperus expresses sense_h. (1a) means that sense_p and sense_h determine the same reference, while (1b) means that sense_p and sense_p determine the same reference and (1c) means that sense_h and sense_h determine the same reference. Given that anyone who grasps sense_p and sense_h understands that sense_p determines a unique reference and that sense_h does, too, we need no empirical investigation to understand that (1b) and (1c) are true. Sense_p and sense_p are coreferential *de jure*, and so are sense_h and sense_h. However, it cannot be determined on an *a priori* basis whether sense_p and sense_h determine the same reference. Sense_p and sense_h are therefore merely

⁶ Burge (1979a/2005, 1990: 31, 56, n. 5/2005: 244, 245, n. 5, 2012: Section I) emphasizes that Fregean senses cannot be equated with conventional linguistic meanings. This point will be addressed in Section 3 below.

⁷ Frege (1918-1919: 61-62/1956: 292-294) restricted the notion of thought to sentences for which the question of truth could arise, i.e. declarative (indicative) sentences and sentence-questions. As Hanks (2015: p, n. 2) makes clear, throughout his career Frege never endorsed the view that imperative sentences express thoughts.

⁸ The definition in (5) corresponds to what Recanati (2016: xv, 2024: 111) calls the modal formulation of Frege’s Constraint, as opposed to the non-modal one, according to which the contents of p and q are distinct if the subject actually entertains doubt as to whether p and q involve the same object.

coreferential *de facto*. Unlike (1b) and (1c), (1a) expresses a genuinely significant relation about the sense expressed by the name ‘Phosphorus’ and the sense expressed by the name ‘Hesperus’.

The contrast between coreference *de jure* and coreference *de facto* is also observed in inferences (Campbell 1987, Recanati 2016: Ch. 1, 2021: Section 3). Intuitively, the inference illustrated in (6) is valid:

- (6) Phosphorus is F.
 Phosphorus is G.
 Therefore, something is both F and G.

The intuitive validity of (6) is supported by the coreference *de jure* between the first and second occurrences of ‘Phosphorus’, which, in Fine’s (2007) words, are (positively) coordinated. In Campbell’s (1987: 275) words, the coreference *de jure* between the two occurrences enables us to “simply *trade upon* the fact that they have the same referent”. The inference in (6) contrasts with (7):

- (7) Phosphorus is F.
 Hesperus is G.
 Therefore, something is both F and G.

The inference in (7) is as valid as the inference in (6), because it is not possible for the two premises to be both true without the conclusion being also true (Campbell 1987: 277). Intuitively, however, (7) does not appear valid. We need, for (7) to be intuitively valid, an additional identity premise as shown in (8) (Campbell 1987: 276, Recanati 2016: 6, 2020: 163, 2021: 233):

- (8) Phosphorus is F.
 Hesperus is G.
 Phosphorus is Hesperus.
 Therefore, something is both F and G.

The contrast between (6) and (7) derives from the fact that, unlike the two occurrences of ‘Phosphorus’ in (6), ‘Phosphorus’ and ‘Hesperus’ in (7) are merely coreferential *de facto*⁹. This indicates, as Campbell (1987) remarks, “*de facto* sameness of reference is not enough to make it *obvious* that if the premises ‘Hesperus is F’ and ‘Phosphorus is G’ are true, then so too is the conclusion” (ibid.: 278) and “the form of a valid argument must do more than merely secure that if the premises are true, so too is the conclusion” (ibid.: 277).

It must be noted that what is relevant to the validity of an inference is not the identity in form or shape between the two occurrences of the relevant term. In fact, the identity in form or shape is neither necessary nor sufficient. It is not sufficient because more than one object can share the same name. Thus,

⁹ In Recanati’s Mental File framework, the pieces of information corresponding to the two premises in (7) are stored in distinct files and are insulated from each other (Recanati 2020: 166-167, 2021: 233-234, Pinillos 2020: 199).

the inference in (9) is not valid if the first occurrence of ‘Cicero’ refers to a Roman orator and the second a World II German spy (Campbell 1987: 277, Recanati 2016: 7-8, Bonardi 2021: 629, 631-632):

- (9) Cicero is F.
Cicero is G.
Therefore, something is both F and G.

Likewise, the validity of (10) is not secured if the two occurrences of ‘that’ are both deictic (Campbell 1987: 277-278):

- (10) That wasp is F.
That wasp is G.
Therefore, something is both F and G.

We need an additional premise to the effect that both occurrences of ‘that’ refer to the same object.

It might be objected that one has only to coindex the two occurrences of the relevant term as in (11)-(12), instead of adding the third premise:

- (11) Cicero_{*i*} is F.
Cicero_{*i*} is G.
Therefore, something is both F and G.
(12) [That wasp]_{*i*} is F.
[That wasp]_{*i*} is G.
Therefore, something is both F and G.

This is indeed the solution pursued by Fiengo and May (1998):

[...] if NPs are occurrences of the same expression, they are coindexed; if they are occurrences of different expressions, they are not coindexed. Thus, there may be any number of occurrences of the expression type ‘[_{NP1} Max]’ in a discourse (set of syntactic structures), all of which, if they refer at all, must refer to the same individual. Occurrences of an expression type corefer if they refer at all; all occurrences in a given discourse will be coindexed, and hence coreferential as a matter of representation. (Fiengo and May 1998: 381)

On Fiengo and May’s account, ‘Cicero_{*i*}’ and ‘Cicero_{*j*}’ are different expressions despite their phonological identity. If it is legitimate to suppose that the unpronounced index is part of a given expression, then we can say that ‘Cicero_{*i*}’ and ‘Cicero_{*j*}’ differ in form and that, in general, the coreference *de jure* between x and y is defined exclusively in terms of the identity in form between x and y. The identity in form thus understood, however, makes the notion of linguistic expression utterly counter-intuitive (Recanati 2016: 8-

9). As Pinillos (2011: 301-302) states, ‘Bill’ and ‘He’ in (13) are coreferential *de jure*, because anyone who understands the passage must understand that ‘Bill’ and ‘He’ corefer:

(13) Bill_i is visiting. He_i is taking the train.

Similarly, the inference in (14) seems as valid as the inference in (11) above (Recanati 2016: 6):

(14) Cicero_i is F.
He_i is G.
Therefore, someone is both F and G.

If, as Fiengo and May (1998) claim, the coreference *de jure* between *x* and *y* were secured by the fact that *x* and *y* were occurrences of one and the same expression type, one would be compelled to say that ‘Bill’ and ‘He’ in (13), or ‘Cicero’ and ‘He’ in (14), were two occurrences of a certain expression type. This apparent difficulty can be circumvented by assuming that whether or not two terms are occurrences of one and the same expression is assessed in LF (or in deep structure) rather than in surface structure. Thus, we can assume that in LF ‘Bill’ and ‘He’ in (13), or ‘Cicero’ and ‘He’ in (14), are represented as the same variable, say, *x_i*.

As Recanati (2016: 8-9, 2020: 164-165) points out, this move is not feasible in cases like (15):

(15) I met {John_i / my new neighbor_i} the other day. The bastard_i did not greet me.

Although in (15) ‘John’ or ‘my new neighbor’ and ‘The bastard’ are coreferential *de jure*, these are not occurrences of the same expression type in any reasonable sense. If there is identity in (15), it must be sought for in a mental representation rather than in a linguistic representation (Recanati 2016: 9, 2020: 165):

There is, one might say, identity at the *conceptual* level – at the level of thought or logical form. The expressions ‘John’ and ‘he’ are not the same, in the ordinary sense of ‘expression’, but they are associated with the same conceptual representation, and that is what coindexing indicates. Because of coindexing, anyone who understands the utterance has to redeploy the singular concept associated with the name when processing the anaphoric pronoun. (Recanati 2016: 9):

Recanati (2016: 10) concludes that “[c]oreference *de jure*, even though it manifests in language, is first and foremost a phenomenon at the level of thought”. A similar point is made by Schroeter and Schroeter (2016: 197), who remark that “[w]hen a subject consciously entertains a train of thought, certain elements *seem guaranteed* to pertain to the very same topic, simply in virtue of the way they are presented in thought”.

To summarize the argument so far, the notion of reference is useless in accounting for the fact that, unlike (1b-c), (1a) has cognitive significance. We cannot, however, appeal to the difference in form between ‘Phosphorus’ and ‘Hesperus’. What is crucial is that, unlike two occurrences of ‘Phosphorus’ or

‘Hesperus’, the names ‘Phosphorus’ and ‘Hesperus’ have different senses (Campbell 1987: 275-278). (1a) carries the information that the sense of ‘Phosphorus’ and that of ‘Hesperus’ determine the same reference, which is not knowable *a priori*. As Campbell (1987: 277) states, “[d]e facto sameness of reference is not something of which we have a purely ‘internal’ guarantee”. The fact that one can rationally endorse (1b-c) while rejecting (1a) indicates that, as Recanati (2016: 13) puts it, “reference is not epistemologically transparent” and “[s]ense is the level at which the subject’s rationality can be assessed”¹⁰.

3. Sense and Synonymy

The foregoing argument suggests that the Fregean sense expressed by a linguistic expression cannot be equated with its conventional meaning (Burge 1979a/2005, 1990: 31, 56, n. 5/2005: 244, 245, n. 5, 2012: Section I). In (14), for instance, ‘Cicero’ and ‘He’ express the same sense. No one would say, however, that the name ‘Cicero’ and the personal pronoun ‘he’ share the same conventional linguistic meaning. To take another example, Frege thought that the use of ‘today’ in one context can express the same sense expressed by ‘yesterday’ in another context (Burge 2012: 46):

If someone wants to say the same today as he expressed yesterday using the word “today”, he must replace this word with “yesterday”. Although the thought is the same its verbal expression must be different so that the sense, which would otherwise be affected by the differing times of utterance, is readjusted. The case is the same with words like “here” and “there”. (Frege 1918-1919: 64/1956: 296)¹¹

Senses (hence thoughts) are individuated by Frege’s Constraint illustrated in (5) above. Since it is not possible to rationally believe (16a) while doubting (16b), (16a) and (16b) are taken to express the same content and ‘Cicero’ and ‘He’ are taken to express the same sense:

- (16) a. Cicero_i is F.
b. He_i is F.

It is widely acknowledged that Frege’s Constraint can serve to differentiate the senses expressed by coextensive general terms as well as the senses expressed by coreferential singular terms. Thus, Burge (1979b: 76/2007: 103) uses Frege’s Constraint to detect differences in sense between ‘water’ and ‘H₂O’:

- (17) a. Water is not fit to drink.

¹⁰ Campbell (1987) is skeptical of such a fine-grained individuation of senses. Campbell (1987: 288) suggests that senses expressed by utterances of the demonstrative ‘that’ presuppose our ability “to *keep track* of things over time”. On this view, the two occurrences of ‘that wasp’ in (12), for instance, share one and the same demonstrative sense. However, this sense may not be transparent to the subject, because “the subject has no ‘internal’ guarantee that it is the same thing that is in question; there is always the possibility of unobserved substitution of one thing for another” (Campbell 1987: 281). For some discussion, see Recanati (2016: Ch. 5, 2024: 112) and Valente (2019: Section 7).

¹¹ „Wenn jemand heute dasselbe sagen will, was er gestern das Wort ‚heute‘ gebrauchend ausgedrückt hat, so wird er dieses Wort durch ‚gestern‘ ersetzen. Obwohl der Gedanke derselbe ist, muss hierbei der Wortausdruck verschieden sein, um die Änderung des Sinnes wieder auszugleichen, die sonst durch den Zeitunterschied des Sprechens bewirkt würde. Ähnlich liegt die Sache bei den Wörtern wie ‚hier‘, ‚da‘.“ (Frege 1918-1919: 64)

- b. H₂O is not fit to drink. ((17a-b): Burge 1979b: 76/2007: 103)

A person ignorant of the chemical makeup of water would endorse (17a) while rejecting (17b), which indicates that ‘water’ and ‘H₂O’ encode distinct ways of thinking of the relevant kind (Burge 1982: 120, n. 15/2007: 94, n. 15) and, correspondingly, that (17a) and (17b) express different thoughts.

However, the formulation of Frege’s Constraint given in (5) is at best question-begging. Burge’s (1979b/2007) argument rests on the assumption that one can rationally believe (18a) without believing (18b):

- (18) a. Water is F.
 b. H₂O is F.
 c. Water is H₂O.

This assumption is tantamount to saying that (18c) is not knowable *a priori*. Grasping the senses of ‘water’ and ‘H₂O’ does not ensure that they denote the same substance. Indeed, no one knew the fact stated in (18c) before the eighteenth century; water was just ‘liquid which is colorless, transparent, tasteless, thirst-quenching, found in lakes, etc.’ (Putnam 1975: 191; see also Chalmers 1996: 57, 2011: 613). In sharp contrast with (18) is (19):

- (19) a. Bachelors are F.
 b. Unmarried adult men are F.
 c. Bachelors are unmarried adult men.

It seems irrational to believe (19a) without believing (19b). Although Frege’s Constraint on its own does not tell us whether ‘bachelor’ and ‘unmarried adult man’ have the same sense¹², the fact that the statement in (19c) is generally considered a canonical analytic and *a priori* statement strongly suggests that ‘bachelor’ and ‘unmarried adult man’ are synonyms (Quine 1951: 23, Putnam 1962a: 360-361, Katz and Fodor 1963, Valente 2019: 313-314). As we have seen in Section 2, that two expressions have the same sense does not entail that they are synonyms. Nevertheless, there seems to be no obstacle to asserting that two synonymous general terms always have the same sense. Unlike ‘water’ and ‘H₂O’, ‘bachelor’ and ‘unmarried adult man’ are therefore coreferential *de jure*. We should ask, however, what makes it irrational to endorse (19a) and doubt (19c) in the first place, while it is rational to endorse (18a) and doubt (18b). If the answer to the question depends on the intuition that (18c) is *a posteriori* while (19c) is *a priori*, it follows that whether *x* and *y* have the same sense or different senses depends on whether ‘*x* is *y*’ is *a priori* or *a posteriori*. But

¹² Burge (2012: 56) asserts that (i) and (ii) express different thoughts even if no rational subject takes different attitudes toward them:

- (i) $2^2 = 4$
 (ii) $2 + 2 = 4$

If (i) and (ii) express different thoughts, Frege’s Constraint must be formulated as an ‘if’ relation shown in (iii) rather than as an ‘if and only if’ relation shown in (iv):

- (iii) The contents of *p* and *q* are distinct if it is possible to rationally believe that *p* and not believe that *q*.
 (iv) The contents of *p* and *q* are distinct if and only if it is possible to rationally believe that *p* and not believe that *q*.

recall that Frege introduced the notion of sense in order to account for the fact that unlike (1b-c) (1a) is *a posteriori*. It seems that senses can only be individuated in a circular manner insofar as we employ Frege's Constraint.

There is another problem with Frege's Constraint. Quine (1951: 38) famously claimed that "our statements about the external world face the tribunal of sense experience not individually but only as a corporate body", implying that the distinction between analytic and synthetic statements is a matter of degree and that analytic statements are none other than statements which are, in Keil's (1989: 268) words, "at the center of an interconnected set of beliefs":

[...] no statement is immune to revision. Revision even of the logical law of the excluded middle has been proposed as a means of simplifying quantum mechanics; and what difference is there in principle between such a shift and the shift whereby Kepler superseded Ptolemy, or Einstein Newton, or Darwin Aristotle? (Quine 1951: 40)

Quine's view is so influential that it "led several generations of philosophers to despair not only of the analytic-synthetic distinction, but of the category of *a priori* knowledge entirely" (Rey 2022: 3.4). On Quine's view, it is always rational to believe that *x* is *F* without believing that *y* is *F*, even if '*x* is *y*' strikes us as analytic or *a priori*. Frege's Constraint thus fails to distinguish (18) and (19).

4. Intuitions on Synonymy

Contrary to Quine (1951), Grice and Strawson (1956: 143) stress that people who know the terms 'analytic' and 'synthetic' "apply the term 'analytic' to more or less the same cases, withhold it from more or less the same cases, and hesitate over more or less the same cases" and that "[i]his agreement extends not only to cases which they have been *taught* so to characterize, but to new cases". This suggests, as Mates (1951) states, that "we have at least *some* understanding of 'analytic'" (ibid.: 531) and that "there are 'intuitive' notions of analyticity and synonymy" (ibid.: 532). Thus, any speaker of English would judge (20a) more analytic than (20b):

- (20) a. All bachelors are unmarried. (for the analytic side of the dichotomy)
b. There is a book on this table. (for the synthetic side) ((20a-b): Putnam 1962a: 360)

Similarly, Place (1956) maintains that the statements in (21) are true by definition, whereas the statements in (22) express contingent facts:

- (21) a. A square is an equilateral rectangle.
b. Red is a color.
c. To understand an instruction is to be able to act appropriately under the appropriate circumstances.
- (22) a. His table is an old packing case.
b. Red is a color.

- c. Her hat is a bundle of straw tied together with string.
- d. A cloud is a mass of water droplets or other particles in suspension

((21)-(22): Place 1956: 45)

According to Place, the verb ‘is’ used in (21) is the ‘is’ of definition, whereas the verb ‘is’ occurring in (22) is the ‘is’ of composition. What distinguishes (22) from (21) is, Place claims, that there is nothing self-contradictory in negating (22). For example, even if (22d) expresses a metaphysical truth, we have no difficulty in imagining that “clouds consist of a dense mass of fibrous tissue” (Place 1956: 47), as often described in fairy tales.

As Naess (1957) points out, however, this does not establish that one and the same notion of analyticity or synonymy is shared by every speaker. Even though Putnam says that there are only a few hundred words in English (labeled as ‘one-criterion’ terms) that have an analytic definition, such as ‘bachelor’ and ‘vixen’ (Putnam 1962b: 659, 1970: 189, 1983: 89, cf. Keil 1989: 28, Valente 2019: 314), he never gives an exhaustive list. Can we, for instance, rationally take different attitudes to (23a) and (23b)?:

- (23) a. Arthritis is F.
- b. A rheumatoid disease of the joints only is F.
- c. Arthritis is a rheumatoid disease of the joints only.

If the answer is negative, (23c) must be considered an analytic statement. Wikforss (2001, 2004) remarks that Burge’s view on analyticity seems inconsistent. Let us rehearse Burge’s (1979b/2007) well-known thought experiment designed to establish social externalism, according to which the individuation of meaning and mental content partially depends on a person’s social environment. Suppose that Bert is a rational person who is generally competent in English and has a number of correct beliefs about arthritis. He thinks correctly “that he has had arthritis for years; that his arthritis in his wrists and fingers is more painful than his arthritis in his ankles, that it is better to have arthritis than cancer of the liver, that stiffening joints is a symptom of arthritis, that certain sorts of aches are characteristic of arthritis, that there are various kinds of arthritis, and so forth” (Burge 1979b: 77/2007: 104). One day, feeling pain in his thigh, he goes to see his doctor and utters (24):

- (24) I have arthritis in my thigh.

The doctor tells Bert that arthritis is by definition an inflammation of the joints only. Bert relinquishes his view and now wonders what is wrong with his thigh. As a second step, we are asked to imagine a hypothetical community in which Bert₂, a molecule-for-molecule replica of Bert, expresses his fear to his doctor by uttering (24). Unlike in the actual community, in the hypothetical community experts define the word ‘arthritis’ to apply not only to arthritis but also to ailments afflicting a person’s thigh. It follows that, unlike Bert’s utterance of (24), Bert₂’s utterance of (24) can be true. Finally, the counterfactual situation is interpreted. According to Burge (1979b: 79/2007: 106), “[t]he word ‘arthritis’ in the counterfactual community does not mean *arthritis*”, because it is not even extensionally equivalent to the actual word

‘arthritis’. Since, on the standard conception of meaning, intension or concept uniquely determines extension, any difference in extension entails a difference in intension or concept. Bert’s ‘arthritis’ and Bert₂’s ‘arthritis’ are two homonymous words which happen to share the same form. Therefore, despite their molecule-for-molecule identity, the contents of Bert’s and Bert₂’s thoughts differ. Burge attributes the difference to the fact that the protagonists reside in different social environments.

However, it is difficult to understand Burge’s argument in a straightforward manner. On the one hand, given that Bert rejects (25a) but not (25b), Frege’s Constraint suggests that ‘arthritis’ and ‘a rheumatoid disease of the joints only’ express different senses:

- (25) a. Arthritis afflicts the joints only.
- b. A rheumatoid disease of the joints afflicts the joints only.

This amounts to saying that the statement in (23c) is not analytic. Burge claims, on the other hand, that the hypothetical community does not possess the concept of *arthritis*. This claim seems to presuppose that the statement in (26) expresses a conceptual truth about *arthritis*.

- (26) Arthritis does not afflict one’s thigh.

That is, nothing that afflicts one’s thigh can be arthritis, in the same way that no one who is married can be a bachelor. Burge’s view thus understood apparently rests on the notorious notion of analyticity. Burge himself states that he is not committed to any specific philosophical position about analyticity:

Both the ‘analytically’ true and the ‘analytically’ false attitudes are linguistic in the sense that they are tested by consulting a dictionary or native linguistic intuitions, rather than by ordinary empirical investigation. (Burge 1979b: 100/2007: 129)

In Wikforss’s words, Burge is merely committed to a ‘weak’ notion of analyticity:

Burge’s suggestion, therefore, is that we can endorse what might be called a ‘weak’ notion of analytic or conceptual truths, one which is quite compatible with Quine’s rejection of the analytic/synthetic distinction. ‘Arthritis afflicts the joints only’ is a conceptual truth in the sense that this is what the dictionary tells us. To say that the speaker uttering ‘I have arthritis in my thigh’ makes a conceptual error is just to say that he goes against the dictionary definition. It does not require a commitment to a strong notion of conceptual truths. (Wikforss 2001: 222)

Wikforss (2001: 222) dismisses Burge’s weak notion of analyticity as “clearly unsatisfactory”. The statement in (26) is analytic in the weak sense if ordinary dictionaries tell us that (25a) is true. The dictionary description, however, might turn out to be false as a result of scientific investigation. Burge (1986: 714/2007: 268) clarifies that “[t]he consensus of the most competent speakers can be challenged” and that “truths of meaning are dubitable”. But this perspective is inconsistent with his claim that in uttering (24)

Bert makes a conceptual error about the concept of *arthritis* (or betrays an incomplete understanding of *arthritis*). The mere consensus of the most competent speakers or the dictionary compiled on the basis of their consensus does not make (26) a conceptual truth. Bert's utterance of (24) can constitute a conceptual error only if (26) is an analytic truth in the strict sense. As Wikforss (2001: 226) claims, "Burge's talk of *conceptual* errors and *conceptual* truths seems to suggest that he rejects Quine's criticisms of the analytic/synthetic distinction".

The attack on Burge (1979b/2007) just sketched arguably conflates social externalism (Burge 1979b/2007) and physical externalism (Putnam 1973, 1975)¹³. When Wikforss (2014: 2.1) states that "it should be possible also for the *experts* to have an incomplete understanding of the concept they think with", she blurs the distinction between (incomplete) understanding in the communal sense and (incomplete) understanding in the metaphysical sense. As Burge (2012: 65) suggests, (incomplete) understanding is not a homogenous phenomenon. If (25a) were to turn out to be false, experts would be said to have had an incomplete understanding of *arthritis* with respect to the metaphysical truth¹⁴. In contrast, when Bert utters (24), he betrays incomplete understanding of *arthritis* with respect to the community standards. While experts can only suffer from incomplete understanding in the metaphysical sense, lay people like Bert may suffer from incomplete understanding in the communal sense. The fact that Bert sincerely utters (24) *ipso facto* makes his understanding of *arthritis* incomplete in the communal sense. The possibility that someday (26) may turn out to be false does not alter the matter. What is needed for social externalism is incomplete understanding (or conceptual error) in the communal sense. Incomplete understanding (or conceptual error) in this sense is compatible with Burge's (1979b/2007) weak notion of analyticity. Properly understood, then, Burge's view is that we can take different attitudes toward (23a) and (23b) and, hence, that (23c) does not express an analytic truth.

Burge (1978) applies essentially the same argument to (27):

- (27) a. A fortnight is F.
 b. A period of fourteen days is F.
 c. A fortnight is a period of fourteen days.

It is possible, according to Burge (1978), to rationally take different attitudes toward (27a) and (27b), suggesting that the statement in (27c) is not analytic. This is supported by the fact that we can imagine a rational speaker of English uttering (28):

- (28) For years I believed that a fortnight was ten days, not fourteen, though of course I never believed that fourteen days were ten days. (Burge 1978: 126)

It might be tempting to reinterpret the word 'fortnight' occurring in (28) as meaning 'period of ten days' (Burge 1978: 131), because it seems as irrational to hold the belief that a fortnight is ten days as it is to hold

¹³ For the details of the distinction between social externalism and physical externalism, see Liu (2002).

¹⁴ Dalton had an incomplete grasp of the concept of *atom* when he thought that atoms were indivisible (Burge 1986: 716/2007: 270, 1993: 316/2007: 297-298).

the belief that bachelors are married. But we must recognize that it does not make sense to paraphrase (28) as (29):

- (29) For years I believed that a period of ten days was ten days, not fourteen, though of course I never believed that fourteen days were ten days.

As Burge (1978: 131) remarks, “[o]n such an interpretation the speaker would never have made a mistake in his use of the word ‘fortnight’”. Literally interpreted, (28) demonstrates that we can rationally believe (27a) while rejecting (27b). Similarly, while no one doubts (30a), we can imagine someone doubting (30b) (Burge 1978: 120):

- (30) a. Whoever believes that Bertrand will not be gone for a fortnight believes that Bertrand will not be gone for a fortnight.
b. Whoever believes that Bertrand will not be gone for a fortnight believes that Bertrand will not be gone for fourteen days.

Burge (1978: 138) concludes that “[a] rational believer may, despite reflection, disbelieve simple analytic truths obtained from explicit logical or arithmetic truths by exchanging synonyms”.

Combined with Frege’s Constraint, Burge’s (1978) position implies that ‘fortnight’ and ‘period of fourteen days’ express different senses, as do ‘water’ and ‘H₂O’¹⁵. There are two worries here. First the resulting view seems to suggest that, as far as general terms are concerned, senses are individuated by the linguistic forms with which they are associated. Thus, two occurrences of ‘fortnight’ have the same sense, while ‘fortnight’ and ‘a period of fourteen days’ have different senses because these have different forms. Since dictionaries label ‘fortnight’ and ‘a period of fourteen days’ as synonyms (cf. Burge 1978: 125, Chalmers 2011: 613-614), the individuation of senses is more fine-grained than that of linguistic meanings. If senses are individuated purely in terms of the corresponding linguistic forms, to say that the identity statement ‘a = b’ expresses an identity relation between the sense expressed by ‘a’ and the sense expressed by ‘b’ is to say, in essence, that the term ‘a’ is coreferential with the term ‘b’. This embodies nothing but the verbal view about identity rejected in Section 1, according to which identity is a relation between two signs designating one and the same object.

Second, the view in question fails to properly characterize the various relations which hold between the two terms occurring in identity statements. For instance, on this view, (18c) means that the sense expressed by ‘water’ and the sense expressed by ‘H₂O’ determine the same reference, and (27c) means that the sense expressed by ‘fortnight’ and the sense expressed by ‘period of fourteen days’ determine the same reference. However, these descriptions leave out of account Place’s (1956) observation that the verb ‘is’ used in (18c) is the ‘is’ of definition, whereas the verb ‘is’ occurring in (27c) is the ‘is’ of composition. Something has to be said about this intuitive distinction.

¹⁵ Unlike Burge (1979b/2007, 1986/2007, 1993/2007), Burge (1978) makes no explicit reference to Frege’s Constraint.

5. Identity and Conceptual Competence

5.1 One-criterion Concepts

Identity statements of the form ‘a is b’ generally mean that the sense expressed by ‘a’ and the sense expressed by ‘b’ determine the same reference. To further elaborate the semantic description of ‘a is b’, we must take into account the possible relations between competence with the sense (or concept) expressed by ‘a’ and competence with the sense (or concept) expressed by ‘b’. Henceforth, following Onofri (2016: 6) and Valente (2019: 327), I shall use the term ‘concept’ instead of ‘sense’¹⁶.

To illustrate the point, let us consider ‘fortnight’ and ‘period of fourteen days’. As previously stated, Burge (1978) maintains that a believer can rationally take different attitudes towards (27a) and (27b). It is important to realize, however, that this is only possible because, as Burge (1978: 138) states, “the content of the belief has not been fully mastered by the believer”. Competence with the concept of *fortnight* requires understanding that a fortnight is a period of fourteen days¹⁷. Contrary to Burge’s (1978) suggestion, then, it is not rational to take different attitudes toward (27a) and (27b). What Burge should have said is rather that it is rational not to understand the word ‘fortnight’. Someone who happens not to understand the word ‘fortnight’ can rationally take different attitudes toward (27a) and (27b). But in this case Frege’s Constraint does not allow us to say that (27c) is a synthetic statement. Anyone who understands the word ‘fortnight’ is required to understand that it is not possible to rationally deny (27c). This interpretation comports with Burge’s (1978: 129) remark that “granting that a belief that a fortnight is ten days stemmed from simple linguistic misinformation deprives one of grounds for holding that such a belief would be irrational”.

True, one can be competent with the linguistic expression ‘period of fourteen days’ without being competent with the linguistic expression ‘fortnight’. However, one cannot be competent with the concept expressed by the linguistic expression ‘period of fourteen days’ without also being competent with the concept expressed by the linguistic expression ‘fortnight’. This relation, characteristic of identity statements in which one-criterion words occur, is made possible by the coreference *de jure* between the two concepts. By the same token, one cannot be competent with the concept expressed by the linguistic expression ‘unmarried adult man’ without also being competent with the concept expressed by the linguistic expression ‘bachelor’. The two concepts are coreferential *de jure*, which makes it irrational to simultaneously believe (19a) and disbelieve (19b). These considerations indicate that identity statements about one-criterion concepts can be characterized as in (31):

- (31) In the identity statement ‘a is b’, where ‘a’ is a one-criterion term, one can be competent with the concept expressed by ‘a’ only if one is competent with the concept expressed by ‘b’. This relation is made possible by the fact that the two concepts are coreferential *de jure*.

The verb ‘is’ occurring in (31) is what Place (1956) labeled as the ‘is’ of definition.

¹⁶ The use of the term ‘concept’ here is not faithful to Frege, for whom a concept is the reference, not the sense, of a predicate (Frege 1892b/1997).

¹⁷ Someone who believes that a fortnight is a period of ten days is certainly more competent with the concept than someone who believes that a fortnight is a kind of cat, for instance. When the second speaker uses the term ‘fortnight’, we must reinterpret her utterance of ‘fortnight’ as meaning a kind of cat rather than a fortnight (cf. Bilgrami 1992: 258, n. 12, Valente 2019: 320). It remains the case, however that both speakers are less than minimally competent with the concept of *fortnight*.

Competence comes in degrees (Burge 1986/2007: 713, Wikforss 2014: Section 2.1) and we can at least distinguish minimal competence, normal competence and full competence. Given that even the most competent speakers can seldom be fully competent with a given concept (Burge 1986: 714/2007: 268, Hunter 2001, Burge 2012: 60), what is of particular importance is the distinction between minimal and normal competence. As far as one-criterion concepts are concerned, there is virtually no distinction between minimal and normal competence. A person who takes different attitudes toward (19a) and (19b) is neither normally nor minimally competent with the concept expressed by the linguistic expression ‘bachelor’ (Katz and Fodor 1963, Fine 2007: 60). Conversely, anyone who knows that (19c) is always true is *ipso facto* deemed normally competent with the concept of *bachelor*.

5.2 Cluster Concepts

As regards cluster concepts, we must distinguish minimal and normal competence. Unlike one-criterion concepts, cluster concepts have no analytic definition. For example, as Putnam (1970: 189) claims, “[t]here are no *analytic* truths of the form *every lemon has P*”, except for the trivial truth that every lemon is a lemon. Similarly, there can be no analytic truth about arthritis, besides the trivial truth that arthritis is arthritis (Schwartz 1978: 566). This is to say that one can in principle be competent with the concept of *arthritis* without knowing that (25a) is always true. Indeed, in Burge’s (1979b/2007) thought experiment, Bert is described as having a number of correct beliefs about arthritis:

A given person has a large number of attitudes commonly attributed with content clauses containing ‘arthritis’ in oblique occurrence. For example, he thinks (correctly) that he has had arthritis for years; that his arthritis in his wrists and fingers is more painful than his arthritis in his ankles, that it is better to have arthritis than cancer of the liver, that stiffening joints is a symptom of arthritis, that certain sorts of aches are characteristic of arthritis, that there are various kinds of arthritis, and so forth. In short, he has a wide range of such attitudes. In addition to these unsurprising attitudes, he thinks falsely that he has developed arthritis in the thigh. (Burge 1979b: 77/2007: 104)

This ensures that Bert is minimally competent with the concept of *arthritis*. Bert is remarkably more competent than, say, a speaker “who believes that ‘arthritis’ applies to round green vegetables with fleshy leaves in the shape of a flower” (Valente 2019: 320). While this deviant speaker thinks about *artichoke* with the word ‘arthritis’, Bert manages to think about *arthritis*. Nevertheless, Bert is not normally competent with the concept, insofar as he is ignorant of (25a), which is naturally taken to be a core fact (Putnam 1970) about *arthritis*¹⁸. Having an incomplete understanding (in the communal sense) of a concept can be equated with being ignorant of one or more core facts about the relevant concept, while nevertheless being minimally competent with it. This makes it rational to believe (23a) without believing (23b). Accordingly, identity statements about cluster concepts can be characterized as in (32):

¹⁸ Putnam (1970: 197) defines core facts about the term ‘X’ as facts “such that one can convey the use of [‘X’] by simply conveying those facts” and that “one cannot convey the approximate use *unless* one gets [those] facts across”

- (32) In the identity statement ‘a is b’, where ‘a’ is a cluster term, one can be minimally competent with the concept expressed by ‘a’ without being normally competent with the concept expressed by ‘b’. This relation is made possible by the fact that the two concepts are coreferential *de facto*.

The verb ‘is’ occurring in (32) is what Place (1956) labeled as the ‘is’ of composition.

Burge (2007) remarks that we are often minimally competent with words or concepts but are not normally competent:

Reading ‘Individualism and the Mental’ again, I was struck by my insistent emphasis on the idea that one can have thoughts that one incompletely understands. This emphasis had an autobiographical root. A primary impetus for my discovering the thought experiments was recognizing how many words or concepts I went around using which I found, on pressing myself, that I did not fully understand. I came to realize that this was not just a personal weakness. It was part of the human condition, at least in complex societies. (Burge 2007: 115)

Although Burge blurs the distinction between competence with words and competence with concepts, we must carefully keep them apart, in order to capture the difference between the ‘fortnight’ case and the ‘arthritis’ case. One can rationally take different attitudes toward (27a) and (27b) only when one fails to understand either the word ‘fortnight’ or the expression ‘period of fourteen days’. In general, understanding a word involves being (at least) minimally competent with the corresponding concept. Minimal competence with the concept of *fortnight* requires understanding the truthfulness of (27c). In this sense, ‘fortnight’ and ‘period of fourteen days’ are synonymous and coreferential *de jure*. In contrast, one can take different attitudes toward (23a) and (23b) even if one understands both the word ‘arthritis’ and the expression ‘rheumatoid disease of the joints only’. Minimal competence with the concept of *arthritis* does not require understanding that (23c) is true. In this sense, ‘arthritis’ and the expression ‘rheumatoid disease of the joints only’ are not synonymous but merely coreferential *de facto*.

5.3 Natural Kind Concepts

The distinction between minimal and normal competence with concepts is even more important in the analysis of natural kind terms. Before we get into the core of the matter, two caveats are in order. Firstly, as Steward (1990) points out, although (18c = 33a) is often considered a canonical identity statement about a natural kind (Putnam 1973, 1975, Kripke 1980), the oddity of (33b) as opposed to (33a) suggests that the verb ‘is’ in (33a) is not a sign of identity but a sign of predication:

- (33) a. Water is H₂O.
b. H₂O is water.

In short, (33a) must be read as ‘H₂O (water)’ rather than as ‘water = H₂O’:

I think the strangeness of the sound of this latter claim [= (33b)] is an indication that most of the

time we tacitly read ‘is’ in place of the identity sign, and tacitly assume that the ‘is’ here is a simply predicative ‘is’ – perhaps one reason why it is usually thought that Twin-earth considerations and the like are sufficient to establish the identity claim. (Steward 1990: 396)

If (33a) is an identity statement, it means that the concept expressed ‘water’ and the concept expressed by ‘H₂O’ determine the same reference. If it is a predicational statement, it means that water has a chemical composition in which the proportion of hydrogen to oxygen is 2:1¹⁹. Secondly, even if ‘H₂O’ in (33a) is read as a singular term (as opposed to a predicate), Putnam (1992: 406, n. 62) remarks that ‘water’ and ‘H₂O’ may differ not only in intension but also in extension, because the extension of ‘H₂O’ “is the set of all substances that consist entirely of molecules consisting of two hydrogen atoms and one oxygen atom”, to which most water does not belong. For the sake of argument, however, I will assume that (33a) embodies a genuine identity statement about a natural kind.

As of today, the statement in (33a) arguably constitutes a core fact about water, ignorance of which would deprive one of normal competence with the concept of *water*. This would assimilate the case of *water* to the case of *arthritis*. Recall that Bert is minimally but not normally competent with the concept of *arthritis*, insofar as he does not know the core fact about arthritis illustrated in (25a). The idea that the knowledge of (33a) is required for normal competence with *water*, however, conflates two notions of water. As Chomsky (2000: 1892a003: 281) states, English has no word ‘H₂O’, while chemistry has no word ‘water’ except in informal contexts, contrary to Bloomfield’s (1933: 239) suggestion that “[w]e can define the names of minerals, for example, in terms of chemistry and mineralogy, as when we say that the ordinary meaning of the English word *salt* is ‘sodium chloride (NaCl)’”. If Chomsky is right, the knowledge of (33a) is not required for normal competence in the ordinary concept of *water*. In fact, before the eighteenth century, no one was familiar with the concepts of *hydrogen* and *oxygen*. Still, speakers of English were as competent in the use of the word ‘water’ as they are today, suggesting that, as Fodor (1994: 57) puts it, “the conditions for *having* the concepts [of *water* and *H₂O*] are different” (see also Fodor 1994: 105-106). Given the principle in (34), implicitly defended by Frege (Dummett 1991: 295)²⁰, the sentences in (18a) and (18b) express different thoughts and have different contents:

- (34) If one sentence involves a concept that another sentence does not involve, the two sentences cannot express the same thought or have the same content. (Dummett 1991: 295)

It is therefore erroneous to relate competence with the concept expressed by ‘water’ with competence with the concept expressed by ‘H₂O’. As Putnam (1992) claims, these are mutually independent competencies²¹:

¹⁹ Although ‘H₂O’ is commonly considered a structural description of water, Needham (2000: 13-14, 2002: 211-212, 2007: 46) clarifies that ‘H₂O’ merely expresses the proportion of hydrogen to oxygen. Since ‘H₂O’ is a compositional formula, it can in principle be also written as ‘OH₂’, “since the compositional formula says nothing about structure” (Needham 2007: 46).

²⁰ Dummett (1991) remarks:

[The principle in (34)] is implicit in [Frege’s] frequently repeatedly thesis that the sense of a part of a sentence is a part of the thought expressed by the sentence as a whole: if that does not mean that a grasp of the sense expressed by the constituent part is a necessary condition for grasping the thought, it means nothing at all. (Dummett 1991: 295)

²¹ Putnam (1992: 388) also says that, unlike the natural kind term ‘water’, ‘H₂O’ is a one-criterion term.

[...] competence in the use of “H₂O” presupposes competence in the use of ‘H’ (hydrogen) and ‘O’ (oxygen), as well as in the use of the notions ‘molecule’ and ‘atom’. The very different form of entry for ‘water’ makes it clear that the ability to characterize the extension of ‘water’ in some other way than simply by using the word ‘water’ (e.g., by a scientific definition) is not presupposed by competence in the use of the word (notwithstanding the fact that the extension of ‘water’, in one sense of that word, is ‘H₂O give or take certain impurities’ [...]) (Putnam 1992: 388)

This suggests that identity statements about natural kind concepts can be characterized as in (35):

- (35) In the identity statement ‘a is b’, where ‘a’ is a natural kind term, one can be normally competent with the concept expressed by ‘a’ without being minimally competent with the concept expressed by ‘b’. This relation is made possible by the fact that the two concepts are coreferential *de facto*.

Since natural kind terms are a subclass of cluster terms, (35) is a special case of (32). Speakers of English with no knowledge of chemistry are not only minimally but also normally competent with the concept of *water*.

6. Concluding Remarks

Langacker (1976: 325) states that “[s]emantic representations and conceptual structures are not coextensive – at best the former are a subset of the latter”. Full competence with the concepts of *water* and *H₂O* may allow us to recognize that the concepts expressed by the terms ‘water’ and ‘H₂O’ have the same extension. However, linguistic competence in the use of the terms ‘water’ and ‘H₂O’ only requires minimal (or at best normal) competence in the corresponding concepts. This makes the statement ‘water is H₂O’ an *a posteriori* statement and the terms ‘water’ and ‘H₂O’ merely coreferential *de facto*. The sole exception to Langacker’s observation may be provided by one-criterion terms and the concepts that they express. There is no distinction between minimal and normal competence with the concept of *bachelor*. Linguistic competence with the term ‘bachelor’ comes with minimal and normal competence with the concept of *bachelor*, which requires the understanding that the concepts *bachelor* and *unmarried adult man* corefer. This makes the statement ‘bachelors are unmarried men’ an *a priori* statement and the terms ‘bachelor’ and ‘unmarried adult man’ coreferential *de jure*, namely synonymous.

These considerations lead us to distinguish metaphysical necessity and epistemological necessity (Putnam 1975: 158). While metaphysical necessity is often inaccessible to our mind, epistemological necessity can be equated with *a priori* (Chalmers 2011: 597, 601). The statement ‘bachelors are unmarried adult men’ is necessary in both senses. There can be no situations in which bachelors are married, nor can we imagine that there are such situations. The statement ‘water is H₂O’, by contrast, is metaphysically necessary if it is true (Putnam 1975: 150, Kripke 1980), but not epistemically necessary (i.e. *a priori*) insofar as we can imagine possible worlds in which the chemical composition of water is not H₂O, as suggested by Mates (1951):

It must be admitted that if we have a knowledge of physics there may be certain general physical laws such that it would be very difficult for anyone to present facts which we would accept as evidence against them; nevertheless, we will have no great difficulty in *imagining* conditions under which they would be false. However strongly established the law may be, we feel no disposition to rule out all future evidence; we do not have the feeling that “things could not have been otherwise.”
(Mates 1951: 531)

Correspondingly, Chalmers (1996, 2011) proposes to distinguish primary and secondary intensions of natural kind terms:

Kripke’s insight can be expressed by saying that there are in fact two intensions associated with a given concept. That is, there are two quite distinct patterns of dependence of the referent of a concept on the state of the world. First, there is the dependence by which reference is fixed in the *actual* world, depending on how the world turns out: if it turns out one way, a concept will pick out one thing, but if it turns out another way, the concept will pick out something else. Second, there is the dependence by which reference in *counterfactual* worlds is determined, given that reference in the actual world is already fixed. Corresponding to each of these dependencies is an intension, which I will call the *primary* and *secondary* intensions, respectively. [...] At a rough approximation, we might say that the primary intension picks out the dominant clear, drinkable liquid in the oceans and lakes; or more briefly, that it picks out the *watery stuff* in a world. However, *given* that “water” turns out to refer to H₂O in the actual world, Kripke notes (as does Putnam [1975]) that it is reasonable to say that water is H₂O in every counterfactual world. The *secondary* intension of “water” picks out the water in every counterfactual world; so if Kripke and Putnam are correct, the secondary intension picks out H₂O in all worlds. (Chalmers 1996: 57)

Very roughly speaking, primary intensions correspond to what linguists commonly call meanings, whereas secondary intensions correspond to what philosophers commonly call concepts.

Further complicating the matter is that philosophers sometimes refer to concepts as ‘meanings’. Thus, Burge (1993: 316/2007: 298) distinguishes lexical meanings and translational meanings and equates the latter with concepts²². When Goosens (1977: 150) says that “a knowledge of the meaning of [natural kind] terms provide very little linguistic competence”, his use of the term ‘meaning’ presumably refers to Chalmers’s (1996, 2011) secondary intension or Burge’s (1993/2007) translational meaning. Failure to distinguish metaphysics and epistemology may place us in danger of, as Langacker (1976: 355) puts it, ‘embrac[ing] a cloud’ in investigating the relation between language and thought.

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²² Burge (1986: 716/2007: 270) labels translational meaning as ‘cognitive value’.

References

- Beaney, Michael (ed.) (1997) *The Frege Reader*, Oxford: Blackwell.
- Bilgrami, Akeel (1992) *Belief and Meaning*, Cambridge: Basil Blackwell.
- Bloomfield, Leonard (1933) *Language*, London: George Allen.
- Bonardi, Paolo (2019) “Manifest Validity and Beyond: An Inquiry into the Nature of Coordination and the Identity of Guises and Propositional-Attitude States”, *Linguistics and Philosophy* 42: 475-515.
- Bonardi, Paolo (2020) “Frege’s Puzzle and Cognitive Relationism: An Essay on Mental Files and Coordination”, *Disputatio* 12: 1-40.
- Bonardi, Paolo (2021) “The ‘Cicero’/‘Cicero’ Puzzling Case”, *Theoria* 87: 628-642.
- Brown, Jessica (2004) *Anti-Individualism and Knowledge*, Cambridge, MA: MIT Press.
- Burge, Tyler (1978) “Belief and Synonymy”, *Journal of Philosophy* 75: 119-138.
- Burge, Tyler (1979a/2005) “Sinning Against Frege”, *Philosophical Review* 88: 398-432, reprinted in Burge (2005), pp. 213-239.
- Burge, Tyler (1979b/2007) “Individualism and the Mental”, *Midwest Studies in Philosophy* 4: 73-121, reprinted in Burge (2007), pp. 100-150.
- Burge, Tyler (1982/2007) “Other Bodies”, A. Woodfield (ed.), *Thought and Object*, Oxford UP, pp. 97-120, reprinted in Burge (2007), pp. 82-99.
- Burge, Tyler (1986/2007) “Intellectual Norms and the Foundations of Mind”, *Journal of Philosophy* 83: 697-720, reprinted in Burge (2007), pp. 254-274.
- Burge, Tyler (1990/2005) “Frege on Sense and Linguistic Meaning”, in David Bell and Neil Cooper (eds.) *The Analytic Tradition*, Oxford: Blackwell, pp. 30-60, reprinted in Burge (2005), pp. 242-269.
- Burge, Tyler (1993) “Concepts, Definitions, and Meaning”, *Metaphilosophy* 24: 309-327, reprinted in Burge (2007), pp. 291-306.
- Burge, Tyler (2005) *Truth, Thought, Reason: Essays on Frege*, Oxford: Oxford University Press.
- Burge, Tyler (2007) *Foundations of Mind*, Oxford: Oxford University Press.
- Burge, Tyler (2012) “Living Wages of ‘SINN’”, *Journal of Philosophy* 109: 40-84.
- Campbell, John (1987) “Is Sense Transparent?”, *Proceedings of the Aristotelian Society* 88: 273-192.
- Chalmers, David J. (1996) *The Unconscious Mind: In Search of a Fundamental Theory*, Oxford: Oxford University Press.
- Chalmers, David J. (2011) “Propositions and Attitude Ascriptions: A Fregean Account.” *Noûs* 45(4): 595–639.
- Chomsky, Noam (2000) *New Horizons in the Study of Language and Mind*, Cambridge: Cambridge University Press.
- Chomsky, Noam (2003) “Internalist Explorations”, in Martin Hahn and Bjørn Ramberg (eds.) *Reflections and Replies: Essays on the Philosophy of Tyler Burge*, Cambridge, MA: MIT Press, pp. 259-288.
- Cumming, Samuel (2013) “From Coordination to Content”, *Philosopher’s Imprint* 13: 1-17.
- Dummett, Michael (1991) *Frege and Other Philosophers*, Oxford: Clarendon Press.
- Fiengo, Robert and Robert May (1998) “Names and Expressions”, *Journal of Philosophy* 95: 377-409.
- Fine, Kit (2007) *Semantic Relationism*, Oxford: Blackwell.
- Fodor, Jerry A. (1994) *The Elm and the Expert*, Cambridge, MA: MIT Press.

- Frege, Gottlob (1892a/1997) “Über Sinn und Bedeutung”, *Zeitschrift für Philosophische Kritik*, 100, pp. 25-50, G. Frege, “On Sinn and Bedeutung”, in M. Beaney, (ed.), pp. 151-171.
- Frege, Gottlob (1892b/1997) “Über Begriff und Gegenstand”, *Vierteljahresschrift für wissenschaftliche Philosophie* 16: 192-205, G. Frege, “On Concept and Object”, in Beaney (ed.), pp. 181-193.
- Frege, Gottlob (1918-1919/1956) “Der Gedanke: Eine logische Untersuchung”, *Beiträge zur Philosophie des deutschen Idealismus* 1: 58-77, G. Frege (1956) “The Thought: A Logical Inquiry”, *Mind* 65: 289-311.
- Goossens, W. K. (1977) “Underlying Trait Terms”, in S. P. Schwartz (ed.), *Naming, Necessity, and Natural Kinds*, Ithaca and London: Cornell University Press, pp. 133-154.
- Hanks, Peter (2015) *Propositional Content*, Oxford: Oxford University Press.
- Hunter, David (2001) “Knowledge and Understanding”, *Mind & Language* 16: 542-546.
- Katz, Jerrold J. and Jerry A. Fodor (1963) “The Structure of a Semantic Theory”, *Language* 39: 170-210.
- Keil, Frank C. (1989) *Concept, Kinds and Cognitive Development*, Cambridge, MA: MIT Press.
- Kripke, Saul A. (1980) *Naming and Necessity*, Cambridge, MA: Harvard University Press.
- Langacker, Ronald W. (1976) “Semantic Representations and the Linguistic Relativity Hypothesis”, *Foundations of Language* 14: 307-357.
- Lawlor, Krista (2010) “Varieties of Coreference”, *Philosophy and Phenomenological Research* 81: 485-495
- Liu, Jeeloo (2002) “Physical Externalism and Social Externalism: Are they Really Compatible?”, *Journal of Philosophical Research* 27: 381-404.
- Mates, Benson (1951) “Analytic Sentences”, *Philosophical Review* 60: 525-534.
- Naess, Arne (1957) “Synonymy as Revealed by Intuition”, *Philosophical Review* 66: 87-93.
- Needham, Paul (2000) “What Is Water?”, *Analysis* 60: 13-21.
- Needham, Paul (2002) “The Discovery that Water is H₂O”, *International Studies in the Philosophy of Science* 16: 205-226.
- Needham, Paul (2007) “Macroscopic Mixtures”, *Journal of Philosophy* 104: 26-52.
- Onofri, Andrea (2016) “Two Constraints on a Theory of Concepts”, *Dialectica* 70: 3-27.
- Pinillos, N. Ángel (2011) “Coreference and Meaning”, *Philosophical Studies* 154: 301-324.
- Pinillos, Ángel (2020) “De Jure Anti-Coreference and Mental Files”, in Rachel Goodman, James Genone and Nick Kroll (eds.) *Singular Thought and Mental Files*, Oxford: Oxford University Press, pp. 187-206.
- Place, U. T. (1956) “Is Consciousness a Brain Process?”, *British Journal of Psychology* 47: 44-50.
- Putnam, Hilary (1954) “Synonymy, and the Analysis of Belief Sentences”, *Analysis* 14: 114-122.
- Putnam, Hilary (1962a) “The Analytic and the Synthetic”, *Minnesota Studies in the Philosophy of Science* 3: 358-397.
- Putnam, Hilary (1962b) “It Ain’t Necessarily So”, *Journal of Philosophy* 59: 658-671.
- Putnam, Hilary (1970) “Is Semantics Possible?”, *Metaphilosophy* 1: 187-201.
- Putnam, Hilary (1973) “Meaning and Reference”, *Journal of Philosophy* 70: 699-711.
- Putnam, Hilary (1975) “The Meaning of Meaning”, *Minnesota Studies in the Philosophy of Science* 7: 131-

193.

- Putnam, Hilary (1983) "Two Dogmas Revisited", in Hilary Putnam, *Realism and Reason*, Cambridge: Cambridge University Press, pp. 87-97.
- Putnam, Hilary (1990) "Is Water Necessarily H₂O?", in James Conant (ed.) *Realism with a Human Face*, Cambridge, Mass.: Harvard University Press, p. 54-79.
- Putnam, Hilary (1992) "Replies", *Philosophical Topics* 20: 347-408.
- Quine, W.V.O (1951) "Main Trends in Recent Philosophy: Two Dogmas of Empiricism", *Philosophical Review* 60: 20-43.
- Rattan, Gurpreet (2009) "Semantic Relationism, by Kit Fine", *Mind* 118: 1124-1131.
- Recanati, François (2016) *Mental Files in Flux*, Oxford: Oxford University Press.
- Recanati, François (2020) "Coreference *De Jure*", in Rachel Goodman, James Genone and Nick Kroll (eds.) *Singular Thought and Mental Files*, Oxford: Oxford University Press, pp. 161-186.
- Recanati, François (2021) "Do Mental Files Obey Strawson's Constraint?", in Cristina Borgoni, Dirk Kindermann and Andrea Onofri (eds.) *The Fragmented Mind*, Oxford: Oxford University Press, pp. 227-250.
- Recanati, François (2024) "Individuating (and Typing) Mental Files", in Alex Grzankowski and Anthony Savile (eds.) *Thought: Its Origin and Reach*, London and New York: Routledge, pp. 100-118.
- Rey, Georges (2022) "The Analytic/Synthetic Distinction", *The Stanford Encyclopedia of Philosophy* (Summer 2022 Edition), Edward N. Zalta (ed.), URL = <https://plato.stanford.edu/archives/sum2022/entries/analytic-synthetic/>.
- Schiffer, Stephen (1978) "The Basis of Reference", *Erkenntnis* 13: 171-206.
- Schroeter, Laura and Schroeter François (2016) "Semantic Deference and Semantic Coordination", *American Philosophical Quarterly* 53: 193-210.
- Schwartz, Stephen P. (1978) "Putnam on Artifacts", *Philosophical Review* 87: 566-574.
- Steward, Helen (1990) "Identity Statements and the Necessarily a Posteriori", *Journal of Philosophy* 87: 385-398.
- Valente, Matheus (2019) "Communicating and Disagreeing with Distinct Concepts: A Defense of Semantic Internalism", *Theoria* 85: 312-336.
- Wikforss, Åsa Maria (2001) "Social Externalism and Conceptual Errors", *Philosophical Quarterly* 51: 217-231.
- Wikforss, Åsa Maria (2004) "Externalism and Incomplete Understanding", *Philosophical Quarterly* 54: 287-294.
- Wikforss, Åsa (2014) "Incomplete Understanding of Concepts", *The Oxford handbook of Topics in Philosophy*, Oxford: Oxford University Press.
<https://doi.org/10.1093/oxfordhb/9780199935314.013.49>
- Wittgenstein, Ludwig (1922) *Tractatus Logico-philosophicus*, London: Routledge & Kegan Paul.

同一性言明 a is b における a と b の同一指示と同義性

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キーワード: 同一性 フレーゲ的意義 概念 言語能力 概念能力

要旨

同一性が均質的な現象でないことを論じる。一般に同一性言明 $a=b$ は a が表す概念(あるいはフレーゲ的意義)と b が表す概念が同一指示であることを意味する。 a が一規準語であるとき(例: *A fortnight is a period of fourteen days.*)、話者は概念 a に関する能力をもつならば必ず概念 b に関する能力ももつ。これが成り立つのは a と b が表す概念が権利上の同一指示の関係にある(すなわち言語表現 a と b が同義である)ためである。 a が群集語であるとき(例: *Arthritis is a rheumatoid disease of the joints only.*)、話者が概念 a に関する最低限度の能力をもちつつ概念 b に関する標準的な能力をもたないことがありうる。これが成り立つのは a と b が表す概念の間に成り立つのが事実上の同一指示の関係にとどまる(それゆえ言語表現 a と b が同義ではない)ためである。一規準語の場合と異なり、群集語に関しては最低限度の能力と標準的な能力を区別する必要がある。群集語の下位クラスとして自然種名がある。 a が自然種名であるとき(例: *Water is H_2O .*)、話者が概念 a に関する標準的な能力をもちつつ概念 b に関する最低限度の能力をもたないことがありうる。以上より、一規準語を用いた同一性言明が形而上学的必然性と認識論的必然性(アプリアリ性)をともにもつものに対して、群集語を用いた同一性言明は(真であるならば)形而上学的必然性のみをもち、認識論的必然性(アプリアリ性)はもたないことが帰結する。

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