On the Concept of Life

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April 1, 2002
1 Introduction

The moral systems which do not more or less axiomatically consider life valuable and worthy of protection constitute, as far as I know, a negligible number. Also the incoherent mishmash of Christianity, western humanism, agnosticism and atheistic existentialism that can be said to dominate our part of the world, considers life holy, in some sense\textsuperscript{1}.

Life has been studied a lot during history, and it still receives a considerable amount of attention, but the concept of life seems to be less well investigated. This paper aims to investigate the concept of life from a linguistic viewpoint, to analyse and to categorise the different uses. The basis is the Swedish words \textit{liv (life)} and \textit{leva (to live)}.

2 Concepts

Precisely what a concept is has been discussed for a long time. Allwood (1989) classifies the different opinions that have been put forward into three groups:

- Realism - Concepts exist on their own, outside and independent of humans.
- Conceptualism - Concepts are cognitive phenomena, with no existence on their own. If there were no humans (or other thinkers), there would be no concepts.
- Nominalism - Concepts do not really exist at all, there are only words and the world. To explain the world, concepts are not necessary.

Modifications and mixes of these three extremes are common. To use myself as an example, I could be described as a conceptualist with realistic traits. I think that though concepts are cognitive phenomena, concepts like \textit{up/down, hunger, sleep} and \textit{pain} are most likely common to every human individual, and indeed to many animals as well. Such concepts are thus more or less timeless and universal, and in a sense independent of human individuals. There is a small problem with this view - how can concepts be cognitive phenomena, and thus private, and at the same time shared between several humans? The

\textsuperscript{1}There might be an established term for this moral system; in that case I am sorry for not knowing about it.
way I see it, the 'shared' concepts are abstractions/generalisations of concept instances, they are concept types. Thus when I speak about 'the concept of life in the Swedish culture', I mean the concept type 'life', a prototype or maximal shared set of features of the concept instances held by all members of the Swedish culture.

It is hard to imagine a human culture where the difference between a living and a dead person is not observed and upheld, and in that sense life can be considered one of these more or less universal concepts. On the other hand, precisely what the difference between the living and the dead state is may vary a lot. In this paper I will limit myself to western culture, in particular Swedish, and I do not claim that the analysis will cover the concept of life in every other culture, though I suspect that large parts of it will.

Another distinction which is relevant for this paper is the one between concept and word meaning. I do not think that this is a realistic distinction, but prefer to speak of word uses as opposed to concepts. Thus a certain use of a word may activate/refer to one concept, while another use of the same word will activate/refer to another concept.

3 Definitions of Life

3.1 History

Trusted (1996) starts her historical review of the view of life with animism, the idea that all nature - rivers, trees, animals, etc. - have thoughts and feelings just like humans. This idea is usually paired with the thought that it is spirits that give these things life. These spirits are thought to be more or less independent of the body they reside in, and not necessarily to die with it. This spiritist idea survived with antiquity's Greek and Roman thinkers, where it was expanded and refined in different ways. It took a long time for this idea to be seriously questioned, though the details of it changed: When Descartes in the seventeenth century described the human body as a machine, it was a machine controlled by the spirit through a special organ, the pineal gland. When gases were discovered during the eighteenth century, they were first conceived as spirits which might give vital energy to living creatures.

It was not until the end of the eighteenth century that the idea that there might not be any spirit at all first showed up\(^1\). During the eighteenth century

\(^1\)In the works of both Paul Henri Dietrich (Baron d'Holbach) and Jean Baptiste Lamar-
and the development of evolutionary ideas about the origin of life, the idea of the spirit as life giver lost a lot of ground to materialist ideas.

3.2 Biological Definitions

In modern biology this materialism has lead researchers to work under the assumption that the living organism is a machine, sometimes called a 'survival machine'. This assumption is used when studying the living cell as well as when studying the human body, and like other machines, these are often described in terms of information systems. In the chapter titled *The Body of a New Machine: Situating the Organism Between Telegraphs and Computers*, Keller (1995) sums up her book and long discussion about metaphors in twentieth-century biology:

> The body of modern biology, like the DNA molecule - and also like the modern corporate and political body - has become just another part of an informational network, now machine, now message, always ready for exchange, each for the other.

(Keller 1995, p. 118)

Thus it is not surprising to find that most definitions of life from this field consider life a system. An example can be found in (Luisi 1998), where the author starts with 'the NASA definition of life', and refines it into the following:

> a system which is self-sustaining by transforming external energy/ nutrients by its own process of components production.

(Luisi 1998, p. 619)

Looking closer at this, we see that life, according to Luisi, is a system with the following features:

1. It needs energy.
2. It gets this energy by itself from its environment.
3. It reproduces.

que this idea can be found.
Luisi adds two more or less optional features:

4. It has a body (it is spatially defined by a semipermeable compartment of its own making).

5. It evolves (it is coupled to the medium via adaptive changes which persist during the time history of the system).

One should note that this definition does not require a living thing to move, though it is difficult to imagine how it would not, especially if feature 4 is included.

I will not go into more detail about the definition of life, but use this list as a state of the art definition from the field of molecular biology. However, there is one more feature of life which has been discussed, but which is not mentioned by Luisi - purpose. Purpose is too subjective and airy a term to be used in the descriptive and positivist biology of today, but the biologists seem to have difficulties describing living organisms without this concept, and they have not been able to completely remove 'the purpose thing' from life. The term teleonomy, is meant to capture what we intuitively call purpose, but to be strictly descriptive: not purposeful, but seemingly purposeful.

\[\text{...teleonomy denotes in a purely descriptive way the fact of purposiveness [of living systems], without implying any explanation of the cause of the phenomenon. This (...) allows a distinction between natural and artificial objects. The artefact is produced by humans with regard to a particular application or performance, planned in advance. Thus the final purpose determines the form of a man-made object. For natural objects, however, we do not presuppose any kind of ultimate purpose (...)\}

(Küppers 1990, p. 7)

So where is purpose in Luisi’s definition? As far as I understand, it is not there, the reason being that Luisi stays on a quite abstract level. He tries to see life as a deterministic system, without explaining exactly how this system works. Küppers, focusing on the living cell, finds himself not being able to explain how the cell works without using the teleonomy concept.

1(Luisi 1998, p. 619-620)
2Küppers (1990, p. 7) credits Pittendrigh (1958) for this introduction
Trusted (1996) calls the twentieth-century idea of teleonomy ‘a new animism’, and though this new animism is very different from the primitive/traditional animism, there is a common core: things which are not human are thought of as having will and consciousness of human kind. Trusted says that Monod suggests that teleonomic behaviour is the essential and unique characteristic of all living things, which in that case would be a definition of life. I return to this in chapter 7.

3.3 Other Definitions

Other efforts to define life have regarded life as other kinds of systems. E.g. Prigogine & Stengers (1984) sees life as a thermodynamic system which is not in equilibrium, and Korzeniewski (2001) has a similar strategy when he makes an attempt at what he calls a cybernetic definition of life. As an example of such system definitions, we shall take a closer look at this latter attempt.

Korzeniewski regards his definition as more abstract, and better focused on the essence of life, than the ones given before. He defines a living individual as a system of inferior negative feedbacks subordinated to a superior positive feedback. The author expands this at some length, and here I will only briefly explain it.

The system of negative feedbacks is a system aiming at the protection of the individual - each time some behaviour causes weakening of the individual, the system weakens the causes to this behaviour. One example of this is when the energy sources in the body of an animal runs low, the animal gets hungry, and is thus directed to go and find some food.

Positive feedback is like an amplifier connected to itself - the stronger signal it sends out, the stronger signal it receives, and then the signal it sends out becomes even stronger, and so on. In the life case, the positive feedback is simply the strive for reproduction - the more individuals that are reproduced, the more individuals can reproduce, etc.

The author applies his definition on several phenomena:

- A stony avalanche has positive feedback - the more stones that participate, the heavier the avalanche becomes, and the more stones will be torn along - but it has no negative feedback. So it is not alive.

- Robots can have negative feedback - different more or less complicated systems of preserving temperature, balance, or something else. But
they do not have any positive feedback, they do not reproduce. So they are not alive.

- Ants are participants in a large network of both negative and positive feedbacks, but this network includes the colony as a whole, and the individual ant has no way of handling the network of feedbacks on its own. Thus it is not the individual ant that is alive, but rather the ant colony.

I have a couple of objections against this definition. A stony avalanche do have negative feedback - the friction between ground and the avalanche diminishes the avalanche, and cracks and holes in the ground can remove individual stones from the avalanche. And at the end of the hill, where the avalanche 'decays', as Korzeniewski puts it, isn’t that the end of the life of the avalanche?

My main objection is about the positive feedback - that the strive for reproduction is the difference between a living being and a robot. So what if a robot is programmed to reproduce itself? It does not even have to succeed, it is enough to have the goal to reproduce. And an ox, having neither sex drive nor inclination of looking after any offspring, would by this definition not be alive.

3.4 The Death Concept and Abortion

In the mid 1980’s the development of modern transplantation surgery prompted a discussion about brain death, or 'the death concept' as it was called, in Sweden. One interesting aspect of this discussion was that it was not only concerned with a scientific definition of death, but also to a large extent with people’s attitudes and feelings towards death and dying. Since I am interested not only in the scientific view of life, but also in the more popular, or perhaps less reflected, view of life that most people hold, this aspect makes the debate extra interesting. The professor of civil law Anna Christensen expressed this aspect well:

"Frågan är hur man får lov att behandla en människokropp som känns och ser ut som en levande människa... Detta är en praktisk"
This quote holds an implicit thought that something is alive if it looks and feels alive.

Another interesting aspect of the discussion was the strong dualism that often was expressed. The very idea of brain death can be said to rely on the idea that the body and the person are separate - the person can be dead while the body is alive.

In the government official report which aimed to clarify the problem, this dualism was accepted, and the following definition was suggested:

> En människa är död då hon totalt och oåterkalleligt har förlorat all förmåga att förena och samordna kroppens funktioner - fysiska och psykiska - till en fungerande enhet.\(^2\)

SOU 1984:79 ”Dödsbegreppet”, p. 147

In the discussion around this definition, the investigators make clear that the phrase all förmåga att förena och samordna kroppens funktioner - fysiska och psykiska - till en fungerande enhet\(^3\), really is an operationalisation of soul\(^4\).

In the discussion about the other end of human life, birth and abortion, the suggested moments for start of human life are sometimes grounded on the same dualism, that life starts when the soul enters the body. For the Roman Catholic church, this occurs at conception, but there is another popular moment - the first movement by the foetus in the womb, the quickening. A more scientific version of this has also been suggested (Singer 1994, p. 103), using the term brain-life, and aiming at finding the moment where the brain starts functioning.

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\(^1\)The question is about how one can treat a human body which is still warm and feels and looks like a living person... This is a practical and moral question, it is nothing but word magic to say that this question can be solved by changing the death concept.

\(^2\)A human is dead when she completely and irrevocably has lost all ability to connect and coordinate the functions - physiological and psychological - of the body, to a working whole.

\(^3\)all ability to connect and coordinate the functions - physiological and psychological - of the body, to a working whole.

\(^4\)SOU 1984:79 ”Dödsbegreppet”, p.142
To summarise this, the discussion of when a human is dead or alive has concerned the presence of a soul, without deciding exactly what that is. My own intuitions about soul say that it is the source or home of purpose in human individuals; when the soul leaves the body, what is left is not a subject any more, it is not anything which can hold purpose. Thus the essence of life, according to this debate, turns out to be much the same as the biologists think - purpose.

# 4 Words

## 4.1 Introduction

The definitions presented above tries to be 'objective' in some sense, i.e. they try to find the definition of life in the world. As mentioned in chapter 2, I consider concepts man-made, and not necessarily good mappings of the world. Studying the meanings of the words related to life is another way of gaining some kind of access to this phenomenon which is so difficult to reach.

In this chapter I will present what I have found about the concept of life in some linguistic sources:

1. Svenska akademiens ordbok (SAOB 2002)
3. Roget’s Thesaurus (1987)
4. The Göteborg Spoken Language Corpus (Allwood m.fl. 2002)

## 4.2 Liv, leva

The two Swedish dictionaries SAOB (2002) and Nationalencyklopedins ordbok (1996) collectively list 26 different meanings of *liv* and *leva*. Six of these I consider homonyms, i.e. not part of the concept life:

1. A part of the body (*liv*), usually in combinations like *livstykke*, *gå någon inpå livet*, *fä sig något till livs*. 

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2. The physical manifestation of a royal person (liv), usually in combinations like livgarde.

3. Favourite (liv). SAOB did not give any example of this, and I cannot come up with one myself.

4. The military term livregemente. This seems to be the same as 2.

5. A smooth, vertical part of brick wall (liv)

6. Leave, let remain (leva, verb or noun), now only used in combinations like kvarlevor.

The other 20 meanings are discussed in the analysis section below (chapter 5).

In the concordances I also excluded the following cases:

1. lever - an intestine (the liver)

2. live - the English word is sometimes used in Swedish in the sense 'not recorded' (a live concert etc.)

3. Livets ord - The name of an organisation; I will not try to speculate in the reasons to that name.

4.3 Död, dö

The obvious counterpart to compare life to is death, död (death, dead) and dö (die). Death is defined, in SAOB as well as in (Nationalencyklopedins ordbok 1996), as 'not alive', and most of the meanings listed by these dictionaries have their direct counterparts under the life entries. However, some meanings did not have direct counterparts, and they are included in the analysis below.

4.4 Other Words

The thesaurus and the dictionaries mention many other words in relation to liv, but they all either show up as possible meanings of liv, or are compounds including liv/leva. They are included in the analysis below.
After having studied the material presented above, I consider the concept of life as inseparable from soul. What has life as soul, and vice versa. I shall not try to define soul in detail, but settle with the loose definition given above - the source or home of purpose in living individuals. The soul is what makes the individual independent, what makes it meaningful for us to say that the individual wants something. This is a more ’diluted’ use of the word than what is often the case, when soul is regarded as something specifically human.

Life can be regarded from two different angles, either from the outside or from the inside, yielding the two subconcepts objective life and subjective life.

**Objective Life**

Objective life is life seen from the outside, as something comparable to other physical phenomena. It has the following features:

- A has soul
- B has capability of information transfer (motion, change)
- C reproduces
- D has need for (material) provision
- E is limited in time

D is a rephrasing of ‘need for energy’, in order to include more advanced pre-conditions for in particular human life, such as warmth, air, social stimulus, etc.

C and D are common to the biological definition of life given above (p. 3.2), but the other three features from that definition I have not found any trace of in the word uses: a living creature who is not able to feed itself (e.g. a baby) is still alive, that a living thing has a body is not due to its being alive, but to its being a thing, and evolution is probably too slow a process to affect the everyday concept of life.

The term soul is, as mentioned earlier, rather airy, but I have not found any better alternative. For higher animals it is not very problematic; we have a strong sense about such creatures having a will of their own, acting on their own behalf. But for plants and unicellular animals it is not that easy. One
solution could be to say that the strive for reproduction and/or survival is the basic purpose of all living things, but that is not how I understand the concept of life. Rather these simple life-forms are examples which actually puzzles us when we think about their being alive, precisely because we have difficult seeing what their purpose is. Do they have a will of their own, and if they do not, are they not simply organic machines, and not really alive? Thus I consider the purpose that living individuals have as something more than the strive for survival.

Of the features A - E it seems like only A is clearly necessary: a mule is alive (fails C); gods and spirits, though their actual existence is under dispute, can meaningfully be said to be alive without the need to eat (fails D), and they may also be considered immortal (fails E). I am not sure whether or not B is necessary; I cannot really imagine something having a soul, but not being capable of information transfer. An unconscious person, or a frozen bacteria, are possibly examples of that - having soul, but not the capability to show it. If one agrees with that, B is not necessary. On the sufficient side, I understand A, possibly in combination with B (see above), as sufficient, while B is not sufficient in itself. E.g. angels in the medieval theology did not reproduce, did not need food or water, and were immortal. Still they were alive, why A+B must be sufficient. That B alone is insufficient is obvious - many things move without being alive - rivers, clouds, robots.

C - E, and possibly B, are thus common features of objective life, or part of prototypical objective life.

**Subjective Life**

Subjective life is the rather abstract existence that living individuals experience. Objective life is presupposed by subjective life, in the sense that only individuals with objective life can experience it. It has the following features:

- **F** is an environment
- **G** has content

F and G can also be seen as metaphors, saying that life is a container constituting our environment, and waiting to be filled. Thus one could choose to see subjective life as the result of a metaphor from objective life using container as vehicle, but since subjective life seems to be more independent to me, and since the container would have to be a rather strange one, I prefer to see subjective life as a ‘separate’ concept.

1provided the concept of life is still the same in this aspect
Features F - G are not a definition of 'the abstract existence that living individuals experience', but existence is probably too fundamental a concept to be defined; at least I will not attempt it here. Thus I do not come any closer to a definition of subjective life than 'the existence of living creatures', which is not much. F-G is probably not a complete listing of the properties of living existence, but they are the properties implied by the uses of *liv* and *leva* that I have found. It is not clear whether or not all living things have living existence; it might require consciousness. An illustrating example of this ambivalence was found in GSLC:

...växter förökar sej också lever ett liv i nån bemärkelse...

[myp underlining] ¹

GSLC, V0251011

The interesting part is *i nån bemärkelse* (in some sense). Plants obviously do not live a life in the normal sense.

### 5.1 Uses of *liv* and *leva*

Based on the features of these two subconcepts, a classification of the uses of the words *liv* and *leva* could be made, and this classification is presented below. In chapter (6) I present a simple test of the analysis.

The different uses of *liv* and *leva* that were found in the dictionaries, the thesaurus and the concordances can be grouped into five main uses, each of which derives from the two subconcepts given above. The list below is not meant to be complete; the feature listing above can be used to produce a complete classification based on which features are included in the use, but that would be a very large set of classes (2⁶ = 64 combinations if B-F are considered binary), and it would in any case be tricky to classify a particular use in such detail, since only the speaker would know exactly what s/he meant. That problem arises anyway, and border cases and uncertain cases are to be expected. The given classification is meant to group the uses found in the different sources in a lucid way, and the important thing is that they all are grounded on objective or subjective life.

¹plants reproduce as well live a life in some sense
1. The living state [objective life]
   Example:  *han levde på 1800-talet, hon lever och har hälsan, livsfarlig, han lever på socialbidrag*
   Comment: This is the meaning corresponding most directly to the subconcept biolife, manifested in many straightforward expressions.
   This meaning can be subcategorized according to what the living state applies to

1i. The living state of an individual [objective life]
   Example:  *han levde på 1800-talet*
   Comment: Reproduction is not necessary in this case. This use also includes cases like *han lever på socialbidrag*, since finding an income for a human is the modern equivalent of finding food, a necessity which arises from feature D (need for provision) of objective life.

1ii. The living state itself [objective life]
   Example:  *livet på jorden är starkt diversifierat, forskarna tvistar ännu om livets uppkomst*
   Comment: Although life in general may cease, it is not inherently limited in span. Thus feature E (limited in time) does not apply here.

2. Activity, movement [objective life]
   Example:  *kajen var full av liv, en livlig diskussion, en livaktig berättare*
   Comment: The movement feature of objective life is focused. In the cases of *livlig* and *livaktig*, movement is generalised into change, variation.
3. The period of time during which an individual is in the living state [objective life]
   Example: *aldrig i livet, i hela mitt liv*
   Comment: This is a pretty simple modification of meaning 1, emphasising the limited character of biolife (feature E). As in 1i, reproduction is not necessary. Since the objective life is presupposed to subjective life, all uses derived from objective life can be derived form subjective life as well. In this case the ambiguity is rather obvious, e.g. cases when life is seen as having one most important event, like *sitt livs resa*.

4. Living existence by itself [subjective life]
   Comment: This use focuses on the living existence itself, leaving out most other features.
   Example: *meningen med livet*

4i. Surroundings and preconditions of existence [subjective life, environment]
   This meaning emphasizes the environmental feature of life, the parts of existence that we cannot control. In this sense life is something that happens to us. It comes in several versions:
   4ia. General
       Example: *hur lever livet med dig, livet har farit hår fram med honom*
   4ib. An aspect of (human) existence
       Comment: A part of existence can be separated from the rest, either on an individual level, or collectively.
       Example: *hans akademiska liv, livet på landet, kulturlivet i Rom*
4ic. Dwelling, residence
Example: *han lever på landet, livet i staden kan vara hårt*
Comment: This meaning emphasizes that our existence has a physical location. When the location becomes more abstract, this use borders to 4ia and 6: *vi lever i en storskalig värld*

4id. Experience, endurance
Comment: This meaning emphasizes that we experience our environment, and focuses on some special feature of this environment.
Example: *uppleva ngt, genomeva ngt*

4ie. Family situation
Comment: A special dimension of the environment is our family situation, or our principal social relations.
Example: *han lever ensam, livet som ungarl, han lever i flock*

4ii. Way to exist [subjective life, content]
Example: *att leva ett asketiskt liv, att dö från synden, hon är hela hans liv*
Comment: We are not only passive patients in the environment that is existence, but we also shape the environment, and fill it with content, in a more active fashion. This is not always separate from 4ia, *att leva nära naturen* is both a way to exist and an environment for our existence. We can many times choose actively to be exposed to a certain environment. This use also includes cases when living is seen as equal to doing, preferrably meaningful, things. Ex: *skaffa sig ett liv, hon levde upp igen, känna sig levande.*
The meanings listed above are the bases of many metaphors, and I will not try to list them all here, but settle with some of the most common ones:

5. When something is interesting, it is alive [objective life, movement]
   Comment: Movement gets generalized into variation or change, and this makes it possible to talk about something being more or less alive - the more it varies, the more alive it is.
   Example: matchen lever igen, det är liv i hans målning, intrig-en ger berättelsen liv, detaljerna framtråder med liv och skärpa

6. States are places [subjective life, environment]
   Comment: The general metaphor of 'states are places' can be used with meaning 3c (dwelling), yielding many new uses:
   Example: han lever i ett vakuum, de lever på svältgränsen, han lever i tron att det finns goda och onda människor, hon lever i skräck

7. The relevance or topicality of (abstract) things is their life. [objective life, movement]
   Comment: I think that the basis of this metaphor is that when abstract things affect us, or when they affect other abstract things, we think of them as moving.
   7i. General
   Example: hans minne lever än, merkantilismen är död
   7ii. (Religion) With relevance, effect and high intensity in the world
   Example: den levande guden, en levande tro, livets vatten
8. The functioning of tools and organisations is their life. [objective life]
   Example: glödlampors livslängd, få liv i motorn, motorn är stendöd, organisationen lever sitt eget liv, laget lever på sin entusiasm
   Comment: In some cases this metaphor seems to be rather limited; e.g. for tools it is restricted to livslängd; tools are not said to be alive when they work, or die when they cease to work.

9. Natural things are alive, while man-made things are not. [objective life, has soul?]
   Example: levande ljus, levande musik
   Comment: I am not sure of what feature of life that is used in this metaphor, but it could be soul/purpose - while an electric light or recorded music is strictly predictable and planned by humans, candles and live music behaves with the unpredictability and 'willfullness' of living things. This metaphor does not seem to be used for man-made things, e.g. electric light is not called dead. Since I am not sure of how to derive this use from any of the two subconcepts objective life and subjective life, this use is actually a threat to my analysis. However, since I fail to see any other explanation to why liv can be used like this, I cannot disarm this threat here.
**10. Fulfill expectations**

Example: *leva upp till*

Comment: I understand this construction as ‘to be able to function well enough to meet the demands’, which either is a modification of 8 or an extension of 1i.

I also found more limited metaphors:

- 'Games are alive when they proceed [motion]' (*bollen är död*)
- 'If it does not have meaning/purpose, it is dead [has soul]' (*dött lopp*)
- 'It it does not pay off, it is dead [reproduction]' (*dött utrymme, dödkött*)
6 Test

A simple test of a classification/analysis like the one presented above is to apply it on a set of occurrences. I made a random sample of 150-200 occurrences of the two words in the three corpora GSLC, Press 65 and Press 98, and tried to fit the uses into the classification. The ideal would be to let the classification arise directly from the sample, but I have not found any good way of doing that, and instead I have tried to be open to the possibility that some use would not fit the classification system. The hypothesis was that the analysis was good and useful, and the way it could be falsified was that the occurrences would not fit well into the classes. This is, of course, a rather error prone and subjective way of testing a hypothesis, but I consider it better than not testing it at all.

Since the classes changed somewhat during the process of classification, it is likely that they would change more if I should take a larger sample. This is not so important, as long as the classes are derivable from the two subconcepts; see the introduction to chapter 5.1.

It should be mentioned that the corpora were not of equal size - press65 had 1762 hits when searching for *liv/leva*, press 98 had 13 785 hits, and GSLC had 1356 hits\(^1\). The sample was made by letting a computer draw 200 occurrences from each set of hits.

The tables below show the results of the classifications, with the class of use in the left column, the absolute number of classifications for that use in the middle column, and the percentage that number constitutes of the total number of instances in the sample in the right column.

<table>
<thead>
<tr>
<th>Use</th>
<th>Absolute</th>
<th>Relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1i - The living state of an individual</td>
<td>46</td>
<td>31.5%</td>
</tr>
<tr>
<td>1ii - The living state itself</td>
<td>4</td>
<td>2.7%</td>
</tr>
<tr>
<td>2 - Activity, movement</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>3 - Period of time</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>4 - Living existence by itself</td>
<td>3</td>
<td>2.1%</td>
</tr>
<tr>
<td>4ia - General surroundings and preconditions</td>
<td>39</td>
<td>26.7%</td>
</tr>
<tr>
<td>4ib - An aspect of existence</td>
<td>2</td>
<td>1.4%</td>
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\(^1\)this includes false hits like ‘leverans’ etc.
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<tr>
<td>4ic - Dwelling, residence</td>
<td>9</td>
<td>6.2%</td>
</tr>
<tr>
<td>4id - Experience, endurance</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>4e - Family situation</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>4ii - Way to exist</td>
<td>38</td>
<td>26.0%</td>
</tr>
<tr>
<td>5 - Interesting is alive</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>6 - States are places</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>7i - Relevance/topicality is life</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>7ii - Relevance, effect and high intensity is life</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>8 - The functioning of tools and organisations</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>9 - Natural things are alive, man-made are not</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>10 - Fulfil expectations</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>Total</td>
<td>152</td>
<td>104.3%</td>
</tr>
</tbody>
</table>

Table 2: Press 65 - 164 instances.

<table>
<thead>
<tr>
<th>Use</th>
<th>Absolute</th>
<th>Relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a - The living state of an individual</td>
<td>44</td>
<td>26.8%</td>
</tr>
<tr>
<td>1b - The living state itself</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>2 - Activity, movement</td>
<td>10</td>
<td>6.1%</td>
</tr>
<tr>
<td>3 - Period of time</td>
<td>6</td>
<td>3.7%</td>
</tr>
<tr>
<td>4 - Living existence by itself</td>
<td>15</td>
<td>9.1%</td>
</tr>
<tr>
<td>4ia - General surroundings and preconditions</td>
<td>21</td>
<td>12.8%</td>
</tr>
<tr>
<td>4ib - An aspect of existence</td>
<td>11</td>
<td>6.7%</td>
</tr>
<tr>
<td>4ic - Dwelling, residence</td>
<td>12</td>
<td>7.3%</td>
</tr>
<tr>
<td>4id - Experience, endurance</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>4e - Family situation</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>4ii - Way to exist</td>
<td>24</td>
<td>14.6%</td>
</tr>
<tr>
<td>5 - Interesting is alive</td>
<td>12</td>
<td>7.3%</td>
</tr>
<tr>
<td>6 - States are places</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>7i - Relevance/topicality is life</td>
<td>6</td>
<td>3.7%</td>
</tr>
<tr>
<td>7ii - Relevance, effect and high intensity is life</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>8 - The functioning of tools and organisations</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>9 - Natural things are alive, man-made are not</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>10 - Fulfil expectations</td>
<td>0</td>
<td>0%</td>
</tr>
</tbody>
</table>

15 instances were classified with two uses
2Apart from the 5 double classifications, roundings causes some extra permille.
Table 3: Press 98 - 147 instances.

<table>
<thead>
<tr>
<th>Use</th>
<th>Absolute</th>
<th>Relative</th>
</tr>
</thead>
<tbody>
<tr>
<td>1i - The living state of an individual</td>
<td>28</td>
<td>19.0%</td>
</tr>
<tr>
<td>1ii - The living state itself</td>
<td>1</td>
<td>0.7%</td>
</tr>
<tr>
<td>2 - Activity, movement</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>3 - Period of time</td>
<td>14</td>
<td>9.5%</td>
</tr>
<tr>
<td>4 - Living existence by itself</td>
<td>11</td>
<td>7.5%</td>
</tr>
<tr>
<td>4ia - General surroundings and preconditions</td>
<td>29</td>
<td>19.7%</td>
</tr>
<tr>
<td>4ib - An aspect of existence</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>4ic - Dwelling, residence</td>
<td>10</td>
<td>6.8%</td>
</tr>
<tr>
<td>4id - Experience, endurance</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>4ie - Family situation</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>4ii - Way to exist</td>
<td>36</td>
<td>24.5%</td>
</tr>
<tr>
<td>5 - Interesting is alive</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>6 - States are places</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>7i - Relevance/topicality is life</td>
<td>8</td>
<td>5.4%</td>
</tr>
<tr>
<td>7ii - Relevance, effect and high intensity is life</td>
<td>0</td>
<td>0%</td>
</tr>
<tr>
<td>8 - The functioning of tools and organisations</td>
<td>6</td>
<td>4.1%</td>
</tr>
<tr>
<td>9 - Natural things are alive, man-made are not</td>
<td>3</td>
<td>2.0%</td>
</tr>
<tr>
<td>10 - Fulfil expectations</td>
<td>2</td>
<td>1.4%</td>
</tr>
<tr>
<td>Total</td>
<td>161</td>
<td>110.8%</td>
</tr>
</tbody>
</table>

The primary result of the test was that the classification worked - it was not very difficult to classify the 457 occurrences. Only two were found that are worth mentioning from a classification viewpoint:

- *de*{t} *ena livet kan planera åt0 leva åt0 de*{t} *andra livet bara*. This way 'liv' is used for 'living individual', and though I found no other evidence of this use, it would not be difficult to add it to the classification, since it is easily explained as an extension of 1ii 'the living state of an individual'. It was not classified.

- *I modern tid har de levande vatten sedan decennier fält fungera som kloaker...*. I am not sure whether this refers to a water with living

---

3 instances were classified with two uses
2 Apart from the 3 double classifications, roundings causes some extra permille.
3 14 instances were classified with two uses
4 Apart from the 14 double classifications, roundings causes some extra permille.
creatures in it (as opposed to e.g. a completely acid water, where nothing can live), or to a natural water such as a lake or a river, as opposed to a man-made pond or canal. It was classified as the latter, use 9.

Though not the principal object of the test, a few other things can be said about the result. In spoken language fewer uses occur; the three most dominating uses - 1i 'the living state of an individual', 4ia 'surrounding and preconditions' and 4b 'way to exist' - together cover 84% of the occurrences. This can be compared with the written corpora; in press 65 the 7 most common uses are needed to cover 84%, and in press 98 the five most common uses are needed to cover 80%. It is not surprising that there is more variation in the written corpora; written language in general is more varied than spoken language. In the written corpora 14% and 15% respectively of the occurrences were metaphorical, while only 5% of the occurrences in the spoken language corpus were metaphorical; I interpret this as another consequence of the larger variation of written language.

The three most common uses were the same in all three corpora - 1i 'the living state of an individual', 4ia 'surroundings and preconditions of existence, general' and 4ii 'way to live'. If 'common' is the same as 'typical', this fits well with my intuition about the typical uses of the words.

Use 4i 'surroundings and preconditions of existence', including 4ia-e, is the most common in all three corpora, and all 4 uses 'living existence' (4i, 4ia-e and 4ii) are even more dominating. That we speak more about subjective life than objective life I suspect is due to our talking more about humans than about animals, and our considering subjective life more interesting than objective life when it comes to humans. At least that is a possible explanation.

On a more fine-grained level, e.g. that there were 7% more occurrences of use 4 'Living existence by itself' in press 65 than in GSLC, I dare not draw conclusions, since the absolute numbers are so small.

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1In press 65 use 1a 'the living state of an individual' is equally common
7 Discussion and Summary

I set out to investigate the concept of life by traditional arm chair linguistics combined with a simple empirical test. The arm chair part resulted in the following description:

There are two main meanings of liv/leva, biological life (objective life) and experienced existence of biological life (subjective life).

**Objective Life**
The features of objective life are:

- A having soul
- B capability of information transfer (motion, change)
- C reproduction
- D need for (material) provision
- E limited in time

Of these features it seems like only A is clearly necessary, while C - E are common features of life, or part of prototypical life. The status of B is dubious in this respect. On the sufficient side, I understand A, possibly in combination with B (see above), as sufficient, while B is not sufficient in itself.

**Subjective Life**
Subjective life presupposes objective life, and so all features of objective life are part of subjective life, but there are also some additional features:

- F is an environment
- G has content

The simple test was to sort 457 occurrences of the words *liv* and *leva*, taken from three different corpora, into categories based on the feature lists above. Since there were no big difficulties in doing that sorting, the test supports the analysis.

There are two main problems with the analysis, as I see it, and both are connected to soul. I define soul as the source of purpose, but the purpose of plants and simple life-forms is far from obvious. And yet, what is it that makes e.g. a lichen alive?
The other problem is that neither soul nor purpose is well defined. In fact I suspect that purpose in this case means ‘the goal of something which is alive’, which leaves me with a circular definition. And even if it is not, defining life as something with soul is just pushing the problem in front of me - if life is soul, then what is soul?

One possible solution could be to view soul as an axiom. It has been claimed that cause/effect is a concept which is built into our human cognition, and we can neither get rid of it nor do without it. In that case, soul can be seen as derived from this concept - we ‘must’ find a way to stop the cause chain, and our solution is - the soul, the will.

1. What made the vase break? - It fell down from the shelf.
2. What made the vase fall down from the shelf? - The ball hit it.
3. What made the ball hit the vase? - I threw it.
4. What made you throw the ball. - I wanted to.’
References


Nationalencyklopedins ordbok (1996), Språkdata, Göteborg och Bokförlaget Bra Böcker, Höganäs.


Roget’s Thesaurus (1987), ‘Roget’s thessaurus of english words and phrases’.


